

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

UMI[®]

**PROFESSIONALISM IN DENTAL HYGIENE:
AN INVESTIGATION OF KNOWLEDGE OF ORAL CANCER
AND PUBLIC POLICY**

by

Joanne B. Clovis, Dip. D. H., B. Ed., M. Sc.

**Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy**

at

**Dalhousie University
Halifax, Nova Scotia
September 11, 2000**

© Copyright by Joanne B. Clovis, 2000



National Library
of Canada

Acquisitions and
Bibliographic Services

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale
du Canada

Acquisitions et
services bibliographiques

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file *Votre référence*

Our file *Notre référence*

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-57355-9

Canada

DALHOUSIE UNIVERSITY

FACULTY OF GRADUATE STUDIES

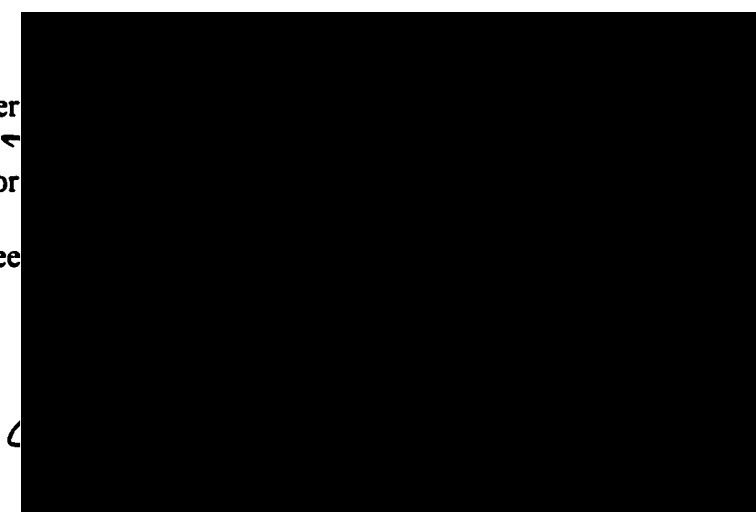
The undersigned hereby certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled "Professionalism in Dental Hygiene in Canada: An Investigation of Practice Knowledge and Public Policy"

by Joanne B. Clovis

in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Dated: August 25, 2000

External Examiner
Research Supervisor
Examining Committee



COPYRIGHT AGREEMENT

DALHOUSIE UNIVERSITY

DATE: September 11, 2000

AUTHOR: Joanne B. Clovis, Dip.D.H., B.Ed., M.Sc.
TITLE: Professionalism in Dental Hygiene: An Investigation
of Knowledge of Oral Cancer and Public Policy
DEPARTMENT OR SCHOOL: Faculty of Graduate Studies
DEGREE: Ph.D. **CONVOCATION:** October 21 **YEAR:** 2000

Permission is herewith granted to Dalhousie University to circulate and to have copied for non-commercial purposes, at its discretion, the above title upon the request of individuals or institutions.



/Signature of Author

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

The author attests that permission has been obtained for the use of any copyrighted material appearing in this thesis (other than brief excerpts requiring only proper acknowledgment in scholarly writing), and that all such use is clearly acknowledged.

DEDICATION

This work is dedicated to my mother

Christina Teierle

who taught me to value education, independence and perseverance

and in memory of my stepfather

John Teierle, Sr.

whose bright mind and gentle compassion were always encouraging

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES	x
ABSTRACT	xi
ACKNOWLEDGEMENTS	xii
CHAPTER I	1
INTRODUCTION	1
The Research Problem	
Dissonance Between Dimensions	1
Theoretical Framework of the Investigation	3
Purpose of the Investigation	5
Significance of the Investigation	7
Scope, Assumptions, and Limitations of the Investigation	9
Scope of the Investigation	9
Assumptions	10
Limitations	11
CHAPTER II	12
REVIEW OF THE LITERATURE	12
Part 1. Dental Hygiene and Dentistry in a System of Professions	13
The Development of Dental Hygiene as a Profession in Canada	13
Profile of Dental Hygiene in Canada	13
Professional Attributes of Dental Hygiene in Canada	15
Theory and intellectual technique.	16
Relevance to social values.	18
Education.	19
Motivation.	21
Autonomy.	21
Commitment.	22
Sense of community.	23
Code of ethics.	24
Phenomena Unexplained by Attribute Theory	25
Professional Work.	25
Professional Dominance.	30
Gender and Power.	32

Limitations of Attribute Theory in Explicating the Status of Dental Hygiene	35
Abbott's Theory Applied to Dental Hygiene.....	37
Dental Hygiene Work	39
Dental Hygiene Jurisdiction.....	42
Dental Hygiene Influence	47
Part 2. The Knowledge Foundation of Dental Hygiene	49
Gaps and Overlaps in Dental Hygiene and Dentistry	50
Empirical Evidence On Oral Cancers	51
The Public Health Priority	52
Etiology of Oral Cancers.....	55
Early Detection of Oral Cancers	60
Prevention of Oral Cancers	63
Assessment of Dentists' and Dental Hygienists' Knowledge, Opinions, and Practices Regarding Oral Cancer	70
Part 3. Current Ideologies and Policy in Health Care and the Regulation of Professions	74
Professional Regulation	75
The Public Interest in Professional Regulation.....	75
Quality Assurance in Professional Service	79
Health System Reform	81
The Paradigm Shift in Health Care	81
Healthy Public Policy.....	83
The Isolation of Oral Health from Health Care	85
Dental Hygiene as a Knowledge Based Profession in a System of Professions	87
CHAPTER III	88
METHODS	88
Design	89
Phase I Survey of Professional Knowledge, Opinions, and Practices	91
Sample Selection	92
Instrument Development.....	94
Validity and Reliability	96
Ethical Considerations	97
Pretest of the Instruments and Cover Information	98
Implementation of the Survey	100

Data Management and Analysis	101
Phase II Exploration of Politicolegal Recognition.....	102
Document Review	103
Interviews	104
Sample Selection	105
Development of the Interview Guide	106
Ethical Considerations	107
Interview Data Collection	108
Data Analysis Procedures	109
Trustworthiness	110
CHAPTER IV	112
RESULTS	112
Phase I Knowledge, Opinions, and Practices of Dental Hygienists and Dentists.....	112
Response and Characteristics of Respondents	113
Knowledge Related to Oral Cancer Risk Factors and Diagnostics.....	114
Overall Knowledge of Risk and Diagnostic Factors.....	115
Comparison of Knowledge of Dentists and Dental Hygienists on Risk and Diagnostic Factors	116
Composite Knowledge of Risk and Diagnostic Factors and Comparisons of Dentists and Dental Hygienists.....	118
Practices of Dentists and Dental Hygienists	119
Oral Cancer Examination Practices of Dentists and Dental Hygienists.....	119
Requirements for Reporting Oral Cancer	121
Dentist Awareness of Oral Cancer Examination Practices of Dental Hygienist Employees	121
Supervision Practices and Opinions.....	121
Initial appointments of New Patients	123
Phase II Determinants of the Politicolegal Recognition of Dental Hygiene...	124
Document Review	124
British Columbia	124
Health Professions Act.....	124
Recommendations on the Designation of Dental Hygiene	126
Dental Hygienists Regulation	127

College of Dental Hygienists of British Columbia, Bylaws.....	128
College of Dental Hygienists of British Columbia, Practice Standards	128
College of Dental Hygienists of British Columbia, Registrant's Handbook	129
Nova Scotia	129
Dental Act	129
Dental Hygienists Regulation	130
Comparative Analysis of Dental Hygiene Regulation in Both Provinces	131
Interviews	133
The Work of Dental Hygienists	135
Question 2	135
Question 3	141
Question 4	143
Question 5	149
Dental Hygiene and Public Needs	150
Question 6	150
Question 7	151
Question 8	155
The Regulation of Dental Hygiene	156
Question 9	156
Question 10 (N.S.)	159
Question 10 (B.C.)	160
Question 11	163
CHAPTER V	166
DISCUSSION	166
Phase I Professional Knowledge, Opinions, and Practices	167
Methodological Rigour	168
Characteristics of the Groups	170
Knowledge of Oral Cancer	171
Opinions and Practices of Dentists and Dental Hygienists	175
Summary of Knowledge, Opinions, and Practices of Dental Hygienists and Dentists Regarding Oral Cancer	178
Phase II Exploration of Politicolegal Recognition.....	179

Document Review	180
Interviews	183
The Work of Dental Hygiene	184
Participant conceptions of health promotion.	190
Educational preparation for the work of dental hygiene.	193
Dental Hygiene and Public Needs	194
The Regulation of Dental Hygiene	199
Summary of Findings Regarding Health Promotion and the Politicolegal Recognition of Dental Hygiene.....	202
CHAPTER VI	206
CONCLUSIONS AND RECOMMENDATIONS	206
Associations Between Knowledge and Politicolegal Recognition	207
Theoretical Explication of the Status of Dental Hygiene in Canada	212
Implications of the Study	217
Recommendations for Future Research	219
Conclusion	222
FIGURES AND TABLES	225
APPENDICES	
A. Survey Instruments for Dental Hygienists and Dentists.	295
A.1. Dental Hygienist Survey Instrument: Oral Cancer Knowledge, Opinions, and Practices	
A.2. Dentist: Survey Instrument: Oral Cancer Knowledge, Opinions, and Practices	
B. Cover Letter for Survey	310
C. Information Page for Survey	311
D. Consent Form for Survey	312
E. Reminder Card for Survey	313
F. Second Reminder Letter for Survey	314
G. List of Documents Reviewed	315
H. Form Letter Requesting Nominees for Interviews	316
I. Form Letter Requesting Interview Participation	317
J. Consent Form for Interviewees	318
K. Interview Guides for Dental Hygienists and Dentists.....	319

K.1. Interview Guide for British Columbia	320
K.2 Interview Guide for Nova Scotia	321
L. Letter Requesting Verification of Transcribed Interviews	322
REFERENCES	323

LIST OF TABLES AND FIGURES

Figure 1. Attributes of dental hygiene in Canada compared with Pavalko's model.....	226
Figure 2. A conceptual model the jurisdiction of dental hygiene in Canada.	227
Figure 3. Age of respondents by province and professional group.....	228
Figure 4. Gender of respondents by province and professional group.....	229
Figure 5. Year of graduation by province and professional group.....	230
Figure 6. Knowledge of oral cancer real risk factors by province and professional group.....	231
Figure 7. Knowledge of oral cancer nonrisk factors by province and professional group.....	232
Figure 8. Knowledge of oral cancer diagnostic factors by province and professional group	233
Figure 9. Indices of knowledge of risks and knowledge of diagnostics by province and professional group.	234
Figure 10. Matrix for Analysis of Interviews	235
Table 1. 1999 Estimated New Cases, Incidence, Deaths and Mortality Rates of Oral Cancers in Canada, British Columbia and Nova Scotia.	236
Table 2. Framework of Methodology.	237
Table 3. Initial Sample Estimates and Final Sample Sizes.	238
Table 4. Identification and characteristics of interview participants.	239
Table 5. Survey Response by Group and Province.....	240
Table 6. Percent of Respondents Who Believe Their Knowledge of Oral Cancer is Current.	241
Table 7. Percent Correct Response to Knowledge of Oral Cancer Items.	242
Table 8. Comparison of Means of Knowledge of Risks and Diagnostics Indices.	245
Table 9. Comparison of Means of Oral Cancer Examination Practices.	246
Table 10. Comparison of Beliefs About the Requirement for Supervision of Dental Hygienists During the Provision of Three Services.....	247
Table 11a. Final Coding Legend for Interview Themes and Categories on the Work of Dental Hygiene (Questions 2-5).	248
Table 11b. Final Coding Legend for Interview Themes and Categories on Dental Hygiene and Public Needs (Questions 6-8).	251
Table 11c. Final Coding Legend for Interview Themes and Categories on Dental Hygiene Regulation (Questions 9, 10).	254

Table 12. Illustrative Quotations on Dental Hygiene Work in Private Practice.	255
Table 13. Illustrative Quotations on Education as a Component of Dental Hygiene Work.	256
Table 14. Illustrative Quotations on Prevention as a Component of Dental Hygiene Work.	257
Table 15. Illustrative Quotations on Therapy or Periotherapy as a Component of Dental Hygiene Work.	258
Table 16. Illustrative Quotations on Communication as a Component of Dental Hygiene Work.	259
Table 17. Illustrative Quotations on the Collaborative Assessment of Patients by Dentists and Dental Hygienists.	260
Table 18. Illustrative Quotations on the Independent Assessment of Patients by Dental Hygienists.	262
Table 19. Illustrative Quotations on Patient Contact by Dental Hygienists at Initial and Recall Appointments.	264
Table 20. Illustrative Quotations on Periodontal Therapy (Secondary Prevention) in Dental Hygiene Practice.	265
Table 21. Illustrative Quotations on the Dental Hygiene Role in Early Detection of Oral Cancer.	266
Table 22. Illustrative Quotations on Dental Hygiene Role in Oral Cancer Risk Reduction Through Education.	268
Table 23. Illustrative Quotations on the Role of the Dental Hygienist in Health Promotion.	269
Table 24. Illustrative Quotations on Advocacy in the Role of the Dental Hygienist in Health Promotion.	270
Table 25. Illustrative Quotations on Acceptability of Current Education for Dental Hygiene Work.	271
Table 26. Illustrative Quotations on Meeting Public Needs by Increasing Access to Dental Hygiene Care.	273
Table 27. Illustrative Quotations on Current Role Change for Dental Hygienists.	274
Table 28. Illustrative Quotations on the Dental Hygiene Profession Organizing the Role Change.	276
Table 29. Illustrative Quotations on the Gatekeeping of the Dentist as a Barrier to Change in Dental Hygiene Role.	277

Table 30. Illustrative Quotations on Differences in the Professional Agendas of Dentists and Dental Hygienists as a Barrier to Change in Dental Hygiene Role.....	279
Table 31. Illustrative Quotations on Professional Legislation, Political Climate and Policy as a Barrier to Change in Dental Hygiene Role.	281
Table 32. Illustrative Quotations on the Need for Dental Hygienists to Promote Identification Personally and Collectively.	282
Table 33. Illustrative Quotations on Supervision Requirements in British Columbia and in Both Public Health and Private Practice in Nova Scotia.	283
Table 34. Illustrative Quotations on Patient Choice Being Restricted by the Legislation in British Columbia and Nova Scotia.....	284
Table 35. Illustrative Quotations on the Level of Supervision in Nova Scotia Being Unnecessary in Inconsistent with Current Practice.	286
Table 36. Illustrative Quotations on the Desirability of the Public Having Direct Access to Dental Hygiene Care.	287
Table 37. Illustrative Quotations on Need for Political Action on the Part of Dental Hygiene to Change Regulation in Nova Scotia.	289
Table 38. Illustrative Quotations on Different Perspectives About the 365-day Regulatory Restriction on Dental Hygiene Practice in British Columbia.....	290
Table 39. Illustrative Quotations on Different Perspectives of Safeguarding the Public Interest in the Practice of Dental Hygiene and Dentistry.	292
Table 40. Determinants of the current politicolegal status of dental hygiene in British Columbia and Nova Scotia.	294

ABSTRACT

Increasing access to dental hygiene care in Canada is consistent with the health system reform goals of increasing access to health care and enhancing disease prevention and health promotion. Consonance between the professional practice of dental hygiene and the public policy which recognizes that status is a rational expectation. This study documented, analyzed and compared two aspects of dental hygiene professionalism: dental hygiene knowledge and its application in practice, and determinants of public policy. The conceptual framework of the study is Abbott's theory of a system of professions which emphasizes the foundation knowledge of professions in their practices and elaborates the relationships of professions with other professions, the public and the state. The framework was used to examine the knowledge and professional practice of dentistry and dental hygiene in a defined area, and the jurisdictional boundaries of the dental hygiene profession.

The first phase of this investigation measured dental hygiene knowledge and its application in practice through a mail survey of dentists and dental hygienists. The topic of prevention and early detection of oral cancers was selected as representative of a significant oral disease and public health problem. Data were collected in two provinces representing different morbidity and mortality rates in oral cancer as well as different policies regulating dental hygiene. The second phase of the investigation explored and described the factors shaping politicolegal recognition of dental hygiene through analysis of policy documents and field interviews with key political and professional figures. The public interest in the benefits and accessibility of preventive services and public perceptions of dental hygiene are also important but were not assessed in this study. The research design, methodology, collective analyses of triangulated data, and interpretive findings reflect an interdisciplinary approach to research and, in particular, the investigation of complex social issues.

The findings revealed that dental hygiene practice is formulated and interpreted by dental hygiene practitioners, dentists, policymakers, and members of the public. Although their practices were different, dental hygienists' knowledge regarding oral cancer was very similar to dentists' knowledge in two provinces, and both dentists and dental hygienists could benefit from additional education in this area. The influence of various determinants on the politicolegal recognition of dental hygiene in the two provinces were inconsistent. Political governing party policies, legislative opportunities, and opportunistic interest group activity were distinct in their influence; the effects of economics and gender were ambiguous.

In this study the application of dental hygiene knowledge in practice is a measure of the strength of the workplace jurisdictional claim; the politicolegal status and determinants describe the legal jurisdictional claim. In the prevention and early detection of oral cancer, dental hygienists have demonstrated patterns of knowledge similar to dentists. The determinants of politicolegal recognition in this study reflect transition and a strengthening of the legal jurisdictional claim of dental hygiene which is expressed as self regulation and a movement towards independent practice. The advancement of dental hygiene in Canada as a primary care profession is confirmed by increasing politicolegal recognition and a developing knowledge and practice base in primary oral health care. This analysis of professional expertise and public policy provides a new perspective on professions in general, and dental hygiene in particular.

ACKNOWLEDGEMENTS

The efforts and encouragement of many advisors, colleagues, family and friends have guided me through the PhD program to the completion of this dissertation. The members of my Advisory Committee have continuously supported my learning through directed readings, the development of the research proposal, and the final form of the document. I am grateful for their collective wisdom and experience, reflected in the interdisciplinary approach to the topic, and for their outstanding individual contributions.

Dr. Dale Poel, my advisor, with patience, calm reflection, and his gift of visualizing concepts, increased enormously my understanding of the science of method and the art of interpretation. At all times, I have been encouraged by his thoughtfulness and dedication to the completion of this work. Dr. Alice Horowitz is an exemplary role model, willing to share her expertise in oral health and research method, and always conscious of the demands on the student. Her leadership in promoting the prevention and early detection of oral cancer was essential in this study. Dr. Thomas Regan introduced me to the theory of Abbott and encouraged exploration of electronically-assisted qualitative data analysis. Dr. Miriam Stewart enhanced my perspective of health promotion, and inspires by her success and perseverance. Dr. Katherine Fierlbeck, by example and interest, introduced me to the power and politics of women in health care. Dr. Ellen Brownstone's research has contributed much to our understanding of the dental hygiene profession. Her findings also provided some important comparisons for this study.

Dr. Michael Cohen has been kindly supportive throughout this work. I am especially grateful for his expert advice in oral pathology, and his validation of survey content.

For her willingness to work overtime and her assistance with manuscript preparation, I extend my thanks to Roberta Emms.

Sincere thanks go to all those dental hygienists and dentists who responded to the survey and to the interview participants who were willing to share their knowledge and perceptions of dental hygiene.

I am also grateful to the Canadian Dental Hygienists Association and the CDHA Endowment Fund of Dentistry Canada for the research grants which helped to support the first phase of this research.

Many others have given me opportunities, set examples, and helped me find my way throughout my career. Dr. John Hargreaves gave me a unique opportunity to begin graduate work and Dr. Marnie Forgay inspired me to continue my studies and to stretch my mind and my career. These mentors, and Drs. Alice and Hershel Horowitz, have also demonstrated their commitment to public health, and have led by their extraordinary examples.

Special thanks go to my family and friends who have supported the seemingly never-ending story of this work. Rodolfo Meloni, *mio compagno e la mia forza del destino*, sees the world through different eyes and helps me to glimpse other perspectives. His care has extended beyond cooking and daily fare to providing much-needed study breaks. My niece, Pamela Hirsch, provided data management support, statistical advice, and frequent doses of loving encouragement. Dr. Joan Walker provided sound advice in presentation and manuscript style and urged me forward at difficult times. Bev Hoyt and Karen Dawson provided much needed social support. To friends, with whom I've been out of touch during many of the past months, my appreciation for their tolerance.

CHAPTER I

INTRODUCTION

The Research Problem: Dissonance Between Dimensions of Dental Hygiene Professionalism in Canada

Increasing access to dental hygiene care is consistent with the health system reform goals of increasing access to health care and enhancing disease prevention and health promotion. Consonance between the professional practice of dental hygiene and the public policy which recognizes that status is a rational expectation. Current information suggests dissonance between these two dimensions of professionalism, dental hygiene's professional expertise and the politicolegal recognition of that status, which serves to constrain public access to dental hygiene service.

Provincial and national dental hygiene professional associations in Canada - commonly referred to as organized dental hygiene - claim professional status for the occupation of dental hygiene and define the dental hygienist as a primary oral health professional (Canadian Dental Hygienists Association [CDHA], 1995a). Indeed, dental hygiene has acquired many of the attributes associated with professions including relevance to current social values, a specialized training period, development of theories of dental hygiene, a strong service orientation with a comprehensive Code of Ethics, long term commitment to the field, increasing autonomy awarded by regulation, and a growing sense of community demonstrated in a national certification process and national practice standards (CDHA, 1995a, 1995b; Health and Welfare Canada [HWC], 1988a, 1988b). Accordingly, dental hygiene's claim to professional status is based on the acquisition of characteristics commonly associated with professions (Freidson, 1970; Goode, 1960; Greenwood, 1957; Millerson, 1964; Pavalko, 1988).

In this contemporary period of health system reform the professional expertise of dental hygiene is synchronous with prevailing health care ideology, in particular, the increasing emphasis on health promotion and illness/injury prevention. Since dental

hygiene was first legally recognized as a health occupation in the United States in 1907, it has focused on the prevention of oral diseases (HWC, 1988a). The term dental hygienist was intentionally adopted by Dr. Alfred Fones to mean "one who is versed in the science of health and prevention of disease"; the term dental nurse was avoided because of its association with disease (Motley, 1986 cited in HWC, 1988a, p. 17). Throughout its history the knowledge base and practice of dental hygiene have been distinct, and fundamentally based on the prevention of oral diseases and the promotion of oral health. Other dental occupations - dental assistant, dental technician, dental therapist, denturist - also have unique functions, education, employment characteristics and regulation (Health Canada, 1995). By comparison, the professional role of the dentist is regulated to encompass all aspects of the diagnosis, prevention and treatment of all oral diseases.

Much of the development of the profession of dental hygiene since 1960 was guided by the process of education and the activity of the professional associations representing dental hygiene. Accreditation requirements for all dental hygiene education programs and a national certification examination help assure a minimal standard for entry to practice (Commission on Dental Accreditation of Canada, 1992; National Dental Hygiene Certification Board, 1996). Graduation from an accredited dental hygiene program is required as a basic criterion for licensure in all provinces (CDHA Council on Access and Advocacy, 1998). In contrast, the jurisdiction of dental hygiene work and the actual practice of dental hygiene is largely proscribed by the dentist-employer group.

By regulation, dental hygiene shares with dentistry the right to perform the oral health care aimed at preventing oral diseases and promoting oral health. The requirement that dental hygiene work be supervised by a dentist persists in most provinces and demonstrates the influence of organized dentistry in the control of the occupation of dental hygiene (CDHA Council on Access and Advocacy, 1998). In this context, access to dental hygiene care is essentially limited to the public who present to the dentist for oral health care. The pivotal health system reform issue of access to health care is clearly

evident in the case of dental hygiene. The politicolegal recognition of dental hygiene appears incongruent with the professional expertise of dental hygiene and is a determinant of restricted public access to dental hygiene services.

Theoretical Framework of the Investigation

A theoretical framework of professional work and its position in society relative to other professions must provide insights about dental hygiene and the environment in which dental hygiene has evolved, exists now, and continues to change. Abbott's (1988) theory of a system of professions as a division of expert labour with jurisdictional boundaries perpetually in dispute informs research about the evolution and nature of professions. Abbott prefers "the very loose definition that professions are exclusive occupational groups applying somewhat abstract knowledge to particular cases" (1988, p. 8) to the more elaborate definitions offered by many other theorists and authors. The central thesis of Abbott's theory is the concept of jurisdiction defined as "the link between a profession and its work" (Abbott, 1988, p. 20). The actual development of professions is tied to both the content of professional activity and relationships with other professions.

Consistent with Abbott's description of professional work, dental hygiene is an application of expert knowledge in human service within a system of social forces, politics and technology. The professional work of dental hygiene is a well-defined set of interventions related to the prevention of oral diseases and the promotion of oral health. A system of knowledge formalizes the skills on which the work proceeds (Commission on Dental Accreditation of Canada, 1992; National Dental Hygiene Certification Board, 1996). In Abbott's framework the professional actions of classifying a problem, reasoning about it, and taking action on it are labelled diagnosis, inference, and treatment. Dental hygiene knowledge and application in practice can be viewed from the perspectives of the foundation knowledge required to practice and the professional actions of diagnosis, inference and treatment.

The classification of dental hygiene problems, reasoning about dental hygiene problems, and action to prevent or control dental hygiene problems are the cognitive structure of dental hygiene's jurisdictional claim. Dentistry maintains regulatory control by claiming that dental hygiene work is not distinct from dentistry work and that diagnosis, inference and treatment are legitimately performed only by the dentist who may delegate some tasks to dental hygienists. Dental hygiene knowledge and its application are not expected to differ from dentist knowledge and its application since dental hygiene work is encompassed within the legal jurisdiction of the dentist. In practice, however, the work of dental hygiene is a reasonably well defined set of skills and services which has been delegated by dentists to permit them to focus on other aspects of oral health and diseases.

The area of prevention is described by Abbott as being a milder form of an extreme version of a professional problem and the work which is undertaken to resolve the problem. In this case, the problem is oral disease, and the jurisdiction of diagnosis and treatment of the extreme versions of oral disease falls within the scope of dentistry. Dental hygiene is delegated the milder forms of solving the problem of oral disease including prevention and health promotion. Abbott posits the arguments to gain control of the area of prevention are typically a response to external threats to a profession's jurisdiction. An example from the late nineteenth century is the movement of psychiatry out of institutions to find and treat acute cases of psychoses in order to prevent deterioration into the chronic psychoses which were clearly less responsive to treatment. This movement provided psychiatry with an escape from the domination of the institutions for those afflicted with psychoses. Similarly, accountants are said to have recommended annual external audits of corporations, particularly those whose financial interests were traded on stock exchanges, as a means of preventing stock corruptions. The shift to prevention changed the market for accountants from periodic in some corporations to annually in all corporations. Professions whose jurisdictions are

sufficient in their own status to be considered professional and those which are not threatened by outside influences do not invoke prevention arguments or use the ability to prevent a problem to add to their professional jurisdiction. In the case of dental hygiene, its very existence is credited to the delegation by dentistry in the early 1900s of those areas of treatment typically defined as preventive and intended to prevent deterioration of a problem into a more chronic problem which requires reparative treatment. The overlap of prevention services has existed since dental hygiene became a separate occupational entity (HWC, 1988a; Motley, 1986).

Although dental hygiene claims professional status, the jurisdiction of dental hygiene remains in question. The legal requirement for certainty leads to arbitrary boundaries for professional jurisdictions. The pursuit by dental hygiene of less restrictive regulation is a clear request for social sanctioning, and the request for independent practice is a petition for formal recognition of exclusive rights (Alberta Dental Hygienists Association [ADHA], 1996; CDHA Council on Access and Advocacy, 1998; College of Dental Hygienists of Ontario [CDHO], 1995). Although several possible settlements for jurisdictional disputes are suggested by Abbott (1988), historically dentistry acquired a full and final jurisdictional settlement permitting complete independence from medicine while dental hygiene has had an unstable limited settlement with dentistry with regulatory variation by province or state.

Purpose of the Investigation

The terms problem, purpose, and hypothesis are used in this thesis as described in the lexicon of Locke, Spirduso, and Silverman (1993). The problem addressed in this investigation is the apparent discrepancy between the professional status claimed by dental hygienists and the politicolegal recognition of the occupational status of dental hygiene. The purpose of this investigation is to determine the extent of consonance of two aspects of dental hygiene professionalism within the conceptual framework of practice and politicolegal descriptions of professions by Abbott (1988).

In this investigation, dental hygiene professionalism is defined as the state of institutionalized expertise, meaningfulness in work, systematized beliefs, and occupational control and solidarity that is unique to dental hygiene (Abbott, 1988; Starr, 1982). The construct of dental hygiene professionalism is examined from two perspectives: dental hygiene knowledge and its application in practice, and politicolegal recognition of dental hygiene practice. Dental hygiene knowledge and its application in practice is operationalized through the measurement of dental hygiene knowledge, opinions, and practices with regard to the prevention and early detection of oral cancers, a public health problem with significant burden of suffering. Politicolegal recognition of dental hygiene is operationalized through the description and analysis of the political, legal, economic, and organizational characteristics of dental hygiene, dentistry, and government which shape public policy with regard to dental hygiene.

Two aspects of dental hygiene professionalism were examined in two phases in this investigation. The first phase was a quantitative measurement of dental hygiene knowledge and its application in practice to test the following hypotheses. H1) There are no differences between dentists and dental hygienists in their knowledge, opinions, and practices in the prevention and early detection of oral cancers. H2) There are no differences across provinces with different dental hygienist regulatory requirements between dentists and dental hygienists in their knowledge, opinions, and practices in the prevention and early detection of oral cancers. The more recently advocated professional expertise related to health promotion and the factors shaping politicolegal recognition of dental hygiene were explored in a qualitative investigation. This second phase was guided by three research questions. R1) What are the dominant views of political leaders in dentistry, dental hygiene, and government regarding health promotion and its relationship to oral health, dentistry and dental hygiene? R2) To what extent is the politicolegal recognition of dental hygiene shaped by the political, legal, economic, and organizational characteristics of dental hygiene, dentistry, and government? R3) To

what extent is the regulatory requirement for dentist supervision a perceived barrier to public access to dental hygiene?

Significance of the Investigation

This investigation contributes to the description and analysis of the current and potential contribution of dental hygiene to the social goals of access to health care with emphasis on disease prevention and health promotion. A broad range of historical, social, educational, political, legal, economic and health care conditions shape the contribution of dental hygiene. Two of the most essential aspects of dental hygiene professionalism are explicated: knowledge and its application in dental hygiene practice, and the public policy controlling that practice.

The objectives of both the Canadian Dental Association and the Canadian Dental Hygienists Association are to contribute to the health of the Canadian public (Canadian Dental Association [CDA], 1996; CDHA Council on Access and Advocacy, 1998). The interests of the public and the dental and dental hygiene professions are best maintained by competent practitioners accessing and utilizing current research to make competent diagnostic and treatment decisions in their practices. This study will contribute to the development of the knowledge base regarding dental hygienist and dentist knowledge, opinions, and practices in the prevention and early detection of oral cancers. The results will provide direction for appropriate interventions by educators, researchers, and practitioners' continuing education and the use of scientific evidence.

The exploration of professional practice in health promotion and the impact of politicolegal factors shaping public policy on dental hygiene practice contributes to future research. Health promotion extends beyond the lifestyle and health behaviour of individuals to the social, economic, and physical environment. In this conceptualization, health is a multilevel, multidimensional concept which "typically involves subjective and objective components, includes both humanistic and statistical aspects, and has individual as well as environmental and policy components" (Rootman & Raeburn, 1994, p. 68).

Key themes in Canadian health promotion documents are accessibility, multisectoral collaboration, and public participation (Stewart & Langille, 1995). Health promotion efforts have increasingly moved from the individual to the population and to the social and physical environment in Canada (Pederson, O'Neill & Rootman, 1994). In the context of oral health and oral health practitioners, conceptual and methodological issues in health promotion are not well explored (Reisine & Locker, 1995).

Factors shaping the public policy which defines the legal practice of dental hygiene are generally neglected in dental hygiene literature. The public policy regulating dental and dental hygiene practice is formulated and interpreted by practitioners, policymakers, and members of the public. The preliminary identification of specific factors could inform future research. The analysis of congruency between professional expertise and public policy could provide a new perspective on professions in general, and dental hygiene in particular.

This research is consistent with the goal of the CDHA for all dental hygienists to voluntarily adopt the Practice Standards for Dental Hygienists in Canada (CDHA, 1995b). Moreover, this research is a measure of two standards within Criterion 6: Practising Professionally (1) Standard 6.1 "adhering to provincial or territorial dental hygiene licensing and other pertinent regulations/codes, and (2) Standard 6.5 "accessing and utilizing current research based knowledge through analyzing and interpreting the literature and other resources" (CDHA, 1995b, p. 12). Several provinces which sanction self-regulation have designed their own standards largely based on the CDHA set. To date, comparable practice standards for dentists have not been defined by the Canadian Dental Association, although provincial initiatives are underway in Ontario as a result of the regulatory demand for clinical guidelines or standards of practice for dentists (Leake, Main & Woodward, 1996).

Scope, Assumptions, and Limitations of the Investigation

Scope of the Investigation

The scope of this investigation is defined by the parameters of the research hypotheses and questions which intersect several disciplines and fields of study including oral health and disease, health care, public policy, sociology, and political science. Although questions of social importance have traditionally been investigated through the intellectual rigour of single disciplines, the benefits of interdisciplinary collaboration in more recent decades have resulted in a transformation of many traditional disciplines into new composite fields of investigation and reflection. The diverse nature of the questions in this study requires a research design which spans paradigms of investigation to include the different data collection methodologies noted briefly here and more fully described in CHAPTER III.

In this study the intentional focus of the investigation was limited to two domains of dental hygiene professional life - professional knowledge and public policy. Aspects of a third domain described in Abbott's conceptual framework, the arena of public opinion and recognition, were incidentally included. The relationship of the public domain with the other two domains of professional knowledge and the politicolegal recognition of that work were not intentionally examined.

In this investigation, knowledge represents the empirical basis for appropriate decision-making in the professional logic of diagnosis, inference, and treatment according to Abbott (1988). Scientific evidence regarding appropriate diagnosis and treatment is reviewed and supported or rejected by experts in the field. The knowledge required for professional practice is an interpretive application of the scientific evidence. A survey of dental hygienist and dentist knowledge, opinions, and practices regarding the prevention and early detection of oral cancers was conducted as a measure of the knowledge that is applied in the diagnosis, prevention, and treatment of those diseases. A measure of

inference, the reasoning about the diagnosis which influences treatment decisions, is more appropriately investigated through analyses of practitioners and their cases.

There are, at present, no quantitative measures of the politicolegal recognition of dental hygiene professional status, and little information is available. The qualitative methodologies of document analysis and field interviews were therefore used to explore and describe the politicolegal aspect of professionalism.

Assumptions

Two notable assumptions are acknowledged from the outset of this investigation. First, the researcher has more than 33 years experience in dental hygiene practice, education, and research. The potential for researcher bias was mitigated by the interdisciplinary nature of both the research and the PhD Committee. The Committee consisted of researchers experienced in the disciplines of sociology, political science, public administration and nursing, and in the fields of oral health, public health, health promotion, and health policy. The nature of interdisciplinary inquiry is to research problems which cross traditional discipline boundaries and which may not be addressed within traditional or historically defined disciplines. The distinct interests and disciplines represented by the Committee promoted objectivity and a comprehensive examination of relevant factors. The researcher's insight and knowledge of the profession were, on the other hand, vital in the research design, the construction of the data collection instruments, and the analysis and interpretation of the results.

The second assumption was that the requisite cooperation would be given by individual dentist and dental hygienist practitioners and the professional associations, registrars, and colleges for both dentists and dental hygienists in the jurisdictions selected for investigation. The achievement of a high degree of collaboration enhances the interpretation, credibility, and durability of the results and analysis.

Less apparent but critical are several assumptions about the nature and current status of dental hygiene in Canada. First, dental hygiene in Canada is in a state of

transition. Although there is general agreement among the provincial and national professional associations regarding professional development and some initiatives to promote professional development, there are varying regulatory structures, provincial priorities, and personal perspectives (Brownstone, 1999). Second, there is a pervasive belief among dental hygienists in the attribute theory of professions with attendant expectations that acquisition of certain attributes will lead to the acceptance and recognition of dental hygiene as a full profession. On the surface, much progress has been demonstrated in the acquisition of attributes. The challenges to further development and recognition are also apparent and are better explained through other conceptual and theoretical models such as Abbott's (Clovis, 1999). Third, that dental hygienists want to achieve a greater level of recognition from employers, policymakers, and the public, particularly politicolegal recognition, is based on a number of initiatives across Canada (Alberta Dental Hygienists Association [ADHA], 1996; CDHA Council on Access and Advocacy, 1998; Ontario Dental Hygienists Association, 1996).

Limitations

Acknowledged limitations of this study are related to the inherent constraints of selected methodologies. Although all survey items were based on current scientific evidence and validated by experts in the field, questions related to practice actually performed by practitioners are vulnerable to the limitations of self-reported information. Similarly, although most interview participants were nominated by their professions and other key informants were carefully selected, some self selection may have occurred. Overall, these concerns are addressed more fully in the discussion of validity and reliability in methodological considerations and results.

CHAPTER II

REVIEW OF THE LITERATURE

The literature reviewed in this chapter includes the background to the research problem and the theoretical framework, the knowledge base for dental hygiene and dentistry in oral cancer prevention and health promotion, and the relationship of dental hygiene and dentistry to current ideologies in professional regulation and health care. The relevant literature is a distillation of many subjects and disciplinary publications, illustrative of the deliberate endeavor to actualize interdisciplinary investigation. The literature on the measurement of knowledge, opinions and practices of dental hygienists and dentists regarding the prevention and early detection of oral cancers identifies relevant research in the area of oral cancers and gaps in the previous research and understanding. It also reviews germane theoretical and conceptual frameworks with explication of the framework selected in this investigation, and characterizes the variable of knowledge in the context of this investigation. The literature reviewed here also provides the context for the research questions related to health promotion and the politicolegal parameters to be described in the study. The distinctions and linkages between quantitative and qualitative research paradigms are discussed more fully in CHAPTER III, METHODS.

In this review the emphasis on Canadian literature is intentional, with inclusions of other sources, primarily American, where relevant Canadian literature is not available or essential. Part 1 locates dental hygiene and dentistry in a system of professions. The key components of this section are an overview of the professional development in Canadian dental hygiene and the utility of theories of professions in explaining that development; Abbott's theory as a new approach to mapping professional jurisdictions, in particular, dental hygiene and dentistry; and knowledge as the foundation of a profession. Part 2 establishes the knowledge base for dental hygiene in disease prevention and health promotion by summarizing the nature of dental hygiene work and the knowledge bases

that guide both dental hygiene and dentistry practice in these areas. The knowledge foundations for the prevention and early detection of oral cancers are reviewed as an area of practice common to both dental hygienists and dentists. Part 3 examines the impact on dental hygiene and dentistry of the prevailing social, political, and economic trends transforming Canadian public policy in health care and professional regulation. Collectively the three parts establish the basis for the linkages among dental hygiene, dentistry, current public policy and the research problem. The intent of this investigation was to investigate and compare two aspects of dental hygiene professionalism in Canada: dental hygiene knowledge and public policy regarding dental hygiene practice.

Part 1. Dental Hygiene and Dentistry in a System of Professions

The Development of Dental Hygiene as a Profession in Canada

This section demonstrates that dental hygiene in Canada is a growing and professionally active occupation which is challenged in its growth and independence primarily by dentistry. Dental hygiene has acquired many of the characteristics attributed to professions (HWC, 1988a, 1988b) but has not achieved public recognition (Smith, 1991) or politicolegal recognition (CDHA Council on Access and Advocacy [CDHA CA&A], 1998). The movement towards professional status is only partially explained by traditional theories of professions. Abbott's (1988) theory of a system of professions accounts more fully for the ongoing struggle of dental hygiene to attain recognition as a profession, and frames the concepts of knowledge and jurisdiction as essential to professional stability.

Profile of Dental Hygiene in Canada

The profile of dental hygiene in Canada illustrates a young, growing, and evolving occupational group. Although it has existed in the United States since 1907, dental hygiene was first legally recognized as a health occupation in Canada in 1947 in response to a demand for dental hygienists in the public health sector (HWC, 1988a). From its earliest beginnings the primary role of the dental hygienist has consistently been

the prevention of oral disease (HWC, 1988a). Dental hygiene has grown to over 14,000 health care providers; 98 percent are female and 85 percent are employed by dentists in the private sector (CDHA, 1999; Health Canada, 1995; Johnson, 1988, 1989). The Canadian Dental Hygienists Association was officially constituted in 1965 with four initial provincial constituent associations (HWC, 1988a) and all provinces currently represented. The most rapid and extensive modification in dental hygiene is the recent regulatory change to self-regulation in the five largest provinces (CDHA, 1999; CDHA CA&A, 1998). The contribution of this large and organized workforce to health care in Canada is considerable from any perspective of occupation or profession.

In its focus on clinical services and oral health education, dental hygiene practice in Canada is consistent with dental hygiene worldwide (Johnson, 1988, 1989, 1992). In addition to clinical services and oral health education, dental hygienists also function in case-finding and a broad range of preventive and therapeutic interventions such as screening for head and neck abnormalities, periodontal diseases, dental caries, and oral cancers; myofunctional therapy; and, counselling for expectant parents and patients who require dietary information or smoking-cessation programs (Cormier & Lavelle, 1995; Goulding, 1993; HWC, 1988a; Kassirer & Lessio, 1994; Kinnear & Forgay, 1991). In public health, dental hygienists promote fluoridation of public water supplies; develop educational programs for special groups such as new immigrants and seniors; provide in-service training for teachers and other health and social service providers; and, deliver direct services such as denture identification for the elderly and mouthguard fabrication for use by persons in sports activities (Contreras, 1995; HWC, 1988a; Thompson & Borowko, 1994). The role of dental hygiene in preventing and treating family violence is a more recent addition to the dental hygiene scope of practice (Wilson, 1993), and dental hygienists have participated in the development of guidelines, handbooks, and an annotated bibliography designed for use by dental professionals (Elliott-Wellwood, 1989; Simpson & Amer, 1995). Although the occupation of dental hygiene is grounded in

primary health care the professional role defined by the national association encompasses the five responsibilities of clinical therapy, health promotion, education, administration, and research (CDHA, 1995a).

References to attributes of professions associated with dental hygiene are prevalent in dental hygiene literature (CDHA, 1992a, 1992b, 1995a, 1995b; Darby, 1982; Darby & Walsh, 1994; HWC, 1988a, 1988b; Lauter, 1993, 1995, 1996a, 1996b). Organized dental hygiene - the national, provincial and territorial dental hygiene associations - have facilitated many of the initiatives promoting the development of dental hygiene as a profession and has positioned dental hygiene as an interest group in the public forum. The ideals of professionalism embodied in the attributes of expert knowledge and technical skills, service orientation, autonomy, and quality assurance mechanisms in education and practice are expressed, developed, and nurtured within dental hygiene (CDHA, 1998a, 1998b, 1997b, 1995a, 1995b, 1992a, 1992b; D. Gallagher, July 1998, personal communication; HWC, 1988a; Sunell, 1993).

Professional Attributes of Dental Hygiene in Canada

Dental hygiene exhibits many of the traits common to professions and identified in the attribute theory of professions: the use of systematic theory, demonstration of authority, community sanction, ethical codes of behaviour, group culture, specialized education, formal examination, professional organization, and service orientation (Freidson, 1970, 1971; Goode, 1960; Greenwood, 1957; Millerson, 1964; Willis, 1983; Witz, 1992). The acquisition of these attributes is assumed to confer professional status. The hallmarks of modern professions which arose at the beginning of this century - professional autonomy and scientific expertise (Larson, 1977) - are also demonstrated by dental hygiene but are limited in their manifestation, implying a less than fully developed profession. The concept of professionalization is used to refer to the series of developmental stages by which an organized occupation claims esoteric competence and obtains the exclusive right to perform a particular kind of work, to control training for it,

and to control the way in which the work is performed (Abbott, 1988; Freidson, 1971; Pavalko, 1988). The endpoint of the process of professionalization is professionalism, which is described as a state of systematized beliefs, meaningfulness in work, and occupational control and solidarity (Starr, 1982).

Most of the professional attributes that Canadian dental hygiene has acquired were developed from within the profession and demonstrate stages of professionalization. The eight attributes or dimensions of profession as summarized by Pavalko (1988) capture the attributes identified by many other theorists and place them in a profession-nonprofession continuum to illustrate movement towards increasing professionalism. The absence of a characteristic signifies a nonprofession while its presence in the extreme degree signifies a highly professionalized profession, such as medicine. The following comparison of Canadian dental hygiene with these dimensions demonstrates the current state of achievement of dental hygiene in acquiring these traits and in moving towards the status of profession.

Theory and intellectual technique.

On the dimension of theory and intellectual technique dental hygiene demonstrates both the application of borrowed theory and intraprofessional theoretical development implied in the definition of dental hygiene as a "health service discipline involving both theory and practice..." (CDHA, 1995a, p. 1). Dental hygiene technical skills with supportive cognitive and affective development are well defined in basic texts and draw on many theories for education, practice, research and professional development (Darby & Walsh, 1994; Wilkins, 1994; Woodall, 1993). The paradigm (also referred to as metaparadigm in the literature) of dental hygiene is the widely accepted view that provides direction for practice, education, and research (Darby & Walsh, 1994b) and includes four concepts: client, environment, health and oral health, and dental hygiene actions (American Dental Hygienists Association, 1993). Two conceptual models proposed for dental hygiene are the Human Needs conceptual model

of Darby & Walsh (1994), with contributions by Canadian authors (MacDonald, 1994; Pimlott, 1994), and the Oral Health-Related Quality of Life conceptual model (Bray, Gadbury-Amyot & Williams, 1997). Indicators of activity and success in research are reflected in the increasing scientific content of the Canadian Dental Hygienists Association Journal Probe, a peer reviewed journal with the recent addition of scientific material dedicated to dental hygiene research (CDHA, 1998b). Additional indicators are citations referring to dental hygiene in non-dental hygiene periodicals; and organizations, conferences, and research awards supporting and promoting research in dental hygiene by dental hygienists with graduate degrees or in advanced education programs (CDHA, 1993, 1998b; HWC, 1988a). In the United States, a federally funded national center for dental hygiene research is responsible for developing a national dental hygiene research agenda and coordinating collaborative dental hygiene research (CDHA, 1994). While this level and magnitude of funding is not likely in Canada, the CDHA periodically hosts research conferences (CDHA, 1993).

In spite of these many advancements the quality and quantity of research generated by dental hygienists is barely advancing knowledge development. Of the literally hundreds of posters and papers presented at Canadian dental hygiene conferences and meetings in the past decade relatively few seem to achieve publication in peer reviewed journals, perhaps because the authors are practicing dental hygienists who may not have sufficient time or motivation to prepare completed manuscripts. Only five of the twenty-seven education programs in Canada are university-based, and three of those five only prepare dental hygienists at the diploma level (Commission on Dental Accreditation in Canada, personal communication, January 14, 1999). Two university programs offer baccalaureate degree completion in dental hygiene for graduates of diploma programs. There are no Canadian graduate programs for dental hygiene. The number of dental hygienists who are actually in work positions to which time and resources may be allocated for theory and research development is so minimal that knowledge production

and dissemination in Canadian dental hygiene is virtually accomplished by extraordinary effort on the part of relatively few committed individuals. The refereed journal, research conferences and financial support for research, contributions to published theory, and the evolution of skilled academicians, are all indicators of progress in the dimension of theory and intellectual technique.

Relevance to social values.

On the dimension of relevance to social values dental hygiene is synchronous with contemporary cultural values which include not only science and technology but also promotion of the quality of life (Epp, 1986; Fulton, 1993). There is widespread agreement in dental hygiene that "the purpose of dental hygiene is to promote and maintain oral wellness and, thereby, contribute to the quality of life" (Darby & Walsh, 1994, p. 3). To that end, the first two priorities identified in the United States for dental hygiene research are "to promote oral health, oral wellness, and self-care among all age, social, and cultural groups" and to "minimize or prevent behaviourally and environmentally induced oral health problems that compromise the quality of life" (Kraemer, 1994, p.1123). The current Canadian definition of dental hygiene states that the aim of dental hygiene practice is "to achieve and maintain optimal oral health as an integral part of well-being" (CDHA, 1996a, p. 1). Conceptually this aim is compatible with predominant health promotion frameworks and practice (Epp, 1986) and, based on epidemiological trends, the need for dental hygienists in Canada is predicted to increase (Lewis, 1989). The reality of dental hygiene practice, however, is remarkably different from publicly funded health services. Since nearly all oral health services are privately financed through first or third party payment, the demand for dental hygiene services is highly influenced by individual client choice and payment options. The conceptual congruence of dental hygiene with quality of life philosophy, and the stable and increasing demand for services are indicators of relevance to social values.

Education.

The amount of training or education, the extent to which it is specialized, the degree to which it is symbolic and ideational, and the content of what is learned are the components of the third attribute. The inference regarding amount, is that the greater the education required the more professional the occupation. For all professions, the issue of amount of education is how much is essential and how much is contrived. Although Canadian dental hygiene education programs were initially established in universities the majority are now in community colleges (HWC, 1988a). At present, the requirement for dental hygiene practice in all provinces is the diploma. Only five dental hygiene education programs in Canada are university-based and only two are baccalaureate programs. The need for baccalaureate programs was identified as early as 1968, and all university programs have periodically submitted proposals for baccalaureate programs (HWC, 1988a). Without university-based programs there are few opportunities for research in dental hygiene and related interdisciplinary education and practice. Without acknowledged university-based education requirements public recognition is also less likely to increase or to advance dental hygiene as a profession.

Baccalaureate proposals have been approved by three university governance bodies but the host faculties - faculties of dentistry - have not provided additional funding or diverted funding from other sources. In the interim, diploma programs have demonstrated a trend towards increasing preadmission requirements and to adding curriculum requirements within the diploma program. Increased curricular content prerequisite to or within the diploma are attempts to include the increasing science and practice content required for beginning practitioners within the constraints of a diploma program. At least one university-based diploma program demonstrated that its total requirements were nearly equivalent to other recognized university professional baccalaureate degrees (J. Pimlott, personal communication, April, 1994). After nearly 30 years of negotiations and several failed proposals, the University of Alberta

announced that it would begin a baccalaureate program in dental hygiene in September, 2000 (Alberta Dental Hygienists Association, 2000).

The degree of specialization in dental hygiene is increasing and is directly related to the function of dental hygiene as the only health occupation dedicated to the prevention of oral disease (HWC, 1988a). Traditional clinical skills are unique to dental hygiene and the more recent definition encompasses five primary responsibilities including clinical therapy, health promotion, education, administration, and research (CDHA, 1995a). Each of these requires educational preparation related to the prevention of oral disease and the promotion of oral health. All diploma programs are accredited by the Commission on Dental Accreditation of Canada [CDAC] (1992). The development of new educational standards has been initiated by CDHA (CDHA, 1998a; Sunell, 1993). Specialization in primary roles has broadened from the traditional practice settings in private practice, community health, education, and research (HWC, 1988a) to include the recent regulatory positions of registrar and executive director of colleges or professional associations (CDHA, 1996a, 1996b).

The extent to which dental hygiene is ideational is the degree to which there is emphasis on the concepts, principles, and ideas of the field. Most dental hygiene programs now include reference to the accepted model of practice (HWC, 1988a), as well as ethical models. Progress towards more theory development is functionally limited by the duration of current diploma-level programs which are required to focus on the clinical skills for entry level practice, and by the insufficient numbers of dental hygienists involved in research. The content of dental hygiene education also involves the learning of a distinct set of values, norms, and beliefs peculiar to dental hygiene; for both students and graduates there is some degree of formal and informal socialization (Brownstone, 1999; HWC, 1988a).

Motivation.

The degree to which an occupation emphasizes the ideal of service as a primary objective is the measure of motivation, a fourth dimension or attribute. The service orientation implies a belief that the professional places the client's interest uppermost in their professional relationship. Motivation by self-interest and desire for monetary gains are ostensibly illustrated only at the nonprofessional end of the continuum. The service ideal is promoted throughout dental hygiene education and must be demonstrated in patient care to meet national accreditation standards (CDAC, 1992). Dental hygiene professional associations also promote service in the definition and role of the dental hygienist, and in practice standards (CDHA, 1995a, 1995b). The Management of Dental Hygiene Care position statement by CDHA (1992a) incorporates the principle of increasing public access to oral health care, a further indication of public interest. Dental hygienists, however, have not experienced the ultimate test of their own monetary self-interest as service providers since over eighty-five percent (85%) are employed by dentists in private practice (Johnson, 1988) and regulation in most jurisdictions still precludes independent practice .

Autonomy.

The dimension of autonomy is notably an area where dental hygiene has made significant gains in the past decade. The collective expression of autonomy is through self-regulation which implies independence and permits the profession to certify and license its members. Self-regulation is based on the principle that the specialized competence of the professional makes it appropriate for only those with similar education to judge the quality of the professional's work. Professions successful in achieving a high degree of autonomy are able to establish a monopoly over the right to perform particular work, the conditions of the work, and the education required for certification to work. In nearly all dental hygiene education programs students write the national examination for certification. In five provinces dental hygiene has been successful in establishing

national certification as the requirement for licensure (Gallagher, 1998). Practice standards which may be used by individuals and regulatory bodies as a means of assessing current practice are also established (CDHA, 1995b; HWC, 1988b). The recent rapid movement toward self-regulation has increased to 90 percent the number of Canadian dental hygienists now self-regulating. Quebec conferred self-regulation to dental hygienists in 1975 (HWC, 1988a) and four other provinces - Alberta, British Columbia, Ontario, and Saskatchewan - have followed in the past five years (CDHA CA&A, 1998; C.D.H.A., 1997a).

The persistence of supervision requirements under self-regulation for dental hygiene is inconsistent with other health professions, such as nursing, occupational therapy, and physiotherapy, and with the clinical and educational requirements of dental hygienists for licensure even a decade ago (HWC, 1988a; Johnson, 1982). The interpretation is least restrictive in British Columbia where the requirement for supervision is that "the client has been examined within the previous 365 days or within such shorter time as is necessary or appropriate in accordance with good dental hygiene practice or good dental practice" (Province of British Columbia, 1994). This requirement is not consistent with the generally accepted notion of independence and the right to practice without requisite referral from or to other professionals. The rigid requirement for supervision has not applied historically to dental hygienists who work in public health since most provincial regulations have officially excepted "crown" programs from the supervision requirements imposed for the private sector (HWC, 1988a).

Commitment.

A sense of commitment to the occupation assumes a long-term or lifelong commitment. Although recent data are not available on the dropout rate from dental hygiene, the 1987 national census survey of Canadian dental hygienists established the workplaces and hours of work. At that time the majority of dental hygienists worked in a single location and 60 percent worked an average of 30 hours or more per week (Johnson,

1989). The vast majority of dental hygienists are engaged in full-time practice, and most continue to work throughout life except for maternity and child-rearing leaves. The sense of commitment also can be detected in the increased participation in professional associations. The establishment of regulatory bodies independent of professional associations has increased the demand for voluntary dental hygiene participation which may impose an additional burden on a fledgling profession.

Sense of community.

The sense of community incorporates the notion of common identity and common destiny and is embodied in the concept of a social entity. The professional community develops role definitions, establishes a common language, exercises control over its members, controls the recruitment and selection of future members, and socializes successful applicants through the education process. In dental hygiene the accreditation standards sanction much of the education process in Canada including both formal and informal learning and activity to socialize students and to pass on the values and norms of dental hygiene (CDAC, 1992). The professional associations are central to the development of a sense of community. The Canadian Dental Hygienists Association has taken an active leadership role in professional development since it was constituted in 1965. CDHA has developed a role definition based on a model of practice (CDHA, 1995a; HWC, 1988a), and revised earlier standards of practice by acknowledging and incorporating the broader scope of the dental hygienist (CDHA, 1995b; HWC, 1988b). Provincial and territorial associations are also actively constructing and revising the rules, codes, and guidelines for membership. The recruitment and admission of applicants to education programs is largely influenced by provincial requirements for licensure and educational standards. Newly appointed self-regulating bodies are only beginning to assess their roles in this regard. The continuing presence of representatives of organized dentistry on dental hygiene curriculum committees or education advisory boards is testimony to their ongoing influence and is a source of concern for dental hygiene

educators. A qualitative investigation of the culture of dental hygiene in Canada has made a meaningful contribution to the understanding of the attribute of sense of community by revealing the following:

. . . the perceptions of dental hygienists with respect to the historical development of the occupation of dental hygiene, self-identity, public image, cultural aspects and the changing nature of dental hygiene, educational practices, relationships between dental hygienists and dentists, and the dimensions of dental hygiene's professional project. (Brownstone, 1999, p. vi,vii)

Code of ethics.

The final attribute of professions is a code of ethics which may cover a wide range of work issues and relationships with clients and other occupations to reinforce the service ideal and the occupation's claim to autonomy. Again, the implication exists that a more elaborate code of ethics indicates a more professional occupation. The Canadian Dental Hygienists Association has had a Code of Ethics since it was first constituted in 1965. It was revised in 1992 and is now a 12-page document including sections describing responsibilities to the client, the profession of dental hygiene, and the professional associations (CDHA, 1992a). A cursory comparison of old and new or replacement regulation for dental hygienists in a number of provinces reveals a lengthier document for the new regulations with more explicit direction particularly in the areas of scope of practice and discipline (CDHA CA&A, 1998). The value of a code of ethics in these circumstances is to reinforce appropriate behaviour among members without invoking legal sanctions.

The preceding analysis, summarized in Figure 1, illustrates significant progress in Canadian dental hygiene towards the status of profession (Clovis, 1999). At issue is the question of how much movement along the continuum is enough. In reality, the ideal profession does not exist and no one occupation group demonstrates the extreme of professional attributes. This is the nature of the limitations of attribute theory. It does not offer a method of determining the relative importance of these dimensions or which,

if any, are necessary and sufficient for the existence of a profession (Pavalko, 1988), nor does it predict or project longevity or how a profession is sustained over time. The presence in dental hygiene of some degree of all attributes associated with professions has not evoked the public or politicolegal recognition expected of mature professions (CDHA CA&A, 1998; Smith, 1991). Pavalko (1988) notes that attribute or trait theory focuses attention on processes internal to occupations and fails to examine the external dynamic which also influences professionalization.

Phenomena Unexplained by Attribute Theory

The external conditions challenging the professionalization of dental hygiene are the continuing dominance of the traditional professions in health care, the gendered nature of dental hygiene with consequent gender issues, and the nature of the professional work of dental hygiene which influences the relationship of dental hygiene to other professions. Despite the acquisition of self-regulation by the majority of Canadian dental hygienists, most continue to work under the authority and supervision of dentists and have little control over their scope of practice or location of work. Interpretation of these phenomena is facilitated by the more contemporary theories of professions which focus on power and control, and address issues of interoccupational conflict, professional dominance, class, and gender (Crompton, 1987; Parkin, 1979; Witz, 1992). The professionalization process within these theoretical frameworks recognizes the privileged positions of professionals within society and in the labour strata, and emphasizes the acquisition of power and monopolies.

Professional Work.

Professional work is the unique expertise and skill claimed by an occupational group and sanctioned by society. Professional relationships exist at the level of the individual client and also at the level of the community, particularly with governments and among other professions. Occupations promoting professionalization attempt to relate their work directly to a system of knowledge to formalize and legitimate the work.

The proliferation of health care occupations, each claiming specialized knowledge and expertise, has resulted in a relatively rigid division of labour in the provision of health care (Gaumer, 1984).

The dominant model of professional knowledge, "technical rationality", claims that professional activity is problem solving by applying scientific theory and technique (Schon, 1983). According to this model the systematic knowledge base of a profession has four essential properties; it is specialized, firmly bounded, scientific, and standardized. Three components of professional knowledge are described by Schein (1973) as an underlying discipline or basic science, an applied science from which diagnostic procedures and problem-solutions are derived, and a skills or attitudinal component that concerns the performance of services using the basic and applied knowledge. Aspiring professions, such as dental hygiene, may question whether their knowledge base has the requisite properties and whether it is applied appropriately to the everyday problems of practice (Schon, 1983). Implicit in the self-examination is an analysis of the knowledge base of dental hygiene to determine whether it is scientific, firmly bounded by theory and research, specialized and standardized.

In addition to knowledge based on science, professions use other types of knowledge. The ideology of the profession may be considered the 'art' of professional practice; it may be derived and understood from the practitioner's own, as well as other practitioners' clinical experiences (Freidson, 1970). All constituents of practice may, in fact, have ideological elements (Willis, 1983). Abbott (1988) also acknowledges the science and the art of professional work. In his view professions compete with one another by attempting to take control of each other's tasks. These assaults are usually expressed as jurisdictional claims to the expert knowledge - the science - of a profession. The art of the profession is less vulnerable to appropriation.

The purposeful tasks, the actual work, of dental hygiene are described as a process of care rather than a listing of single items (HWC, 1988a). Variation exists across

provinces but core activities are identifiable in dental hygiene accreditation standards for education (CDAC, 1992) and standards for professional practice (CDHA, 1995b; HWC, 1988b). The dental hygiene scope of practice in Canada has broadened since the earlier decades to include more advanced skills in oral and extraoral examination, treatment planning, pain management therapies, such as local anaesthesia and electronic dental anaesthesia, and the placement of simple dental restorations and orthodontic bands (HWC, 1988a). In the United States the scope of practice is even broader in several states with the provision of services such as nitrous oxide pain management therapy. These tasks or services, however, are not widely described or discussed in relation to other social phenomena.

The articulation of occupations in the health care sector implies a requisite definition of the boundaries of each, and, by extension, the relationships that exist between and among the occupations. That is, health care providers relate not only with their clients or patients but also with each other and with other private and public sectors, governments in particular. These expressions of both micro and macro levels of professional expertise circumscribe the boundaries of each occupation, and the legal requirement for certainty obliges both occupations and the legal system to define the nature of the work for each occupation. The magnitude and detail of the description required for regulatory legislation are a matter of legal preference at the time of legislative planning and corroboration.

Two Canadian examples from British Columbia and Ontario illustrate differences in requirement for legislation. In its recommendations on the designation of dental hygiene for self-regulation in British Columbia, the Health Professions Council characterized dental hygiene as a health profession (Health Professions Council, 1993). The question of how the profession is to be governed was addressed by analyzing the practice of dental hygiene. The British Columbia Dental Hygienists Association applied for designation as a profession to be self-regulated under the Health Professions Council.

The Council accepted the characterization of dental hygiene as a profession, but was more preoccupied with the extent of dentist supervision required. Inherent in the Council's analyses and recommendations are recognition of the importance of both the need for self-regulation, and the capacity of dental hygiene to respond in a competent manner. The question of supervision was resolved by continuing the requirement under certain conditions, in particular, the administration of local anaesthesia, and eliminating it for other conditions, such as dental hygienists providing health promotion in dental public health programmes. The key point here is that the defined scope of practice was not contested by the dental hygienists and appeared to be recognizable by all vested interests.

In Ontario, the Dental Hygiene Act of 1993 established self-regulation for the profession of dental hygiene and described the scope of practice of dental hygiene with a requirement for those procedures to be performed only if ordered by a dentist. The definition of "order" was contested in a lengthy consolidated submission by the College of Dental Hygienists of Ontario to the Health Professions Regulatory Advisory Council (HPRAC, 1996) detailing descriptions and comparisons of dentist and dental hygienist services and educational preparation and responsibilities for each. The claim that dental hygienists should be permitted to 'self-initiate' their services was further substantiated by the proposition that "once the decision to permit dental hygienists to be independently self-regulated was made, any moral or legal claim on the part of RCDS [Royal College of Dental Surgeons] to set standards for dental hygienists cannot be sustained" (College of Dental Hygienists of Ontario [CDHO], 1995). The subsequent recommendation of HPRAC to the Minister of Health that the Dental Hygiene Act be amended to allow dental hygienists to self-initiate their services has not, to date, been enacted (F. Richardson, personal communication, May 18, 1999). The Ontario detailed descriptions of dental hygiene work and the circumstances of the work relationship with dentistry are perhaps the most explicit and carefully elaborated to date.

These descriptions, intrinsic to the professions of dental hygiene and dentistry, illustrate the constituents of professional work characterized by theorists of professions. References to knowledge and technology are illustrative of the science on which practice is based while descriptions of actual practices or how practice should be done may be reflective of ideology or acceptance of beliefs regarding practices. Freidson's most recent work reaffirms the distinguishing feature of professions as specialized knowledge, maintains the centrality of the authority of knowledge to professionalism, and suggests that knowledge is underplayed in most conceptualizations of professions (Freidson, 1994). In addition to the knowledge itself, the public and the institutions or culture which convey information to the public are critical elements in the description of professions. These elements explain the demand for different professional services and the values assigned to them. Professional knowledge creates and explains much of what is known by the public about the social and physical world by shaping common knowledge through textbooks and mass media, although "politics everywhere qualifies and sometimes circumvents professional influence to a greater or lesser degree" (Freidson, 1994, p. 44).

The writings of the postmodernist philosopher, Michel Foucault, are believed to contribute to the influence of professional knowledge on both social policy and everyday life, but, according to Freidson, Foucault's writings are not always "comprehensible" (Freidson, 1994, p. 7). In his extensive review of the literature about professions MacDonald (1995) notes that Foucault's ideas about knowledge are focused on the relationship between knowledge and power, and that his insights are germane to occupations, particularly medicine. Nettleton's analysis of dentistry uses Foucault's conception to show an interrelatedness of knowledge, power, and ontology in the development of that profession (Nettleton, 1992). She claims that the mouth is the object of dentistry's knowledge, dentistry constructs a discourse which constitutes the mouth as an object, and dentistry locates the mouth in a social space defined and controlled by dentistry. Her analysis of the history and development of dentistry are an example of

Foucault's conceptions of modern society and the way in which knowledge is reconstituted in it (MacDonald, 1994).

While the foundation of knowledge is unequivocal in distinguishing professions, the linkages of the knowledge and practice to other professions and their knowledge and practices are not explained by many contemporary theorists of professions. In Abbott's view each profession has a knowledge system and each competes among professions to claim professional status. The relationship of knowledge to professional practice is, according to Abbott, the most fundamental characteristic of professions. The system of knowledge developed by a profession formalizes and legitimizes its work or practice and strengthens the credibility of its jurisdictional claim. Each profession's work is vulnerable to competition and interference. It is the changing nature of the professions in a system of professions that Abbott emphasizes, each one with its own history and development. This concept is further described in the review of Abbott's theory and its application to dental hygiene work.

Professional Dominance.

The division of labour in the health care sector is an hierarchical articulation of knowledge relationships dominated by medicine which has the ultimate control of the knowledge base for health care (Willis, 1983). Medicine dominates its own work, that of other health occupations, and the wider health sphere through law, relationships with other groups and institutions, and custom (Blishen, 1991; Bolaria, 1994; Coburn, Torrance & Kaufert, 1983; Coburn, 1990; Tuohy, 1992). At least four forms of health care division of labour are recognized (Blishen, 1991). The first division of labour is between dominant professional groups such as medicine and dentistry. The second is the internal specialization of the dominant professions into specialties such as neurology and surgery in medicine, and orthodontics and periodontics in dentistry. The third form is the development of related health occupations such as dental hygienists, nurses, physiotherapists, and occupational therapists, and the last is represented by paramedical

and paradecimal groups such as nursing assistants and dental assistants. In this hierarchy, low status occupations are near the bottom, marginal occupations in the middle, and medicine at the apex.

Dentistry is able to delegate roles and responsibilities and to confine the roles of a range of other oral health occupations - dental hygienists, dental assistants, dental technicians, dental therapists (formerly known as dental nurses) and denturists. Dentistry operates under legal, ethical, and scientific standards similar to medicine and has resisted any encroachment on its jurisdiction through organized social, political, and legal efforts. Despite these efforts, denturists became completely independent of dentists in the 1960s and continue to pose a threat to the jurisdiction of dentists. The most striking example of the influence of dentistry is their complete dismantling of the Saskatchewan school-based dental plan in which preventive and treatment services were provided to children by dental therapists in the period from 1974 to 1987. The quality and success of that program were never in dispute but the dentists who initially accepted the plan later lobbied to return these services to the private sector (Croucher, 1988). Another example is the strong resistance of dentistry to the omnibus legislation for health professions in Ontario which included the designation of dental hygiene as a regulated profession (Coburn, 1993).

Theories of professions which posit class structure and power relationships as central to professional development conceptualize professions as organizations that dominate particular markets. These theories explain the relationships between dominant and subordinate occupations as the result of market forces and interplay and are represented by the work of Larson (1977). Abbott suggests that Larson accepts medicine and law as the best examples of professionalism and fails to recognize that nursing accepted subordination in its relationship with medicine. The extent and permanence of this acceptance and the basis of the relationship between medicine and nursing is examined by many theorists (Campbell, 1992; Coburn, 1993; Reverby, 1990). Dental

hygiene is similarly subordinated to dentistry but this relationship has not been examined to the same extent by social theorists.

Although dental hygiene is subordinated to dentistry as nursing is to medicine, the workplace reality is that dental hygienists provide skill and expertise in a reasonably defined role which is growing in its impact on oral health (Lewis, 1989). In the field of health care, however, dental hygiene is unique in its economic relationship with the dominant profession. Over 85 percent of all dental hygienists are non-unionized employees of the dominant profession of dentistry in the private sector. The current monopoly and control of these services by dentists is threatened by dental hygiene's movement toward autonomy (Blishen, 1991). The advantages of self-regulation to dental hygiene are less apparent than the economic advantages conferred to dentists by the ongoing requirement for supervision by dentists. To control their own work, professions must have power delegated by the state and must be able to influence the dissemination of their knowledge (Freidson, 1994).

Gender and Power.

Dr. Alfred Fones first described the role of the dental hygienist in 1913 as being ideally suited to women: "a woman is willing to confine her energy and skill to this form of treatment. . . is apt to be conscientious and painstaking in her work. . . honest and reliable. . ." (Motley, 1986). In the delivery of oral health services, the subordination of dental hygiene to dentistry is firmly based in the gendered work of dental hygiene. Until the 1970s many provinces and states restricted dental hygiene practice to women only, a form of sex discrimination so rigid and maintained to such a late date that it was almost unique among health professions (HWC, 1988a; McFarlane, 1964). In Canada the impact of gender on dental hygiene was noted as early as 1979 (Jones, 1979). The role of gender in the practice and professionalization of dental hygiene is described as having "produced and perpetuated a paternalistic relationship between dentistry and dental hygiene" (HWC, 1988a, p. 149). In its relationship with dentistry, dental hygiene is consistent with

modern feminist conviction which posits that women's position in society is influenced by sexism and the institutionalization of patriarchal structure and organization.

In her discussion of the sexual division of labour in the household and the workplace, McIntyre (1989) describes the system of biological, ideological, and economic rationales which perpetuate gender differences and affect dental hygiene. The biological rationale is the basing of sex role stereotypes on the biological categories of male and female. The fact that women bear and nurture children is used to define nurturing or caring work as maternal. The biological categories provide the cultural stereotypes or ideational rationale which alleges that women are better suited to some work than men.

The patriarchal nature of relationships within health occupations is, perhaps, the most resistant to change, particularly when caring is seen as part of the biological, natural, or ordained character of women. Dental hygiene is similar to nursing and occupational therapy in reporting gender concerns. Nursing posits "that the nurses' right to care should be given equal consideration with the physicians' right to cure" (Reverby, 1990, p. 192). A 1978 review of Canadian occupational therapy referred to it as "the diffident profession" and proposed a host of strategies to change the negative and diminishing effects of a profession considered one of the female 'ghettos' (Maxwell & Maxwell, 1978). Physiotherapy, by contrast, does not appear to display the same degree of concern for gender issues although it clearly evolved as a feminine occupation. The proportion of males in this profession may be greater than in nursing, occupational therapy and dental hygiene. One might also speculate that there is more of the medical 'cure' and less of the nursing 'care' in physiotherapy, and that this framework is more attractive to males than the nurturing and caring emphasized in other health occupations.

The intensity of ideological perspectives is illustrated in professional governance statutes and policies. Regulatory statutes sanctioning the dentist's control of dental hygienists have historically used terms such as 'define, establish, develop, regulate and

control' the dental hygienist. A comparison of 1979 and 1988 sections of the Dentists Act of British Columbia illustrates a change of terminology to one more deferential toward the knowledge and competence of auxiliary groups (Kazanjian, 1993). Dentists have generally delegated tasks to the less professional, less well trained, more controlled, and almost exclusively female dental assistants when the dental hygienists' formal education and preparation make them better candidates for more responsibility. Nevertheless, dental hygienists have been recognized by health policy experts as being excellent candidates for independent practitioner roles (Kazanjian, 1993; Manga, 1997).

The economic rationale described by McIntyre (1989) encompasses the 'dual market' theory of primary and secondary work sectors. The primary sector demonstrates features such as high wages, good working conditions, job security, and upward mobility. Feminist theory suggests that the secondary sector is largely feminized, demonstrates lower service costs based on lower educational levels, and creates a need for goods and services which enhances the primary sector (McIntyre, 1989; Warburton & Carroll, 1988). Dental hygiene, relative to dentistry, is consistent with the description of the secondary sector in its lower educational level. Rather than creating a need for dental services, however, dental hygiene provides services which can be provided by dentists but have been delegated to dental hygienists by both tradition and regulation. McIntyre (1989) suggests that the occupation of dental hygiene was feminized by dentistry for economic gain and to maintain control.

The position of women in the professions has been analyzed from the perspectives of class and status (Crompton, 1987; Witz, 1992). In the field of health care the majority of occupations, particularly at the lower end of the hierarchy and including dental hygiene, continue to be female-dominated (Blisshen, 1991; Johnson, 1988, 1989; Willis, 1983), yet the female experience is generally disregarded in the description, analysis, and interpretation of the health labour market (Kazanjian, 1993). Kazanjian (1993) notes, moreover, that the health care system has been designed and professional governance

defined through policies that have a strong gender bias. These and other institutions of the patriarchal society sustain the institutionalization of male power and privilege within society (Witz, 1992) and are demonstrated in the health care division of labour and in the relationships between dentistry and dental hygiene. In practice, gender discrimination contributes to the professional dominance of dentistry over dental hygiene and is reflected in the day-to-day working relationships between dental hygienists and dentists (Brownstone, 1999). The extent of these effects on dental hygiene are beginning to be investigated (Garvin and Sledge, 1992; Kazanjian, 1993; Pritzel & Green, 1990).

Limitations of Attribute Theory in Explicating the Status of Dental Hygiene

The ongoing belief of dental hygienists in the acquisition of professional attributes and the promotion of this theory within organized dental hygiene fails to recognize the troublesome limitations of attribute theory. While the theory may have some use in describing elements of an ideal profession, an ideal profession does not exist since no one occupational group demonstrates the extreme of professional attributes. More critical is its lack of direction in determining the relative importance of any of the attributes or which, if any, are necessary and sufficient for the existence of a profession (Pavalko, 1988). The substantive question for dental hygiene is at what point in the acquisition of all these attributes could dental hygiene expect to be considered a profession?

Despite the demonstration of a high degree of many traits attributed to professions by Canadian dental hygiene, the prevailing impediments to the achievement of professional status are the limited articulation and recognition of dental hygiene's professional work, the professional dominance of dentistry, and the feminized character of dental hygiene. The impact of these challenges to dental hygiene is manifested as social and economic subordination. The advantages of the continued subordination of dental hygiene to dentistry are summarized by Brownstone (1999). She states that dental hygiene contributes to dental office productivity and revenues, allows dentists to delegate routine tasks, and helps to sustain the public's view of the dominance of dentists as

primary oral health care providers and the purveyors of all dental care. These traditional relationships are unacceptable to dental hygiene. Perceptions of roles - professional work - are in dispute. Pritzel and Green (1990) noted that dentists perceived that dental hygienists have less responsibility than they actually do while hygienists perceived themselves as having greater responsibility than is attributed to them by dentists. For example, most dental hygienists reported performing regular clinical examinations whereas only two-thirds of the dentists reported that hygienists did this procedure. Unlike most other health care environments, nearly all dental hygienists and dentists work in close proximity in dental offices owned and operated by dentists. This working arrangement has contributed to the ability of the dentist to have direct control over the work of the dental hygienist. It may also contribute to the recently reported expressions of sexual harassment by 500 practicing dental hygienists in a U.S. survey. Almost three-quarters of the hygienists reported having experienced one or more forms of sexual harassment in their work places within dental offices (Garvin and Sledge, 1992).

Brownstone (1999) suggests that relationships between dentistry and dental hygiene at the institutional level are also strained or nonexistent. Further, the lack of communication is due to "differing viewpoints related to standards of education, entry level to practice, supervision requirements, scope of practice, and legislative issues concerning the regulation of dental hygiene" (Brownstone, 1999, p. 76). Dentistry's intention is to restrict all of these areas to maintain dental hygiene in a controlled, subordinate position to dentistry. In the area of education, for example, there is increasing evidence of the low priority of the few remaining dental hygiene programs located within dental faculties and the increasing threats of closure to those programs as institutional resources become more limited or withdrawn. Dental hygiene educators attribute the closures of many baccalaureate and masters level education programs in the United States to the influence of organized dentistry. In Brownstone's view "dentistry's efforts to suppress the growth of dental hygiene education beyond an undergraduate

degree level is consistent with its attempts to prevent the self-regulation of the occupation" (Brownstone, 1999, p. 69).

The inadequacy of attribute theory in explaining this ongoing subordination is, in part, related to the complete disregard of the social and historical context of the process of professionalization (Johnson, 1972). The acquisition of power to manipulate and control clients and markets is similarly omitted in attribute theory (Blisshen, 1991). The role of gender in the struggle of an occupation to become recognized as a profession is either completely ignored or inadequately addressed in attribute theory and even more contemporary theories of professions (Witz, 1992). Finally, the predictive value of attribute theory is discounted by its clear incapacity to clarify the question of necessity and sufficiency of attributes. Dental hygiene, an aspiring profession, can be more readily conceptualized in Abbott's theory of occupational influence and change.

Abbott's Theory Applied to Dental Hygiene

Abbott posits that "professions are exclusive occupational groups applying somewhat abstract knowledge to particular cases" (Abbot, 1988, p. 8), and that the central phenomenon of professional life is the link between a profession and its work, a linkage Abbott terms *jurisdiction*. While each profession is bound to a set of tasks or problems by jurisdictional ties, the tasks are vulnerable to competition and interference. A distinguishing characteristic of Abbott's theory is that there is no single path which will lead to full professional status. The struggle for jurisdiction takes place within the environment internal and external to the occupation. Jurisdictional claims are made in three arenas or domains: the legal system, the domain of public opinion, and the workplace. Abbott suggests that the workplace realities are frequently different from the stable public images of professions.

Many social and cultural factors influence the efforts of occupations to define their territories and to shape and reshape them over time. The impact of capitalism, class structure, bureaucracies, technology and mass communication are considerable. The

essential determinant, however, is the knowledge system and its degree of abstraction. It is this property more than any other factor which allows occupations to compete among other professions and to claim professional status. According to Abbott, the degree of abstraction required is dependent on time and place - sufficient to compete in the social context of the particular time.

Abbott further suggests that past theories of professional development were all related to the concept of professionalization which assumed a common pattern of development for professions. The concept of professionalization, according to Abbott, is based on five basic incorrect assumptions. The first, unidirectionality, is not supported by the evidence of historians who have pointed to professions or pseudoprofessions, such as electrotherapists and railroad surgeons, which have stalled or even died. A second assumption, independent professional development, is not supported by the evidence of subprofessional development in the medical and legal areas. A third assumption, that structure is more important than actual work, is also not supported by historical analysis which shows in many cases that work is the focus of the concept of professional development. Professions such as librarianship and psychiatry have shown the close relationship of the professional structure to the work itself. The fourth assumption, that professions are homogeneous, is not demonstrated by professions such as medicine and engineering which clearly show internal differentiation and specialization. Finally, contrary to the fifth assumption, professionalization as a process does change over time as seen by the increasing involvement of the state in shaping professions. Abbott's alternative to these assumptions is to begin with a focus on work and to assume that the central phenomenon of professional life is the link of jurisdiction between a profession and its work. He suggests that case studies tell us it is the content of professions' work that is changing, and it is the control of work that brings professions into conflict with each other.

The claim to jurisdiction is made at three levels - the workplace, the public, and the state - with most changes in jurisdiction occurring first in the workplace and finally in the legal system. Although the case of American medicine is one example of the complexity of questions about professions, and demonstrates how the "development, activity, and interprofessional relations are bound up together" (Abbott, 1988, p. 21), it is not to be taken as the paradigm. The challenge of a theory of professions is to be sufficiently comprehensive to include, and account for, the immense diversity of professions - their geneses, evolutions, and deaths. Abbott claims his theory meets this challenge and, further, recognizes the power of professions' knowledge systems which enables them to survive by defining old problems in new ways. This conceptual framework has exceptional utility in explicating the occupational issues and conflict between emerging and established professions such as dental hygiene and dentistry.

Dental Hygiene Work

The professional work of dental hygiene is tied directly to a system of knowledge that formalizes the skills through which the work proceeds. Two widely accepted definitions of dental hygiene emphasize the primary role or professional work of dental hygiene in the prevention of oral diseases.

A dental hygienist is a health professional who, through clinical, educational, consultative, planning and evaluation endeavours, seeks to prevent oral disease, provide interceptive treatment for existing disease, and assist people in maintaining an optimum level of oral health. Dental hygienists are the only health professionals whose primary concern is the prevention of oral disease. (HWC, 1988a, p. 13)

The study and management of the preventive oral health behaviours in which human beings engage are key features of dental hygiene (Darby & Walsh, 1994, p.7)

Abbott states that professions address human problems which are amenable to expert service and which exhibit objective and subjective properties (Abbott, 1988). The objective foundations for professional work are technology, organizations, and natural

objects and facts. The objective foundation for the work of dental hygiene is the mouth, and the term 'dental hygiene' specifies the principal work which is cleanliness of the mouth. The evolution of dental hygiene to a complex set of objective tasks is illustrated by this recent description of the work of dental hygiene as "the study and management of the preventive oral health behaviours in which human beings engage" (Darby & Walsh, 1994, p. 7). Even though a profession is vulnerable to changes in its objective tasks, those tasks which address objective problems created by natural or technological imperatives are most resistant to reconstruction. The objective foundation of the professional work of dental hygiene may be considered the 'what' of dental hygiene. It is distinct from the subjective foundation, the 'how' of dental hygiene.

The subjective qualities of dental hygiene work are those aspects which distinguish it from other professions; that is, diagnosis, inference, and treatment. In Abbott's framework these three represent the professional actions of classifying a problem, reasoning about it, and taking action on it. It is within this sequence of logic and events that tasks or professional work exhibit the subjective qualities that are the cognitive structure of a jurisdictional claim by a profession, the 'how' of the professional work. In health care and among other professions such as law and accounting, routine treatment is often delegated to subordinates to carry out. Dental hygienists, for example, were originally delegated by dentists to carry out work made of preventive regimen (HWC, 1988a). Increasingly dental hygienists claim their own diagnosis, inference, and treatment as being different from that of dentists and legitimate in their own right. The classification of dental hygiene problems, reasoning about dental hygiene problems, and action to prevent or control dental hygiene problems are the cognitive structure of dental hygiene's jurisdictional claim. Dentistry maintains regulatory control of dental hygiene work by claiming that dental hygiene work is not distinct from dentistry work and that diagnosis, inference and treatment are legitimately performed only by the dentist.

Although not permitted by regulation to act in a case-finding capacity dental hygienists are educated to assess a client's dental hygiene needs (Darby & Walsh, 1994; HWC, 1988a; Prowse, Mitchell & Butt, 1989; Wilkins, 1994; Woodall, 1993). The rationale accepting dental hygiene diagnosis as an existing and necessary function separate from the dentist has been expressed for at least two decades (Dunning, 1976). Diagnosis in the Canadian model of dental hygiene practice is conceptualized as part of the component of assessment and preceding the planning of dental hygiene care (HWC, 1988a). Dental hygiene diagnosis and treatment are now widely sanctioned among dental hygienists (American Dental Hygienists Association [ADHA], 1985; Gurenlian, 1994).

Following formulation, validation, and recording of the diagnosis, the dental hygienist identifies and performs appropriate interventions and strategies to achieve goals determined through the analysis of the diagnosis. This stage is the implementation of treatment. Dentists may provide client care typically provided by dental hygienists, but the ongoing demand for dental hygienists suggests that most dentists prefer to delegate these responsibilities to them, and at least one set of quality assurance practice assessment standards notes the superiority of preventive services by dental hygienists (Schoen, 1989).

Between diagnosis and treatment is the more ambiguous stage of inference, the act of comparing the diagnosis with potential treatments and the selection of an appropriate course of treatment. It is a work activity critical to the profession. When the connection between diagnosis and treatment is direct, as in the case of a headache treated by an over-the-counter remedy, there is no need for professional intervention. This commodification of knowledge creates some instability in the jurisdiction of the dominant profession of medicine. The act of inference which takes the information of diagnosis and projects a range of treatments and their predicted outcomes is the most variable in Abbott's professional logic. In its extreme forms - too much and too little - it weakens professional jurisdiction. Too little makes work not worth professionalizing and

too much makes the work impossible to legitimate. Inference is also the most subjective activity and the least likely to be amenable to measurement. In the case of dental hygiene, inference appears to be that process of designing treatment on the basis of client data, a process reportedly made easier with the acquisition of a sound knowledge base, clinical experience, and exposure to a wide variety of individual variation among clients. The notion of inference is suggested in Brownstone's study, in which dental hygienists "spoke of dental hygiene practitioners as caring and highly interactive with clients, a form of reflective practice" (Brownstone, 1999, p. 261). Brownstone interpreted knowledge here as "encompassing uncertainty and drawing on experience, rather than only being formal and abstract in nature" (Brownstone, 1999, p. 261).

Similar to other health professions, much of both dentistry and dental hygiene knowledge is derived from basic biomedical science or social science theory; it is the knowledge foundation which supports the practice acts of diagnosis, inference, and treatment. By regulation, knowledge and practice in the prevention of oral diseases and health promotion are jurisdictions shared by both dental hygiene and dentistry. Dentistry clearly has other knowledge and practice which are unique to dentistry. Dental hygiene has proposed a unique paradigm, conceptual models of practice, and guiding principles and standards for education and practice. The application, testing, and measurement of these in jurisdictions shared and independent from dentistry requires further elaboration. Figure 2, a conceptual model of the jurisdiction of dental hygiene in Canada, is a schematic representation of a conceptual model linking the jurisdictions of dentistry and dental hygiene with Abbott's professional practice logic and its foundation knowledge.

Dental Hygiene Jurisdiction

Brownstone found that "individual dental hygienists are committed to providing quality care within the confines of the dental practice", and that they "search for ways to improve the delivery of care within the confines of the dental practice setting and in the face of frequent interprofessional conflict with dentists (Brownstone, 1999, p. 271).

According to Abbott jurisdictional claims can be made in the workplace, in the public arena, or in the legal system. Professional jurisdiction and vulnerability are functions of both the subjective and objective qualities of tasks. The three components of professional practice which connect the profession with its tasks - diagnosis, inference, and treatment - are the bases of inter-professional competition. It is precisely these acts of dental hygiene that provincial associations are required to define for legislators considering self-regulation, scope of practice and supervision requirements for dental hygiene (Canadian Dental Hygienists of Ontario [CDHO], 1995; Health Professions Council, 1993), and the same acts which are disputed by dentistry. The achievement of self-regulation for dental hygiene in five provinces (Alberta, British Columbia, Ontario, Quebec, and Saskatchewan) demonstrates legal recognition of the value of the work of the dental hygienist, and the preparedness of the profession to meet the requirements for establishing and maintaining adequate credentialing processes.

In its recommendations on the designation of dental hygiene for self-regulation in British Columbia, the Health Professions Council characterized dental hygiene as a health profession (Health Professions Council, 1993). The question of how the profession was to be governed was addressed by analyzing the practice of dental hygiene using the Public Interest Criteria Analysis. The analysis established the risks of dental hygiene practice and, therefore, the need to be regulated. It confirmed that dental hygiene services provide a recognized and demonstrated benefit, and that the services are in demand. It showed that dental hygienists normally work under the minimal direction of a dentist in the private sector and under distant supervision in public health. It accepted the body of knowledge which forms the basis of standards of practice for dental hygiene and acknowledged the capabilities of the profession to monitor continuing competence. The Council also acknowledged that the profession has demonstrated leadership with a commitment to regulate in the public interest. Inherent in the Council's analyses and

recommendations are recognition of the importance of both the need for self-regulation, and the capacity of dental hygiene to respond in a competent manner.

Satisfactory description of these components by dental hygiene is necessary but not sufficient because the claims to jurisdiction take place in the public arena and must also be socially legitimated in opposition to the more dominant profession of dentistry. Dental hygiene has not achieved public recognition (Smith, 1991) nor, until recent years, had an image distinct from 'dentistry', despite efforts such as press releases of official CDHA position statements and the adoption of codes of ethics. In the past decade Canadian dental hygiene associations have actively promoted their public image through designation of an annual National Dental Hygiene Week in October, participation in health promotion events at local, regional and national levels, and invitations to the public to attend keynote addresses during national conferences. The impact of these efforts in enhancing the public image of dental hygiene in Canada has not been measured.

In the legal system the granting of self-regulation and the persistence of supervision requirements even under self-regulation are testimony to both the instability and restriction of dental hygiene and the movement towards diminishing the control of dentistry. The literature does not report, however, the compliance of dental hygiene and dental practice - the workplace reality - with any legal requirements for dental hygiene practice. Anecdotal reports have suggested relaxed supervision even where it is required to be as direct as possible.

Abbott suggests at least six possible settlements for jurisdictional disputes through public opinion and legal rules. A full and final jurisdiction is a firm hold with distinct legally recognized boundaries; all other settlements are limited. Subordination results in a division of labour under a dominant profession but with a public and legal settlement. In this case the dominant profession delegates routine work to subordinates and is always vulnerable to emerging or existing groups seeking to extend their jurisdictional settlements. Nursing is the classic example of subordination to the profession of

medicine but architects and lawyers also have subordinate professional occupations. A division of labour settlement results in a clear distinction of areas of responsibility; for example, the once complete jurisdiction of architecture in building is now divided among architects, engineers, lawyers, and accountants, each with a distinct responsibility for some part of the building process. Between subordination and a division of labour is the settlement of intellectual jurisdiction by which the cognitive knowledge is controlled by one profession but others are allowed to use it. An example is the practice of psychotherapy by psychologists, social workers, and clergymen while psychiatrists continue to hold the chief ideas. Advisory jurisdiction is a settlement held by one profession which interprets or partially modifies the actions of another such as the relation of the clergy to medicine and psychiatry, and of law to accounting and banking. The clergy in this case retain the right to interpret the meanings of things including the patient's illness, to the patient. Client differentiation settlements reflect available demand for services and occur within as well as between professions such as the differentiation of clients in civil and criminal law.

Abbott states that degradation, the term he uses to describe the assignment or delegation of routine or unattractive work to subordinates, has profound implications for interprofessional competition. Successful degradation can lead to a division between an upper "truly professional group" and a lower, subordinate one. Abbott notes that feminization of occupations is a familiar form of degradation of work but class restrictions are also evident and the two characteristics are not always co-directional. Abbott contends that class and gender reinforce, but do not cause, professional development. He cites the example of women librarians in France as feminization coincident with a rise in status.

Dentistry, similar to medicine and law, has full and final jurisdiction while dental hygiene has an unstable limited settlement. In one sense, dental hygiene is subordinated to dentistry as nursing is to medicine. Dental hygienists do, however, provide skill and

expertise in a reasonably defined role which is growing in its impact on oral health. As the knowledge and research base grow in dental hygiene and direct the work of dental hygiene, dentistry's claim of intellectual and advisory jurisdiction over dental hygiene becomes less authoritative and stable. Recognition of a clear overlap in function with periodontists was expressed in the following:

In fact, there is some overlap in the functions of hygienists and periodontists, especially in B.C., where hygienists may administer local anaesthetic. Supply statistics indicate that while the number of CDAs increased fourfold between 1975 and 1985, the ratio of hygienists to dentists in fact decreased during this time. The number of periodontists, small as it may be, almost tripled. (Kazanjian, 1993, p. 158)

Conceptually, in Abbott's framework, a functional settlement with dentistry could reasonably define dental hygiene's scope of practice without requiring supervision by a dentist. The preventive and health promotion assessments and therapy of the dental hygienist could be considered uniquely dental hygiene with the restorative treatment and surgery continuing exclusively in dentistry, a form of client differentiation. An approximation of this conception has already been proposed as an intermediate level oral health care practitioner who would deliver primary oral health care within primary health care centers (Nielsen-Thompson, 1997) Any settlement among dentistry, dental hygiene and other health professions will continue to be unstable if dentistry claims intellectual and advisory jurisdiction over dental hygiene by virtue of dentistry's foundation knowledge and research. Moreover, the social and economic inequities present will continue to challenge dental hygiene's claim to jurisdiction and professional status.

In the field of health care, dental hygiene is unique in its economic relationship with the dominant profession. Over 85 percent of all dental hygienists are non-unionized employees of the dominant profession of dentistry in the private sector (Johnson, 1989). While numerous remuneration and contractual arrangements have arisen, the dental hygienist generates substantial income for the dentist in the performance of dental hygiene work. The current monopoly and control of these services by dentists is

threatened by dental hygiene's jurisdictional claim. Indeed, the "hygienist is a competitive threat to the practicing dentist, which the profession cannot ignore" (Blishen, 1991, p. 102). Dental hygienists may seek complete autonomy similar to the denturists who succeeded in the early 1960s. Denturists have established independent practices and provide limited dental services directly to clients at affordable prices, a movement perceived by dentists as an infringement on their monopoly (Hazelkorn and Christoffel, 1984). Unlike the predominantly male denturists, however, dental hygiene is characteristically feminized and vulnerable to predominantly male policymakers and the health care policies that have a strong gender bias (Kazanjian, 1993).

Dental Hygiene Influence

Both the internal structure of dental hygiene and the external social and cultural environments shape dental hygiene work, its jurisdiction, and its interdependence with dentistry and other health professions. In the system of professions posited by Abbott, areas for jurisdiction may be opened or closed by external forces or by both new and existing professions seeking expansion. The extent to which dental hygiene is able to shape its destiny is largely determined by its capacity to influence public policy. Interest groups contribute to the political process by providing a mechanism for political representation which supplements the electoral process and which can be more responsive than the electoral process to social and economic differences in society. They feed governments valuable information and are a major source of mediation between governments and individuals (Esberrey & Skogstad, 1991; Jackson & Jackson, 1990; Kernaghan, 1985; Pross, 1992). Organized dental hygiene in Canada has begun to demonstrate the characteristics and action of an interest group which engages in activity related to government decision-making.

In order to influence policy, dental hygiene must influence the policy community defined by Pross "as that part of the political system that has acquired a dominant voice in determining government decisions in a field of public activity" (1992, p. 119). Even

though Canadians and pressure groups have a wider choice of paths to policy discussion than in earlier decades, Pross suggests that it is difficult to participate in the discussion over the length of time required to change or create new policy. The commitment, cost, and level of organization required to effect influence are staggering by most measures.

As an interest group dental hygiene has a legitimate and necessary role in influencing policy and has, in fact, taken political action. Distinct planned strategies to influence public policy are now integral to dental hygiene professional groups. Much of the activity promoting self-regulation has been generated and directed by the national and provincial professional associations and is embodied in extensive documents submitted to provincial governments. The documents include both the request for self-regulation and evidence of the profession's capacity to sustain governance through self-regulation (CDHA Council on Access and Advocacy, 1998). In self-regulated provinces there is some activity towards achieving direct access to dental hygiene services by the public. For example, the regulation in Ontario requires that dental hygiene procedures be ordered by a dentist. The College of Dental Hygienists of Ontario submitted a request to the Health Professions Regulatory Advisory Council [HPRAC] of the Government of Ontario to interpret the statutory requirement for an order in a much less restrictive manner than that preferred by the Royal College of Dentists (CDHO, 1995). To date, the Ontario effort has not yet moved the Minister of Health to request change even following the recommendations of HPRAC regarding the insufficiency of demonstrated need for a dentist to 'order' dental hygiene care (F. Richardson, personal communication, May 18, 1999).

Lobbying efforts are promoted in most provinces through workshops and specific public relations initiatives are designed to capture the attention of policymakers. Videotapes (Alberta Dental Hygienists Association, 1996) and newspaper circulars (Ontario Dental Hygienists Association, 1996) have been produced to inform the public and policy makers, and to promote the interests of dental hygienists. These orchestrated

movements towards autonomy are intrinsic in all professions (Abbott, 1988; Pavalko, 1988).

In addition to interest group activity, the dental hygiene profession, similar to others, is also expanding its cognitive domain by using abstract knowledge to define its areas of professional work. Abbott's preference for "somewhat" abstract knowledge (p.8) reflects the equilibrium required between extreme abstraction and extreme concreteness; his emphasis on knowledge as "the currency of competition" (p. 102) signifies the central function of knowledge in jurisdictional claims. If the pivotal reality of dental hygiene life is control of its tasks, as suggested by Abbott, then dental hygiene is moving towards more substantive jurisdictional claims despite a clear vision of that professional project (Brownstone, 1999). If we accept, as Abbott also suggests, "there is no fixed limit of structure towards which all professions tend" (p. 84), then the form and structure of both dentistry and dental hygiene are expected to change and the dynamic influences of knowledge development and application and the present social context are primary contributing determinants.

Part 2. The Knowledge Foundation of Dental Hygiene

The knowledge base that guides practice in dentistry and dental hygiene is derived from a broad range of interdisciplinary and discipline-specific theory and research. The foundation knowledge and purposeful tasks of dental hygiene are well described in the theory and practice texts prescribed by most educational programs and including Woodall (1993), Wilkins (1994), and Darby and Walsh (1994), all emphasizing the nature of dental hygiene work as a process of care focused on the prevention of oral diseases and the promotion of health. These aspects of care or service are generally described as primary or secondary levels of prevention (Allukian & Horowitz, 1998). Dentistry, by contrast, is usually defined much more broadly to include all aspects of oral care with primary, secondary, and tertiary levels of prevention and treatment. In the areas of prevention and early detection of dental caries, periodontal diseases, and oral cancers,

dental hygiene knowledge and dentist knowledge may not differ significantly since all are included within the legal jurisdictions of both. Published measurements and standards for knowledge and practice in these areas are central to the development of professional norms consistent with contemporary public expectation and competent, ethical professional service.

Gaps and Overlaps in Dental Hygiene and Dentistry

The review of dental hygiene work and jurisdiction in the previous section demonstrates both acknowledged and unacknowledged areas of overlaps in dentistry and dental hygiene, particularly in the area of prevention and health promotion. Areas of knowledge and practice may overlap more or less distinctly depending on jurisdictional definitions of scope of practice and their interpretation within practice environments. The prevention and control of oral cancers is an area which has received increased worldwide attention in the past decade. Patterns of increasing cohort-effects for oral cancer in men in a number of countries alerted health care advocates to this issue (MacFarlane, Boyle, Evstifeeva, Robertson & Scully, 1994). As a health problem with grave consequences, oral cancer presents a rational and compelling choice for investigation of the overlaps and gaps in knowledge and practice of dentists and dental hygienists. The area of prevention and early detection of oral cancers is potentially one of considerable overlap with similar levels of knowledge of prevention strategies and performance of basic detection skill anticipated in dentists and dental hygienists. Gaps and differences in practitioner knowledge, attitudes, and practices, however, may depend on individual characteristics, as well as jurisdictional requirements.

Another gap, critical in both individual and population health, is the gap between what the public knows about preventing oral diseases and what they actually practise. Dentists and dental hygienists share, with other health care providers, responsibility for closing the gap between public knowledge and performance by using and disseminating scientific findings. Effective health education and health promotion strategies for both

health professionals and the public are requisite to this process of 'science transfer' (Horowitz, 1995).

Empirical Evidence On Oral Cancers

A substantive literature review was undertaken to determine current empirical evidence regarding the etiology, early detection, and prevention of oral cancers. The literature review included sources derived from readings recommended by content experts, a search of electronic databases from 1990 to the present, and additional relevant references from retrieved reports and articles. The treatment of oral cancers was excluded as inappropriate for this study.

Current oral cancer prevention evidence and practice recommendations in The Canadian Guide to Clinical Preventive Health Care (Canadian Task Force on the Periodic Health Examination, 1994) and the Guide to Clinical Preventive Services Report of the U.S. Preventive Services Task Force (U.S. Preventive Services Task Force, 1996), were reviewed as a baseline prior to further review of the literature. These national practice guides for clinicians in Canada and the United States analyze and summarize current empirical literature on preventive practices, evaluate the literature according to established criteria for acceptability, and list recommendations based on the evaluation. Several chapters are devoted to dental-related topics including prevention of dental caries and periodontal diseases and screening for oral cancers. A lack of consensus in the area of screening for oral cancers between the recommendations of these Guides and other researchers led to some skepticism regarding the acceptability and utility of these particular preventive care guidelines (Horowitz, Goodman, Yellowitz & Nourjah, 1996). The Guides did serve initially to identify critical areas of information to be reviewed. The literature reveals that oral cancer is a form of cancer for which the main risk factors are known, and precancerous and cancerous lesions are particularly amenable to early detection because the involved sites are accessible by clinical examination. Its prevention and control should have been as successful as for

cardiovascular disease and cervical cancer; yet its history is far from being a public health success story (Izquierdo, 1996).

The Public Health Priority

The primary measures used to assess and describe cancer in populations are incidence, mortality, and survival (National Cancer Institute of Canada [NCIC], 1999; Steering Committee for Canadian Cancer Statistics, 1997; Swango, 1996). In its probability of mortality the burden of suffering associated with oral cancers is distinct from the other major oral diseases of dental caries and periodontal diseases. The 1999 estimated lifetime probability of developing an oral cancer in Canada is 1.6 percent among males (one in 64.1) and 0.7 percent among females (one in 142.9). The lifetime probability of dying from an oral cancer in Canada is 0.5 percent among males (one in 185.2 deaths) and 0.2 percent among females (one in 434.8 deaths) (NCIC, 1999). These estimates relative to all cancers are in the mid to high range for males and the low range for females. The burden of morbidity and mortality of oral cancers demands attention from health care providers and the public health system.

Oral cancers have characteristically low survival rates but tend to receive less attention than other cancers as a public health priority. The total number of new cases of oral pharyngeal cancers in Canada in 1994 was 3,081; the number of deaths in 1996 was 952 (NCIC, 1999). The 1999 estimates of all cancers in Canada are 129,300 new cases and 63,400 deaths. Oral cancers are estimated to account for 2.5 percent of the new cases and 1.7 percent or 1,050 of all cancer deaths, more deaths than malignant melanoma, uterine and cervical cancers, and Hodgkin's Disease. The ratio of deaths to cases in Canada is 0.32, considerably greater than deaths due to breast and prostate cancers at 0.29 and 0.25 respectively. A ratio of 30 percent or less is considered to be a cancer with a very good prognosis, ratios greater than 30 percent but less than 50 percent have a fairly good prognosis, and ratios greater than 50 percent have a poor prognosis. These data demonstrate the relatively low survival rate from oral cancers, a phenomenon generally

attributed to late diagnosis (Mashberg & Garfinkel, 1978). Over 50 percent of oral cancers are diagnosed at a stage beyond the American Joint Committee for cancer staging and End Results' TNM Stage 1 (Rosati, 1994). Professional diagnostic delays greater than one month contribute to an increased risk for being diagnosed with late stage disease (Allison, Franco, Black & Feine, 1998). Despite their relatively low prevalence oral cancers account for significant mortality. Remarkably, however, oral cancers have a better prognosis than others if detected early (Mashberg & Samit, 1989). Those who do survive oral cancers and their sequellae often experience chronic pain, loss of function, and socially disfiguring impairment, frequently resulting in social isolation and significant burden on patients, families and society (Centers for Disease Control and Prevention [CDCP], 1996; Rosati, 1994).

United States data for 1988 to 1992 show oral cancers accounting for 3 percent of all cancers (Swango, 1996). The actual number of cases in Canada had decreased to 2.6 percent of all cancers by 1994 (NCIC, 1999). Underreporting of incidence is possible and probable because other aerodigestive cancer sites such as the larynx, esophagus, and lung probably share a common etiology and frequently coexist as second primary cancers (Bhutani & Pacheco, 1992; Horowitz et al., 1996; Rosati, 1994; Silverberg & Lubers, 1989; Tepperman & Fitzgerald, 1981). Few investigations compare any cancer rates in Canada with the U.S., but one comparison of cancer survivors among the poor of Canada and the U. S. credits Canada's universal medicare with the 80 percent higher survival rate for mouth cancer in both sexes (Canadian Press Newswire, 1997).

Age, racial origin, gender, and geography are important variables in all cancers and especially in oral cancers. Increases in the numbers of cancer cases and deaths from 1987 to 1999 are due mainly to the growth and aging of the population (NCIC, 1999). Oral cancers are clearly associated with aging: the probability of developing an oral cancer in males is 0.1 percent at age 40, increasing to 0.6 percent by age 70. Although strong overall gender differences are reflected in the male to female ratios of new cases at

2.3:1 and deaths at 2.4:1 (NCIC, 1999), young females are at a much higher risk than young males for basal cell carcinoma of the upper lip in British Columbia as in other countries (Rowe, Gallagher, Warshawski & Carruthers, 1994). U.S. data demonstrate slightly higher rates and gender differences with male to female ratios of new cases at 2.2:1 and deaths at 2.7:1 (Swango, 1996). Racial origin is an important variable in the U.S. where incidence and mortality rates for African Americans are significantly higher than those for Caucasians (Swango, 1996). Similarly, in Canada cancer rates for both the salivary gland and nasopharynx are 10-25 times higher among the Innuit than among the general Canadian population (Rosati, 1994).

Although statistically small but significant declines in incidence and mortality occurred over the past decade in both genders in Canada, the numbers of actual and projected cases and deaths are a public health concern. Notwithstanding their exclusion from the 1995 Canadian Cancer Incidence Atlas, geographic variation in the incidence and mortality of oral cancers is evident and noteworthy, particularly as the rates show variation by gender as well as geography. In general, there is an east-to-west pattern of decreasing cancer mortality rates in Canada (Gaudette, Altmayer, Wysocki and Gao, 1998). Rates tend to be above average in the Maritime provinces and low in the three westernmost provinces. The 1999 estimated deaths from oral cancers per 100,000 deaths are 25 men and 10 women in Nova Scotia and 90 men and 40 women in British Columbia. The differences between these two provinces are more apparent in rates standardized for population and when compared with the estimates for all of Canada. The estimated age standardized incidence and mortality rates per 100,000 for males and females in both provinces and Canada are shown in Table 1. Relative to Canadian averages, incidence rates for Nova Scotia and British Columbia represent higher and lower rates respectively for men and the reverse for women. The mortality rate for men is somewhat lower in B. C. than the Canadian one and somewhat higher for women in

N.S. It is, however, the aggregate of new cases and deaths which are the important measure of burden on the Canadian population and health care system.

A recent 15 year review of oral cancer in Nova Scotia, 1983-1997, showed a marked and steady rise in the number of oral cancers in each age group confirming the generally known higher incidence among individuals older than age 60 (Wright, Howell & Dewar, 2000). Cancers were classified in this study as lip, tongue, or mouth other. The number of lip cancers decreased in this period while the numbers of tongue and mouth other showed increases. Increases in males were nearly all in the over age 64 years group. Females, in contrast, showed a steep increase in the number of intraoral cancers with an increase in every age group over 35 years.

Etiology of Oral Cancers

Oral cancers collectively include those confined to the oral cavity and those in the pharynx and are most accurately identified as "oral pharyngeal cancers". For ease of use and repetition, the term is abbreviated in this study to "oral cancers". Cancers of the oral cavity include cancer of the lip, tongue, salivary glands, and other sites in the mouth and pharyngeal cancer includes cancers of the nasopharynx, oropharynx, and hypopharynx (NCIC, 1999; Swango, 1996). Malignant neoplasms of the lip, oral cavity, and pharynx are classified in the International Classification of Diseases as ICD 140-149, according to the Ninth Revision of the International Classification of Diseases (NCIC, 1999). Collectively, these categories of neoplasms account for all oral and pharyngeal cancers and are used to compile uniform information. Adjacent anatomical sites of head and neck cancers may be identified and included in broader investigations of the upper aerodigestive tract; for example, ICD - 9 161, neoplasms of the larynx (Allison et al., 1998).

A multifactorial pathogenic mechanism is apparent in the development of oral cancers. Chemical, physical and biological agents are among the known risk factors. The primary etiological antecedent to oral cancers is exposure of the mucosal surfaces of

the upper aerodigestive tract to topical carcinogens, predominantly the chemical agents alcohol and tobacco (Blot, McLaughlin, Winn, Austin, Greenberg, Preston-Martin, Bernstein, Schoenberg, Stemhagen & Fraumeni, 1988; Boffetta, Mashberg, Winkelman & Garfinkel, 1992; Vokes, Weichselbaum, Lippman & Hong, 1993). Some persons exposed to these carcinogens develop premalignant and malignant lesions in a multi-step process (CDCP, 1996). Oral cancers do, however, occur in persons not exposed to these risk factors or other apparent risk factors. Further, it is not clear that all malignancies have a precancerous state (CDCP, 1996).

Over 90 percent of oral malignancies are squamous cell carcinomas and their variants (Silverman and Shillitoe, 1990). The remaining 10 percent arise from various tissues and typically present as a lump with an unaltered epithelial covering (McDaniel, 1999). Premalignant lesions, erythroplakia and leukoplakia, are the earliest detectable morphologic changes in the more common squamous cell carcinomas. Dysplasia is the term reserved for lesions showing combinations and degrees of cytologic atypia. Erythroplakia, a red lesion that cannot be classified as another entity, is of greatest concern. About 91 percent of these show signs of dysplasia or malignancy at the time of diagnosis (Shafer & Waldron, 1975). Leukoplakia is a white plaque that cannot be removed by gentle scraping and for which no other etiology can be identified. About 20 percent of leukoplakic lesions show evidence of dysplasia or carcinoma at first clinical recognition with the floor of the mouth and ventral surfaces of the tongue as high as 45 percent (Axell, Pindborg, Smith & van der Waal, 1996). The malignant potential of a third common oral manifestation, lichen planus, is in dispute (Krutchkoff & Eisenberg, 1985). About 5 to 18 percent of epithelial dysplasias become malignant (Kaugers, Burns & Gunsolley, 1988; Krutchkoff, Chen, Eisenberg & Katz, 1990; Lumerman, Freedman & Kerpel, 1995). A greater risk of malignant change is associated with the following factors: erythroplakia within a leukoplakia, proliferative verrucous appearance, location at a high-risk anatomic site such as the tongue or floor of the mouth, the presence of

multiple lesions, and, paradoxically, a history of not smoking cigarettes (Silverman, Gorsky & Lozada, 1984). Verification of the premalignancy status requires a biopsy.

The etiology of oral cancers is multifaceted and may include numerous lifestyle and environmental factors. Tobacco use, alcohol consumption and, for lip cancer, exposure to the sun, are major risk factors (Baden, 1987; Blot et al., 1988; Silverman, 1992; Silverman & Shillitoe, 1990). A direct causal relationship between cigarette and cancer of the oral cavity is firmly established by numerous reports from the U. S. Public Health Service (CDCP, 1996). Smokers have a 2-18 times increased risk of developing oral cancer compared with nonsmokers (Horowitz et al., 1996) and risk for death from oral cancer is directly related to the number of cigarettes consumed daily (CDCP, 1996). Pipe and cigar smokers experience a risk for oral cancer similar or higher than that of the cigarette smoker, and long term use of snuff and chewing tobacco is a factor in the development of oral cancers, particularly of the cheek and gum (CDCP, 1996). Cessation of smoking has been shown to reduce the relative risk of oral cancer (CDCP, 1996). Risk of tobacco use for other cancers, although not included here, are among the highest of known carcinogens.

In summary, in light of the vast number of toxic and carcinogenic compounds that exist in tobacco and tobacco smoke and the level of exposure to these agents among tobacco users, it is not surprising that tobacco use is so profoundly implicated in the causation of oral and other human cancers. (CDCP, 1996, p. III-4).

All three forms of alcohol (beer, hard liquor, and wine) are associated with oral cancer (CDCP, 1996) and a combination of heavy smoking and heavy drinking results in odds ratios for oral cancer of up to 38 for men and 100 for women (Blot et al., 1988). Used in combination, alcohol and tobacco exert a synergistic effect that substantially increases the risk for oral cancer (CDCP, 1996). Alcohol and tobacco combined account for about 75 percent of all oral cancers in the U.S. (Blot et al., 1988). Mouthwashes with high alcohol content have been suspected of contributing to oral cancers but there is

insufficient evidence to establish a causal relationship between the use of mouthwash and oral cancers (Elmore & Horwitz, 1995).

Cancer along the vermilion border of the lip is induced by sunlight through actinic radiation (CDCP, 1996; Silverman & Shillitoe, 1990). A high prevalence in Newfoundland fisherman was attributed to their occupation (Spitzer, Hill, Chambers, Helliwell & Murphy, 1975). Darker skin pigmentation protects against actinic radiation damage (Blomquist, Hirsch & Alberius, 1991; Johnson, 1991).

Dietary staples, culturally indigenous foods, beverages, food additives, preservatives, and fats have been linked to the development of oral cancers (FDI Working Group, 1994; Hebert, Landon & Miller, 1993; Horowitz, 1996; Winn, 1995). Low beta-carotene intake is associated with increased risk of many cancers including oral forms (CDCP, 1996; Winn, 1995). Malnutrition or low dietary intake of essential minerals can deplete antioxidants and increase production of tumor-enhancing free radicals (Enwonwu & Meeks, 1995). Conversely, a diet high in fruits and vegetables containing vitamins A, C, and E and other nutrients appears to provide some protection against the development of oral cancers. "The most consistent dietary findings across multiple cultural settings are that high fruit consumption has a protective effect and that high alcohol consumption has a carcinogenic effect (CDCP, 1996, p. III-6)."

Dental factors have been suspected but there is little evidence to suggest that poor oral hygiene, improperly fitting dental prostheses, defective dental restorations, or misaligned or sharp teeth promotes oral cancer (Gorsky & Silverman, 1984). Moreover, most oral cancers occur along the sides and underside of the tongue and on the floor of the mouth, areas not affected by sharp teeth edges, ill-fitting dentures, gingivitis or periodontitis (Baden, 1987).

Genetic factors are emerging as cancer investigation progresses (CDCP, 1996; Winn, Diehl, Horowitz, Gutkind, Sandberg & Kleinman, 1998). Mutations in the oncogenes which normally promote cell growth and tumor suppressor genes are known to

play a major role in cancers of all types. The oncogene known as 'ras' is mutated in over 40 percent of human cancers including some oral cancers (Weinberg, 1996). The tumor suppressor gene, 'p53', is inactivated in most cancers including half of oral cancers (Paterson, Everson & Prime, 1996). Specific gene mutations may play a role in head and neck cancers as suggested by the frequent occurrence of nasopharyngeal carcinoma among multiple closely related family members (Yu & Henderson, 1996). Most other types of oral and pharyngeal cancers do not appear to be attributable to a single major gene as they are not demonstrated by strong clustering in families (Goldstein, Blot, Greenberg, Schoenberg, Austin, Preston-Martin, Winn, Bernstein, McLaughlin & Fraumeni, 1994).

Viruses influence many of the molecular events governing control of cell cycles and are the primary biologic agents of oral cancers. Most commonly implicated in oral cancer transformation are the human papillomavirus (HPV), herpes group viruses, and the adenoviruses (CDCP, 1996). HPV and herpes are considered to be the most synergistic in human oral cancer. Over 100 HPV types have been isolated from benign and malignant neoplasms and increasing evidence of the implications warrants more investigation (Mao, Schwartz, Daling, Oda, Tickman & Beckman, 1996; CDCP, 1996; Sugarman & Shillitoe, 1997). Herpes viruses linked to oral cancers are the Epstein-Barr virus and cytomegalovirus. Although not a usual consequence of systemic immunosuppression, HIV-associated oral malignancies have been reported among HIV-positive individuals and most commonly are Kaposi's sarcoma and non-Hodgkin's lymphomas (CDCP, 1996).

Social factors are also implicated in the development of oral cancers. Access to health services is a risk factor (Horowitz, 1996) and populations who experience poor access to health care have higher mortality rates (Smart, 1993). Moreover, persons of low socioeconomic status are more likely to engage in high-risk behaviours, such as tobacco or alcohol use (Day, Blot, Austin, Bernstein, Greenberg, Preston-Martin,

Schoenberg, Winn, McLaughlin & Fraumeni, 1993; Horowitz, 1996). In a discussion of experimental oral carcinogenesis and its impact on current oral cancer research Shklar (1999) noted that an understanding of the etiology at the molecular level will result in better ideas about how to prevent it. He states "The ultimate aim of medicine must be disease prevention rather than disease treatment" (Shklar, 1999, p.1771).

Early Detection of Oral Cancers

Early detection is the single most critical intervention influencing survival (Silverman & Shillitoe, 1990). The oral cavity is easily accessible and can be examined with little discomfort in an efficient and timely screening protocol. The rationale for health care providers to perform routine oral cancer screening was given by Horowitz (1996): oral cancer, although serious, is treatable in its early stages; treatment to asymptomatic patients is usually acceptable and provides benefits over later treatment of symptomatic patients; the screening examination is inexpensive and safe; and, the oral cancer examination offers health care providers an opportunity to identify and counsel patients about risk factors for cancers. Primary care providers - principally physicians, physician assistants, nurses, dentists, and dental hygienists - can easily incorporate the procedure into their routine examinations (Amsel, Engstrom & Strawitz, 1983; Axell, 1993; Chiodo, Eigner & Rosenstein, 1986; Fedele, Jones & Niessen, 1991; Guinn, 1990; Leong, Main & Birt, 1995; Meskin, 1994; Tan, Darby & Walsh, 1994; Thomas and Faecher, 1992). The role of the dental hygienist in screening for oral cancer in Canada is described by Cormier and Lavalley (1995) and Lunn (1997). Engaging in case-finding behaviour is associated with confirmed oral cancer or precancerous diagnosis (Sadowsky, Kunzel & Phelan, 1988). The screening procedure has been shown to be reliable even for primary health care workers with limited training (Warnakulasuriya & Pindborg, 1990). Studies of the oral cancer examination have demonstrated 58-80 percent sensitivity and 73-99 percent specificity (Horowitz, 1996; Ikeda, Ishii, Iida & Kawai, 1991; Jullien, Downer, Zakrzewska & Speight, 1995; Warnakulasuriya & Pindborg, 1990). Provisional

benefits and costs of opportunistic screening of preselected dental patients for oral cancer and precancer are favourable, and may be more cost effective than broad public health screening programs (Downer, Julien & Speight, 1998).

The examination for oral cancer includes a thorough history and a physical examination in which the clinician visually inspects and palpates the head, neck, oral and pharyngeal regions (Thomas & Faecher, 1992; Vokes et al., 1993). The history should include social and medical elements and a documentation of risk behaviours such as tobacco and alcohol usage. A history of head and neck radiotherapy and a personal history of cancer should be noted. Persons over age 40 are considered at higher risk for oral cancers. The examination procedure involves digital palpation of neck node regions, bimanual palpation of the floor of mouth and tongue, and inspection with palpation and observation of the oral and pharyngeal mucosa with an adequate light source and mouth mirror (CDCP, 1996). The entire clinical examination has been shown to take less than 2 minutes to perform (Niessen, Jones & Lonergan, 1986). The research evidence clearly supports screening by oral physical examination by different disciplines using simple maneuvers.

Typical signs of oral cancer are a non-healing ulcer, a persistent white or red lesion, a lesion which bleeds easily, difficulty chewing and swallowing, and difficulty moving the tongue or mandible (Fedele, Jones & Niessen, 1991). Early lesions are not typically accompanied by pain. A valuable adjunct to clinical examination and biopsy is vital staining with toluidine blue to help identify the presence of dysplastic or carcinomatous lesions (Rosenberg & Cretin, 1989). As a mouthwash or as direct application on suspicious lesions, the stain has been reported to have false-positive and false-negative rates of less than 10 percent (Mashberg & Samit, 1995). Lesions lasting more than two to four weeks should be referred for a definitive diagnosis through biopsy. Cytology including exfoliative cytology and fine needle aspiration may be useful in diagnosis particularly if there is a delay in or contraindication to biopsy (CDCP, 1996).

The stage of oral cancer is classified according to stages identified in the tumor-node-metastasis (TNM) protocol (CDCP, 1996).

Considerable evidence demonstrates that case-finding and targeting are viable and cost-effective interventions when provided as part of the routine practice of primary care providers (Horowitz, 1996). Even though dentists are the providers of choice, other health care providers such as physicians, dental hygienists, and nurses must assume more responsibility for ensuring that routine oral cancer examinations are accessible to the public. Limited knowledge, opinions, and practices of health care providers can serve as barriers to early detection and prevention. Several studies have shown that many physicians and dentists do not detect oral lesions in their early stages because of lack of knowledge or inappropriate attitudes (Crissman, Gluckman, Whiteley & Quenelle, 1980; Guggenheimer, Verbin, Johnson, Horowitz & Myers, 1989; Prout, Morris, Witsburg, Hurley & Chatterjee, 1992; Sadowsky, Kunzel & Phelan, 1988; Schnetler, 1992; Shafer, 1975). Many physicians do not routinely examine their patients to identify early, suspicious oral lesions (Amsel, Engstrom & Strawitz, 1983; Cooke, 1977; Love, 1988; Lynch & Prout, 1986; Prout, Heeren, Barber, Rose, Geller, Witzburg & Koh, 1990). One study showed that nearly 80 percent of patients diagnosed with advanced oral cancer were under routine physician care within the previous three to 24 months (Prout et al, 1990). Physicians have noted a number of disincentives to completing screenings for any cancers including time constraints, lack of financial rewards, treatment-based orientation, poor patient compliance, and lack of immediate results (Spitz, Chamberlain, Sider & Fueger, 1992; Williams & Williams, 1988).

Studies of dentist providers have shown that only 14 percent of dentists performed all aspects of intraoral examination (Maguire & Roberts, 1994), they were less adept at diagnosis and referral than physicians (Schnetler, 1992), they missed more asymptomatic cases than they found (Pogrel, 1974), and they failed to recognize oral cancer in a majority of cases presented to them (Coffin, 1964). Horowitz (1996) noted that the

results of these studies were largely unchanged over a period of three decades. An encouraging 10 year retrospective study in Alberta found a disproportionate increase in the number of premalignant biopsies relative to squamous cell carcinoma biopsies in the last five years, suggesting an improvement in the detection of oral premalignancy by dentists in that province (Peters & McGaw, 1995).

Prevention of Oral Cancers

Morbidity and mortality from oral cancers can be dramatically reduced with known interventions (CDCP, 1996). Education of both the public and health care providers has long been known to be the key to both prevention and control (Baden, 1987). Both should know the risk factors for oral cancers, sign and symptoms of oral cancers, and appropriate self-examination or professional examination (Horowitz, 1996). Health promotion efforts to provide appropriate interventions are the responsibility of all individuals and all levels of social organization (Frazier & Horowitz, 1995). Although education alone may not change behaviour, having knowledge and information is an essential element for taking appropriate action to prevent diseases such as oral cancers (Green & Kreuter, 1999). Other factors that influence behaviours are beliefs, values, and attitudes. The importance of understanding all factors underlying change in social behaviour may be underestimated. Horowitz (1996) noted that "the need to determine baseline knowledge, opinions, and practices of relevant user groups is analogous to determining baseline prevalence or incidence of a disease or condition" (p. 322). These data, along with epidemiological data, are all essential for the development, implementation, and evaluation of health promotion interventions regarding risk factors, early detection, and prevention. Dentists and dental hygienists play a pivotal role in helping patients understand risk factors, assisting them in decreasing their risk for oral cancer, and screening patients regularly for early signs of oral cancer.

The education and licensure of health care providers may also be a barrier to early detection and prevention. Medical and dental students will provide routine and effective

oral cancer examinations as graduate clinicians only if they receive early exposure to comprehensive curriculum in oral cancers and their prevention (O'Donnell, Bakemeier, Chamberlain, Gallagher, Kupchella, Parker, Hill & Brooks 1992; Prout et al., 1992; Walton, Silverman, Ramos & Costa, 1992). Curricular guidelines for dental and dental hygiene students suggested the knowledge required to provide oral cancer examination but did not specify the skill required to actually perform the examination (American Association of Dental Schools [AADS], 1989; AADS, 1992). The American Dental Education Association website lists competencies for beginning dentists including "Perform head and neck and intraoral examinations" (American Dental Education Association [ADEA], 2000a, p. 3). Competencies for beginning dental hygienists make no specific reference to extra or intra oral examinations but imply the necessity of adequate assessment of patients/clients to refer appropriately to other health professionals (ADEA, 2000b).

Recent surveys of U.S. medical and dental schools have shown that curricula in physical assessment for oral cancer, elicitation of signs, symptoms and high-risk behaviours from patients, and tobacco cessation intervention strategies are inadequate and lacking in comprehensiveness (Ahluwalia, Yellowitz, Goodman & Horowitz, 1998; Ferry, Grissino & Runfola, 1999; Rankin, Burzynski, Silverman & Scheetz, 1999) Although U. S. licensing board examinations may include questions related to oral cancers, no boards require applicants to perform an oral cancer examination in order to be licensed to practice in any jurisdiction, an omission which implies that oral cancer examination is not as important to the health of the patient as other dental procedures, such as placing amalgam restorations (Horowitz, 1996).

Differences among guidelines relating to oral cancer screening may contribute to public and professional misunderstanding and underutilization of simple and effective screening techniques. In a Health Canada summary of eight sources of oral cancer screening guidelines (Lipskie, 1998), only four recommend any form of oral cancer

screening from periodic screening of tobacco users to annual examination. The obvious lack of consensus among the preventive guidelines developed by the U.S. Preventive Services Task Force, the Canadian Task Force, and the American Cancer Society contributes to disagreement among practitioners and organizations regarding the value of oral cancer examinations and can serve as a rationale for not providing this simple and efficient screening (Horowitz, 1996). Of the three authorities, only the American Cancer Society recommends routine screening every 3 years for persons over 20 years of age and annually for those 40 years of age and older. A more recent Canadian analysis of oral cancer screening supports the earlier Canadian Task Force lack of recommendation for routine OC examination but does acknowledge that quality of evidence continues to be a major concern in the evaluation of oral cancer screening (Hawkins, McCabe & Leake, 1998). This more recent analysis states that screening for oral cancer is clouded with the same issues as screening for many other forms of cancer; the authors quote O'Malley and Fletcher (1987) "the problem . . . is not evidence of a lack of effect, but lack of evidence". The rationale given by Horowitz (1996) for health care providers to perform routine oral cancer screening is based on criteria supported by scientific evidence. Horowitz points out that in the case of oral cancers, the prevalence and relatively low incidence are in debate because of reported comorbidity with other upper aerodigestive cancers. Consequently the actual prevalence and incidence are likely to be higher. Moreover, an oral cancer examination requires only a few minutes, a reasonable cost for a procedure of such benefit to patients. "Inasmuch as scientific and cost-effective parameters used to support preventive guidelines are still being defined, current guidelines should not deter the application of available and effective technologies." (Horowitz, 1996, p. 324)

Students and practitioners must also receive appropriate guidance and training in the assessment of risk behaviours for oral cancers. Earlier studies of curricula showed that as much as 25 percent of U.S. and Canadian dental schools (Yellowitz, Goodman, Horowitz, & Al-Tannir, 1995), and 36 percent of U.S. dental hygiene schools (Gurenlian,

McFall, Mounts & Williams, 1996) use health history forms that fail to ask about the use of alcohol and tobacco. More recent studies have shown increased numbers of dental and medical schools requiring reporting of alcohol and tobacco use on health history forms (Ahluwalia et al., 1998; Rankin et al., 1999) but only about a third report any instruction in tobacco cessation (Ferry et al., 1999; Rankin et al., 1999). Education curricula and continuing education courses providing adequate education in oral cancer assessment and prevention are indicated for a wide range of health professionals, and dentists and dental hygienists in particular because of their key role in screening and patient education.

Oral health practitioners can play a leading role in tobacco cessation services but tobacco control activities by dentists and dental hygienists are not routine. Although health care providers are urged to assist patients in tobacco cessation, the rationale for discontinuing tobacco use often fails to note oral cancers, and education materials for providers do not always link tobacco use with oral cancers (Horowitz, 1996). In a U.S. national survey using self-administered questionnaires and telephone interviews to collect data, only a third of dentists and a quarter of dental hygienists asked nearly all of their patients during the past three months if they smoked. Formal tobacco use cessation training was reported by 23 percent of dental hygienists and 14 percent of dentists (Dolan, McGorray, Grinstead-Skigen & Mecklenburg, 1997). In 1993, a pilot smoking cessation program was accepted by four dentists in East York, Ontario, but none had incorporated the program into their office routine one month later (O'Keefe, Lessio & Kassirer, 1995). A 1992 survey of dentists in Alberta found that about 60-70 percent believed that they should try to actively help patients quit but 25 percent indicated that intervention by the dentist was not appropriate (Campbell & MacDonald, 1994). A follow-up study of dentists and dental patients in rural Alberta reported that most patients and dentists believed that tobacco cessation services should be provided in dental offices, and more patients than dentists supported this service (Campbell, Sletten & Perry, 1999). An intervention was implemented based on this information and the willingness of

patients, dentists, and dental hygienists to participate. The Habitrol Dental Tobacco Education Program, touted as the first of its kind in North America (Davies, 1999), is a partnership of the Alberta Dental Association, the Alberta Dental Hygienists Association, the Alberta/NWT division of the Canadian Cancer Society and Novartis Consumer Health Canada Inc. The Habitrol Stop Smoking System, a three-step nicotine patch in combination with a support system, is delivered by Alberta dentists and dental hygienists to patients in private dental offices. The Alberta Dental Association and the Alberta Dental Hygienists Association are both members of the Alberta Tobacco Reduction Alliance (Alberta Dental Hygienists Association, 1999). Nationally in Canada, the Canadian Cancer Society partnered with the Canadian Habitrol manufacturer to launch a self-help booklet which is available to the public free of charge and which is widely promoted through many public and professional means including the journal of the Canadian Dental Hygienists Association (CDHA, 2000).

While the role of health care providers is perhaps more critical in early detection and the provision of primary prevention interventions, public knowledge, opinions, and practices regarding oral cancers are fundamental in the long-term prevention of oral cancers. Surveys of adults' knowledge of oral cancer have shown low levels of knowledge about signs and symptoms and risk factors for oral cancer (Bhatti, Downer & Bulman, 1995; Horowitz, Moon, Goodman & Yellowitz, 1998; Horowitz, Nourjah & Gift, 1995). Without adequate knowledge the public cannot make safe choices regarding potential risk factors or the gravity of not seeking care for symptoms. A survey of U.S. coverage and quality of oral cancer information in the popular press for the period 1987 to 1998 showed an obvious lack of coverage which partially explains the public's lack of knowledge and misinformation about oral cancer (Canto, Kawaguchi & Horowitz, 1998). Even after becoming aware of an oral sign or symptom, most patients have delayed seeking professional advice for more than three months (Silverman & Dillon, 1990). Knowledge of the existence and value of the oral cancer examination procedure enables

the public to determine whether their practitioners are providing comprehensive examination (Horowitz, 1996; Julien, Downer, Zakrewska & Speight, 1995). An analysis of factors associated with having oral cancer examinations among U.S. adults 40 years of age or older showed that only 15 percent reported ever having had an oral cancer examination, and less than half of these had one in the past year (Horowitz & Nourjah, 1996). In addition to seeking professional care, the public can be educated to perform mouth self-examination, a preventive technique to detect early oral-facial lesions (Crosson, 1979; Glass, Abla & Wheatley, 1975) which has detection rates that compare favourably with those of trained health care providers (Matthew, Sankaranarayanan, Wesley & Krishnan Nair, 1995).

Messages designed to change the behavior of the public to improve health are a critical dimension of prevention. The aim of the Science Awareness Program of the National Cancer Institute in the U.S. is to get more and better information to the public (Office of Cancer Communications, National Cancer Institute, 1997). Focus group research prior to the launch provided insights regarding the public's perceptions and understanding of cancer research and its accomplishments. Key findings showed that some words and phrases commonly used by the scientific community were not well understood by the public and often had negative connotations. The resulting recommendation is that the language used in communication messages must be simple, clear, and direct (Office of Cancer Communications, National Cancer Institute, 1997). This is no less true for individual clients seeking health care than those receiving broadly-based public messages. All health care professionals are message providers and their choice of form and delivery are important in the education of the public.

Goals for the prevention, early detection, and control of oral cancers were clearly identified in the Healthy People 2000 objectives for the U.S. To achieve these goals Horowitz (1996) elaborated strategies for change and recommendations for both health care providers and the public in five main categories: access to health care, policy,

education, practice, and research. To increase access appropriate reimbursement and coverage for oral cancer examination must be provided in both public and private third-party support for oral health. Policy recommendations for health care providers are the development of consensus recommendations in preventive care clinical guidelines specifically advocating routine annual oral cancer examinations, the inclusion of oral cancer examination technique on licensing board examinations, and mandatory continuing education courses on oral cancers for relicensure. Public policy recommendations encompass tobacco and alcohol laws and regulations and include the reduction of access by youth, the reinforcement of no-smoking laws, and increases in tobacco and alcohol taxes. Education programs for health care providers must provide comprehensive oral cancer prevention and early detection in undergraduate professional school curricula, a requirement for oral cancer examinations, and the improvement of content, quantity, and approach in oral cancer continuing education curricula. Public oral cancer educational interventions must be developed for health care providers and organizations, consumer groups and government agencies. Practice recommendations for health care providers include annual oral cancer examinations for all patients or clients by all physicians, dentists, nurses, nurse practitioners, physician assistants and dental hygienists; the use of standardized health history forms that address oral cancer high-risk behaviours; patient education about the need for annual oral cancer professional and self-examination; and, patient counselling about high-risk behaviours. Practice recommendations for the public emphasize the development and testing of health promotion interventions to advance routine use of oral cancer examination, the routine performance of mouth self-examination, and requests by the public for annual oral cancer examinations by health care providers.

These recommendations are pertinent to the research carried out for this doctoral investigation. Heading the list of recommendations regarding research related to health care providers is the periodic determination of practitioner knowledge, opinions, and

practices. Additional recommendations for research are the determination of the sensitivity and specificity of oral cancer examination and those of early detection and adjunctive oral cancer screening tools used by health care providers. Undergraduate and continuing education curricula for health care providers and education material on oral cancer prevention and early detection should be assessed for availability and appropriateness. With regard to population research, public knowledge, opinions, and practices are also recommended for periodic determination. Additional recommendations for population research are the determination of the sensitivity and specificity for oral cancer self-examination, the availability and appropriateness of health education materials, the best methods for health promotion interventions, the effectiveness of different tobacco and alcohol product labels on knowledge and awareness of oral cancer risks, and the feasibility and desirability of an oral cancer self-examination kit (Horowitz, 1996). These recommendations were reinforced by those of the 1996 National Strategic Planning Conference for the Prevention and Control of Oral and Pharyngeal Cancer and the follow-up meeting in 1997 (American Dental Association, Centers for Disease Control and Prevention, & National Institute of Dental Research, 1996).

Assessment of Dentists' and Dental Hygienists' Knowledge, Opinions, and Practices Regarding Oral Cancer

The outcomes of the 1996 National Strategic Planning Conference for the Prevention and Control of Oral and Pharyngeal Cancer and the follow-up meeting in 1997 are many individual and nation-wide initiatives in the United States to reduce oral cancer prevalence and incidence. The recommendations regarding professional knowledge and behaviours advocate early detection through routine examination by all clinicians with procedures appropriate to their professional practices, and assessment of risk factors with appropriate intervention such as tobacco cessation. Determining gaps in professional knowledge and practice is essential for the development of appropriate and targeted interventions in basic and continuing education programs. For that purpose,

numerous surveys of dentists' and dental hygienists' knowledge, opinions, and practices were undertaken.

To date, the Maryland state surveys and the national surveys of dental hygienists and dentists have been reported. Other health care providers have also been surveyed recently but are not reviewed here. Results of the Maryland survey of dentists showed differences between their opinions and their practices with regard to oral cancer and that differences at $p < .05$ were associated with recentness of graduation and continuing education courses (Horowitz, Drury, Goodman, & Yellowitz, 1999). Knowledge of risk factors and diagnostic knowledge were inconsistent (Goodman, Horowitz, Yellowitz & Drury, 1999). The risk factors of tobacco use, alcohol, and prior oral cancer lesion were correctly identified by nearly all dentists but poor oral hygiene was incorrectly identified by nearly half. Only about one third identified the majority of diagnoses to occur in those at or older than 60 years even though about two-thirds identified older age as a risk factor. Common sites of oral cancer, the ventral lateral portion of the tongue and the floor of the mouth, were correctly identified by about three fifths of respondents but only one third ranked erythroplakia and leukoplakia, in that order, as lesions most likely associated with oral cancer. Finally, only about three quarters of respondents identified that patients with early oral cancer lesions are usually pain-free.

The results of the national survey of dentists demonstrate similar levels of knowledge related to risk factors but were less favourable overall for diagnostic knowledge (Horowitz, Goodman, Yellowitz & Drury, 1998; Horowitz, Drury, Goodman & Yellowitz, 2000; Yellowitz, Horowitz, Goodman, Canto & Farooq, 1998; Yellowitz, Horowitz, Drury & Goodman, 2000). The national sample was 35 percent more knowledgeable about risk factors than diagnostic procedures. On 14 items of risk knowledge, nearly all dentists correctly identified patients' tobacco use (99.7 percent), prior oral cancer lesion (96.4 percent) and alcohol use (92.7 percent) as risk factors for oral cancer. About 70 percent identified older age as a risk factor, but only one third

recognized that oral cancers are most often diagnosed in patients 60 years of age or older. Lip cancer related to sun exposure was correctly identified by 64 percent and one third correctly identified low consumption of fruits and vegetables as a real risk factor. Regarding nonrisk factors three-fourths of dentists knew that hot beverages and foods and spicy foods are not risk factors for oral cancer. Obesity as a nonrisk was correctly identified by 70 percent, poor oral hygiene and familial clustering, about 50 percent, and poor fitting dentures, less than 40 percent. Only eight percent recognized that family history of cancer is not a risk factor for oral cancer. On the total of 14 risk items, the average score was eight correct items.

On nine items of diagnostic knowledge, 83 percent of dentists knew that squamous cell carcinoma is the most common type of cancer, 81 percent identified all of the procedures for examining the tongue, 80 percent recognized that an early oral cancer lesion usually is a small, painless red area, 76 percent knew that a patient who has early oral cancer usually is asymptomatic, 71 percent knew that the ventral lateral border is the most common area of the tongue to develop oral cancer, 69 percent knew the signs of a lymph node most characteristic of oral cancer metastasis, 54 percent knew the tongue and floor of the mouth are the two most common sites of intraoral cancer, and 51 percent knew that most oral cancers are diagnosed in an advanced stage. At the low end of correct response, only 37 percent knew that erythroplakia and leukoplakia, in that order, are the two lesions most likely to be associated with oral cancer. Another 40 percent identified both lesions but in the wrong order. On the total of nine diagnostic items, the average score was six correct items .

In a further analysis of dentists who were consistently above average in their scores, there were still specific gaps in knowledge: only three fifths knew that lip cancer is related to sun exposure, half did not know that poor oral hygiene is not related, only a third knew that most diagnoses occur among persons at or older than age 60, and nearly

one half did not know that most oral cancer lesions are currently diagnosed at an advanced stage (Drury, Horowitz, Goodman & Yellowitz, 1999).

The national survey of dentists also determined the number of oral cancer risk factors for which dentists probe in medical histories, and the number and type of patients for whom they provide oral cancer examinations (Horowitz, Drury, Goodman & Yellowitz, 2000). The results indicated that dentists assessed about five of the eight health history items on the survey. Although 86 percent reported that they did not conduct oral cancer examinations on edentulous patients 18 years of age or older, 81 percent reported that they conducted oral cancer examinations for 100 percent of their patients 40 years of age or older on their initial appointment. The authors suggested that the survey results are probably more positive, or better, than those of non-respondent general practice dentists since survey respondents tend to have a greater interest in, or agree with, the topic being asked about in a survey. Similarly, while the study pointed to the need for systematic educational updates for oral cancer prevention and early detection, those dentists who actually expressed their interest in such courses may overstate the level of interest among dentists in general. The problem of practitioner surveys overreporting practices and underrepresenting real practices in the target group was emphasized in this study.

Coincident with American and Canadian initiatives and research, the European community have also moved to prevent and control oral cancer. In their report of United Kingdom dentists opinions, attitudes, and practices regarding screening and counselling for oral cancer prevention and early detection, Warnakulasuriya and Johnson (1999) cite recent European and U.K. undertakings including many supported by the Federation Dentaire International. In that study, an overwhelming majority of dentists claimed to provide routine screening of their patients but half did not inquire about risk habits related to oral cancer and less than one third routinely provided brief health education advice concerning these. The data in that report were collected in 1991 as baseline to

measure the need for continuing education and may reflect opinions, attitudes, and practices of the period of time prior to attention being drawn to the need for oral cancer prevention and control.

Surveys of dental hygienists in the United States show knowledge consistent with dentists in the high percentage of correct identification of tobacco, alcohol and prior oral cancer lesion as risk factors but also show incorrect identification of poor fitting dentures as a risk factor (Forrest & Horowitz, 1999; Forrest, Horowitz & Schmuely, 1998). Overall the dental hygienists' knowledge was low, and that level was consistent with their report that their knowledge was not current. Mean knowledge scores were associated with year of graduation and age of respondent. The relationship between knowledge scores and groups performing oral cancer examinations was significant ($p < .01$) (Forrest, Horowitz, Drury, Schmuely, 1999). Comparisons of dental hygienists' and dentists' knowledge, opinions and practices are not reported. The limitations of publications in abstract form constrain the comparisons which are germane to this investigation.

Part 3. Current Ideologies and Policy in Health Care and the Regulation of Professions

Professional regulation and health care in Canada have been transformed by the prevailing social, political, and economic trends influencing Canadian public policy in the past two decades. The changes are reflective of the "explosion of democratic consciousness and equality" in Canada and the world (Pal, 1992, p. 259). Strongly held views on rights and equality pervade Canadian discourse and affect social trends such as the regulation of professions and provision of health care. Key themes in the changing ideology in Canadian health care which have demonstrable impact on dental hygiene and dentistry are the clear emphasis on quality assurance in the regulation of health care providers, the paradigm shift to disease prevention and health promotion, the increasing demand for access to health care, and the critical emphasis on the appraisal and use of research evidence in the provision of health care. These social and cultural forces are precisely those which Abbott (1988) elaborates as shaping the definition of claims made

by professions regarding their professional jurisdictions as well as opening and closing vacancies for professions.

Professional Regulation

Until the last decade, even though many groups and organizations are affected by professions and their regulation, the ideologies and interests of the professions themselves shaped the provision of professional services, and governments allowed them wide discretion in defining their scope of practice, the rates of pay or costs for services, and manner of policing members of professions (Tuohy and Wolfson, 1977). Indeed, the multiplicity of groups and organizations affected by professional regulation identified by Trebilcock (1978) include: consumers and potential consumers, members of a profession including those with functions and expertise other than the norm, paraprofessionals functioning in the area, related or overlapping professions, or those with ambitions in the same area, entrants and potential candidates for the professional groups, professional educators and their institutions, third parties affected, taxpayers who subsidize professional education and service delivery, and the state which must protect all of the public's interests and nurture economic stability. The generally accepted consensus is that regulation exists or is created to provide some degree of protection for all those concerned. The central issue regarding professions may well be the question of how professional services should be structured and controlled. Since a profession can maintain its autonomy only if permitted to do so by society, it is the right of the public to review and prescribe what is in its best interest.

The Public Interest in Professional Regulation

The public interest in the perplexing and complex phenomenon of professional regulation is at the heart of regulatory change. The traditional professional control over the producer-consumer relationship has resulted in many adverse consequences for consumers and society (Bohnen, 1977). In a review of health manpower regulation Gaumer (1984) identified the fundamental issues which must be resolved in order to

protect the public interest as the restricted access to providers has resulted in high costs to consumers, inadequate response of autonomous professions to consumer complaints, maintenance of professional competence throughout the life of the professional, and conflict between and within professions. The cumulative impact of occupational licensure and professional self-regulation on health care is a rigid division of labour throughout the health care industry, a suppression of experimentation with alternative types and uses of manpower, and severe limitations on consumer choice (Havighurst, 1986).

The trends in professional regulation are described by Freidson (1983) as movements toward deregulation, bureaucratic regulation, and collegial regulation. Deregulation is a form of regulation in which regulation by the market is substituted for government regulation. The two main forms of deregulation are elimination of the legal advantages of licensing by some professions over competing occupations, and elimination of the restriction of competition among members of a profession. Mandated collegial regulation or peer review is a legal requirement for professions to take a more active and formal role in regulating the affairs of their members.

A Canadian solution for health human resources legislation was proposed in the Recommendations of the Health Professions Legislation Review [HPLR] for Ontario (1989), a novel blending of bureaucratic and collegial regulation (Coburn, 1993; Freidson, 1984). The Review recommended an omnibus act for all designated health professions coupled with a uniform Health Professions Procedural Code and an individual Professional Act for every profession to be regulated. New provisions in the public interest included an increase in the number of public members on regulatory Councils, provision for public hearings of complaint and discipline reviews, and a requirement for maintenance of practitioner competence after initial registration. Other provinces have taken similar action. The British Columbia Ministry of Health initiated a review of health professions resulting in the introduction of the omnibus act, the Health

Professions Act in 1990; the Government of Alberta released its Principles and Policies Governing Professional Legislation in 1990, and subsequently, the recommendations of the Alberta Workforce Rebalancing Committee (1994); and, the Manitoba Law Reform Commission released a discussion paper on the Future of Occupational Regulation in Manitoba in 1993. Even in provinces which have not yet initiated a review, the need for review has been documented; for example, Nova Scotia's Blueprint for Health System Reform (1994) recommends a review of health professions' legislation. In all of these regulatory initiatives, the requirement for the appointment of public members to regulatory boards is consistent with evidence in the literature which has shown the positive affect of public members on the legislative adoption of consumer-oriented reforms (Graddy, 1991).

For most of its history in Canada, the practice of dental hygiene has been regulated under dental acts. When dental hygiene was first introduced into Canada, standards of education and licensure were not developed, and the paucity of practitioners in most provinces made self-regulation impractical. The initial regulation of dental hygiene under dental practice acts was therefore a reasonable approach (HWC, 1988a). By 1987 many authors and researchers concluded that the regulation of dental hygiene should cease to be the responsibility of dental governing bodies and should be vested in other bodies (HWC, 1988a).

Dentistry in Canada has always been a self-regulating profession though legislative statutes have varied by province and territory. In his 1987 text on dental law in Canada Rozovsky has two conflicting statements regarding the public interest in professional legislation (Rozovsky, 1987). First he states that any conflict between members of a profession and the public must be resolved in favour of the public. Then he states that the two purposes of governing a profession by law are to protect the public against unqualified providers and to create a monopoly on the practice of the discipline to reserve it solely for those who are recognized by those already in the discipline. In this

recent textual overview of dental law in Canada, the perspective is more protective of professions than the view of the Ontario Health Professions Legislation Review which states "the sole purpose of regulation is to protect the public interest, and not to enhance any profession's economic power or to raise its status" (HPLR, 1989, p. 3). These two disparate viewpoints are expressed only two years apart and reflect the rapid change which has occurred in the philosophical underpinnings of health professions legislation in Canada.

Dental hygiene has been affected by the current trend towards self-regulation for many health professions and occupations. In 1987 nine provinces and both territories had minimal or no representation of dental hygienists on the bodies responsible for licensure of dental hygienists in that jurisdiction. By 1999, five provinces had granted self-regulation status to dental hygiene (CDHA, 1997a) and discussions regarding self-regulation are occurring in most other provinces. While the trend in the regulation of dental hygiene has been towards self-regulation the scope of practice has not changed substantively, and in all provinces and territories the dental hygienist must still practice only under the supervision, or at the direction, or on the order of, a dentist, except for British Columbia which permits dental hygienists to practice independently provided the patient has been seen by a dentist within 365 days (Province of British Columbia, 1994). There is no uniform meaning or interpretation of the term supervision (HWC, 1988a). The restrictions on dental hygienists who work in public health have historically been much more permissive than those for private sector employees. The persistence of these stringent supervision requirements, even under self-regulation, are inconsistent with other health professions and the educational and clinical competence requirements of dental hygienists for licensure (HWC, 1988a; Johnson, 1982). Rigid supervision requirements restrict the availability of needed preventive care (Monteith, 1984) by limiting access to preventive dental services in institutions and locations which cannot afford or do not require the services of a dentist (HWC, 1988a).

Quality Assurance in Professional Service

The changes in professional regulation which require practitioners to maintain competence after initial registration and licensure reinforce and advance quality assurance. Governments and other third party subsidizers of health care as well as clients or consumers of health care all expect quality care from health practitioners. The assurance of quality care requires that the practitioner perform at a level which compares favourably with established standards. Mechanisms of assuring quality of professional care are expressed in forms such as accreditation of professional education programs, the credentialing of practitioners through licensure and certification, and the maintenance of competence following licensure through peer review, mandatory continuing education requirements, and both voluntary and mandated adherence to standards of practice (HWC, 1988a; McKinney, 1994).

The development of a quality assessment model in the medical community (Donabedian, 1966) was the impetus for the creation of practice standards. Quality of care for clients can be assessed in three areas: structure, process, and outcome. Structural criteria refer to the setting in which care is provided, process, to the actual care provided, and outcome, to the results of care. A quality assurance model for dental hygiene was created in the United States as early as 1982 (American Dental Hygienists Association, 1982). In Canada, practice standards were first published by a federal government working group (HWC, 1988b) and subsequently revised by the Canadian Dental Hygienists Association (1995b). Although the national dental hygiene practice standards are currently voluntarily implemented, provincial regulatory boards and professional associations may require the use of the standards, their monitoring, and enforcement for maintenance of licensure. In the Province of British Columbia, the Bylaws of the College of Dental Hygienists of British Columbia, the regulatory body, include practice standards which are currently at final stage of preparation and approval by government (College of Dental Hygienists of British Columbia Registrant's

Handbook, 1999). These broadly worded practice guidelines are intended to be applied in all practice settings to guide daily dental hygiene practice. A 1993 workshop on writing evidence-based clinical guidelines in dentistry was aimed at producing evidence-based clinical guidelines which could be formally adopted by the regulatory bodies as standards of practice (Leake & Woodward, 1994). Subsequent initiatives in dentistry are also reported (Leake, Main, and Woodward, 1996). Regardless of the disagreement about the meanings of practice guidelines and standards of practice, and independent of the legal requirement in professional regulation, Leake and Woodward (1994) suggests that the intent of these guidelines is to make clinical decisions easier and outcomes more predictable.

The fundamental premise of clinical guidelines is that gaps exist between scientific evidence and clinical practice. Mandatory continuing education requirements typically demonstrate attendance but content requirements are not specified and the application of continuing education learning in practice is not determined (College of Dental Hygienists of British Columbia [CDHBC], 1999; Provincial Dental Board of Nova Scotia, 1997). Success in maintaining competence and the provision of quality professional care is more likely to occur if practitioners have guidelines for practice. Scientific evidence reviewed and compared with standards of acceptability can more readily be used by practitioners. Gaps between research evidence and both clinical practice and public knowledge have been noted in dentistry, particularly in the areas of prevention of dental caries and oral cancers (Forrest & Horowitz, 1999; Forrest, Horowitz & Bross, 1997; Horowitz, 1995; Horowitz et al. 1995, 1996, 1998a, 1998b, 1999, 2000; Yellowitz et al., 1998; 2000). These clear indications of knowledge, opinions and practices that are inconsistent with research evidence have drawn attention to the growing need for mandatory continuing education with standards of care and guides for practice.

Health System Reform

The increased emphasis on health promotion and disease prevention in Canadian health care has been heralded as a new paradigm in health. Although dental hygiene appears to be consistent with this perspective, the impact of this movement on dental hygiene has not been assessed to date. Dental care remains essentially isolated from the remainder of health care in Canada, and most dental hygienists continue to work in the private practices of dentists.

The Paradigm Shift in Health Care

Canadian health care is guided by social policy which has been remarkably successful in providing access to medical services. The present period of change, however, is driven by a paradigm shift in health care and the escalating costs of the national health care system. Across Canada the definition of health has broadened and the emphasis is shifting from curing illness to promoting health and preventing disease. The Lalonde Report (Lalonde, 1974) explored the notion that many factors other than health care contribute to health or illness. Health promotion programs following that report were designed to help people adopt healthy lifestyles. In the 1980s the importance of other health determining factors was acknowledged. The influences of the social, physical, economic and political environment were held to be the underlying conditions that determine health. The First International Conference on Health Promotion and the release of the federal government document Achieving Health for All: A Framework of Health Promotion ushered in a new era in Canadian health care (Epp, 1986). These initiatives focused attention on the equitable achievement of health by society as a whole. The purpose of health promotion is to enable people to gain greater control over the determinants of their own health (World Health Organization, Health and Welfare Canada & Canadian Public Health Association, 1986).

Health promotion is generally viewed as encompassing health education. The distinctions between health education and health promotion provided by Green and

Kreuter (1991) are related to purpose, emphasis and location of activity. Whereas health education is generally aimed at voluntary adaptation of individual behaviours to be consistent with those which confer health, health promotion is aimed at refining the broader social environment to better sustain health. The emphasis in health education is on changing the behaviour of people, individually or collectively; in health promotion, it is on changing the environment to better support individual and collective health. Both health education and health promotion activity may be at the individual and the community level but health promotion must occur at all levels of individual, community, and government if positive social change is to take place. The health promotion movement addresses the multiple and important effects of social, economic, and environmental factors in shaping the health of individuals and populations (Evans, Barer & Marmor, 1994; Fulton, 1993; Pederson, O'Neill & Rootman, 1994).

Key themes in Canadian health promotion are accessibility, multisectoral collaboration, and public participation (Stewart & Langille, 1995). The philosophical underpinnings of many of the changes now proposed are founded on the five principles of primary health care developed, supported, and promoted through the World Health Organization and including equitable accessibility to health care and the determinants of health, maximum individual and community participation in the planning and operation of health services, increased emphasis on health promotion and illness/injury prevention, use of appropriate technology, and integration of health development with social and economic development through interdisciplinary and intersectoral collaboration (WHO, 1978; 1988; 1995). The role of health care professions in health promotion is critical (Pederson, Edwards, Kelnor, Marshall & Allison, 1988). In combination with health education, health promotion by health professionals can serve the public by providing both knowledge of health behaviours and the essential means by which individuals and communities can make choices to enhance their health. In a publicly funded health care system this aim appears to be reasonable and achievable. Dental services, however,

remain nearly exclusively in the private sector, and are only infrequently part of publicly funded initiatives.

Dental hygiene is associated with the new paradigm of health through two significant linkages. From the existing documentation on dental hygiene tasks or professional work, it is clear that the preventive and health promotion services of dental hygienists are synchronous with prevailing primary health care ideology. Within their role in the prevention of disease, dental hygienists function in case finding, the provision of primary and some secondary preventive services, and the promotion of health. That these services should be widely available to the public is also consistent with the primary health care principle of increasing access to all forms of health care. It is expected that although most dental hygienists will continue to be employed in the private sector, more diverse roles will evolve in the public sector in primary health care centres, and institutional settings (HWC, 1988a). This position has been adopted by the Canadian Dental Hygienists Association and is the basis of their activity as an interest group (CDHA, 1992a). Lobbying efforts are directed towards the removal of legislation which restricts public access to dental hygiene services (Alberta Dental Hygienists Association [ADHA], 1996; College of Dental Hygienists of Ontario [CDHO], 1995). In British Columbia the key argument for the removal of regulation requiring supervision of dental hygienists was the anticipated increase in public access to these needed preventive health services. The Province of British Columbia accepted the validity of this claim in the regulatory provision permitting dental hygienists to provide dental hygiene services in longterm care facilities without the supervision of a dentist (Province of British Columbia, 1994).

Healthy Public Policy

The political nature of health care and health policy arises from a web of constitutions, statutes, policy documents, and the vested interests of the stakeholders who define, provide, manage, and consume health care (Fulton, 1993). The public policy

process signifying and legitimating health system reforms is engendering an unprecedented magnitude of response from individuals and all levels of aggregate organization in Canada: local, regional, provincial, and federal governments, health care professions, consumer organizations, and private sector interest groups. Although it is suggested that the differences among healthy public policy, public health policy and health promotion policy are conceptually indistinct (Pederson et al., 1988), in recent decades there is an apparent shift "from public health policy to healthy public policy" (Glass & Hicks, 1995, p. 200). Public policy, "as an expression of political intent and power, is the framework within which the other strategies of health promotion can operate" (Hancock, 1994, p. 351). The shift to building "healthy public policy" represents the first health promotion strategy recommended by the Ottawa Charter for Health promotion (World Health Organization, Health & Welfare Canada & Canadian Public Health Association, 1986). Healthy public policy accepts the variety of health determinants and focuses on improving population health. It recognizes equity and participation as underlying premises. The multidisciplinary approach is essential to the planning, implementation, and evaluation of complex health services, and intersectoral collaboration is necessary to provide the superstructure for policy and strategy development. The information required to identify population needs and to support the healthy public policy approach must be drawn from multiple sources. The process of developing healthy public policy demonstrates all five primary health care principles and is intensely challenging in its spectrum of participants, stakeholders, and issues.

In the past 15 years, Canadian national, provincial and territorial governments have reviewed their health care systems in order to reduce costs, improve the organization and management of health care delivery, enhance quality of care, assess new technologies, and improve the overall impact on population health issues. The analysis of the findings, recommendations, and outcomes of all task forces and commissions identified common themes and changes which indicate that, although policy change is

occurring unevenly across the country, there are new directions in healthy public policy (Angus, 1990, 1994; Canadian College of Health Service Executives [CCOHSE], 1995; Health and Welfare Canada [HWC], 1992; Organization for Economic Co-operation and Development [OECD], 1993, 1994). In all provinces, the changes are in the direction of broadening the definition of health, containing the financial resources in health care, decentralizing authority, reviewing the mix of health human resources, and shifting resources from acute to community-based services. The deliberations of the National Forum on Health produced recommendations based on reviews of the determinants of health, evidence-based decision making, values, and the balance between public and private funding (National Forum On Health [NFOH], 1997).

The Isolation of Oral Health from Health Care

The dental health care system in Canada is strangely dissociated from all other health care, as if to suggest that the mouth can be reasonably isolated from the rest of the body. There are practically no public and very few professional calls for reform in dental care. Problems in oral health and health care were identified in an unpublished federal report (Health Welfare Canada, 1991). The needs for national, provincial, and regional data on oral health status, access to oral health care, and attitudes and behaviours towards oral health, were identified as high priority in this report. Greater emphasis on oral health promotion and cost-effective preventive procedures were recommended for both public and private dental services. Similar to the larger health care field, dental health promotion and education activities often receive less support than the treatment-oriented approaches to dental care. In a review of the literature on dental education and health promotion, Brown (1994) demonstrated that, even though many studies lacked methodological rigour, improvements in objective measures of dental health behaviour and actual oral health measures have been demonstrated. Combinations of dental health education and health promotion with known preventive measures have been shown to be effective at the level of the individual and in community programs (Allukian & Horowitz,

1998). There is both a need for more prevention and health promotion related to oral health and considerable interest and research in this area.

Canadian public policy in dental resource supply or service organization is virtually non-existent (Kazanjian, 1993). Dentistry is largely in the private sector and organized dentistry has been able to maintain its nearly complete dominance over dental human resources through professional governance statutes permitting their control of other dental personnel. Apart from denturists who received the right to practice independently in the early 1960s, subordinate groups have been totally dependent on dentists for the creation of the labour market.

Dental hygienists can effectively substitute for dentists in a number of settings and fields such as case finding, the provision of primary and some secondary preventive services, and the promotion of health (HWC, 1988a; Kazanjian, 1993). The major impediment to providing a full range of dental hygiene services in a more varied range of practice settings has been over-regulation (Monteith, 1984). There is some evidence in Canada and United States that independent dental hygiene practitioners can provide quality service at a lower cost to the consumer (Astroth and Cross-Poline, 1998; Freed, Perry & Kushman, 1997; McDonald-Wright, 1995). The potential benefits of independent dental hygiene practitioners have been likened to those of nurse practitioners, with similar resistance from the dominant profession. The concept of manpower substitution in Canada, particularly those occupations which might be seen as dentist alternatives, was noted as highly controversial by Soderstrom (1978). Reduced costs, greater accessibility to dental hygiene services, and greater consumer choice are, however, undeniably in the public interest (Manga, 1997; Manga & Campbell, 1994). Accessibility of care is the fundamental primary health care principle giving rise to a position statement on the management of dental hygiene care by the Canadian Dental Hygienists Association (CDHA, 1992a). The guiding principles for the position statement include the entitlement of every Canadian to access comprehensive oral health

care and reflect the position of both the national and provincial associations that unnecessarily restrictive regulation of dental hygiene limits public access to dental hygiene services.

Health system reform in Canada has unequivocally confirmed the public interest in dental hygiene services by granting self-regulation to over 90 percent of all dental hygienists. This first step in reducing regulatory restrictions on dental hygiene services affirms the value of dental hygiene care as being consistent with health system reform initiatives and sets the stage for improving consumer access to dental hygiene care. Dental hygiene influence in the self-regulated provinces of British Columbia, Alberta, Saskatchewan, Ontario, and Quebec may now be directed towards achieving direct access to dental hygiene services by the public.

Dental Hygiene as a Knowledge Based Profession in a System of Professions

This literature review examined three areas relevant to the research questions: the applicability of Abbott's theoretical framework to dental hygiene in Canada; the knowledge base and gaps for dental hygiene and dentistry in oral cancer prevention, early detection and health promotion; and, the impact of recent change in professional regulation and health care on dental hygiene and dentistry. Each area contributes to the profile of the current status of dental hygiene in Canada. Collectively, the three areas establish the context for the research and are the impetus for an interdisciplinary approach in the methodologies used to address the research questions.

CHAPTER III

METHODS

The design of this investigation with methods of data collection, the development and testing of collection instruments, and the samples selected are described in this chapter. The process of disciplined inquiry is conducted within a framework of beliefs and practices which define the direction and strategies to be used. It is the differences in beliefs about how humans can understand the world and acquire knowledge that ultimately drives the contemporary debate concerning preferred theory and method in disciplined inquiry. Typologies distinguish the objective, deductive, reliable, and generalizable characteristics of quantitative research from the subjective, inductive, valid, and insider attributes of qualitative research (Dignan, 1995). Although there are clearly fundamental differences between the qualitative and quantitative traditions in research, there are practically many similarities and opportunities for integrating the perspectives in the creation of functional partnerships. The aim or purpose of the research in this investigation establishes the basis for the research, focuses the goal, and directs the methodology.

The quantitative and qualitative subcultures of the social sciences each demonstrate considerable variation, and "each general perspective has its liberal and orthodox contingents" (Palys, 1992, p. 3). At the methodological level of the quantitative-qualitative paradigms there is clearly some overlap. Pragmatically, "all kinds of variations, combinations, and adaptations are available for creative and practical situational responsiveness" (Patton, 1990, p. 39). Effective strengthening can be achieved by using multiple methodologies, designs, or analyses in a triangulation of data, investigator, theory, and methodology (Denzin, 1978; Patton, 1990). A fifth type of triangulation - interdisciplinary - is suggested by Janesick (1994) as a means of broadening understanding of both method and substance. Collective combinations and mixes of data, method, and theory are heuristic tools to develop meaningful responses to

purposeful questions (Denzin & Lincoln, 1994; Janesick, 1994; Marshall & Rossman, 1989; Patton, 1990; Rossi & Freeman, 1993).

Design

Three methods of data collection were employed in this study, including both quantitative and qualitative methods, to explore, describe, and compare the consonance between two distinct dimensions of dental hygiene. In the first phase, a cross-sectional survey of dentists and dental hygienists was used to describe and compare knowledge, opinions, and practices in the prevention of oral cancers as an indicator of professional status. Interviews and document analysis were used in the second phase to explore and describe the politicolegal recognition of dental hygiene professional status through regulation and other indicators of conferred status and policy.

The strengths and weaknesses of each data collection method were considered relative to the research questions. The distinguishing characteristics of surveys as defined by the American Statistical Association are that the research problem has been clearly delineated, information on the topic is gathered by asking individuals questions, the data collection process itself is systematic and well-defined, the purpose of the study is to generate group-level summary statistics, and the results are generalizable to the groups represented by the individuals included in the study (Aday, 1996). The survey method is, therefore, appropriate for the hypotheses presented in the first two research questions of this study. Knowledge of oral cancer prevention and early detection can be described by asking dentists and dental hygienists questions in a tested and acceptable process, and the results of the sample data can be generalized to the larger populations.

Surveys are not as useful, however, in examining complex social relationships and interaction (Marshall & Rossman, 1989). The politicolegal recognition of dental hygiene is a complex phenomenon. On the surface, a review of pertinent documents which describe regulatory parameters would seem to suffice. Although they may serve to suggest prevalent thought which shaped the phenomenon, they represent a synthesis of

forces which are documented at one point in time. They do not reveal in detail the antecedent forces at play nor do they reflect changing attitudes and forces following the publication of the regulation. In this study the examination of documents serves to identify the legal parameters of the practice of dental hygiene in two jurisdiction.

The more obscure forces shaping the legal recognition were explored and explained through in-depth interviewing of participants who are well-informed, influential, and prominent. This specialized group, selected for interviews on the basis of their expertise relevant to the research, are termed 'elites' by Marshall and Rossman (1989). In this study the elites were the key informants who were in the best position to provide illumination of the three research questions related to the more recent conceptualization of health promotion as a role for dental hygiene and the factors contributing to the politicolegal recognition of the role of dental hygiene in the prevention and control of oral diseases. Blinkhorn (2000) affirmed the place of qualitative research even in dental public health with reference to some positive aspects as well as pitfalls. He noted the use of interviewing techniques to concentrate on imagery, feelings, and motivation - areas in which surveys generally lack depth.

National data collection by province would provide the greatest opportunity to examine variation and consistency in the research but would require major funding. The practical constraints of limited funding, and the requirements of ethical research and student behaviour which dictate that the research be designed, implemented, and interpreted by the doctoral candidate, directed the parameters of data collection for this study. The data collection was consequently limited to two provinces representative of both different oral cancer morbidity and mortality and polarized levels of supervision requirement in dental hygiene practice. British Columbia has relatively lower oral cancer morbidity and mortality and a provision for independent practice for dental hygienists; Nova Scotia has relatively higher oral cancer morbidity and mortality and requires direct supervision of dental hygienists by dentists (Table 1). These particular supervision

requirements represent extreme variation in an essential component of politicolegal recognition. Analysis of each data set contributed to the determination of consonance between dental hygiene's claimed professional status and the politicolegal recognition of that status.

The effect of blending different methods and data collection strategies is that of triangulation, a research ideal based on the logic that multiple methods are more likely to address the problem of rival causal factors. Patton (1990) refers to multiple options and perspectives noting, "It is possible to cut across inquiry approaches and achieve triangulation by combining qualitative and quantitative methods" (p. 188). He discusses mixes of measurement, design, and analysis stressing that the ultimate intent is to employ the methods which are best suited to producing the information required by the research question(s). The mix of methodological approaches used in this study is conceptualized in the following framework (Table 2).

Phase I Survey of Professional Knowledge, Opinions, and Practices

The first phase was a quantitative measurement of dental hygiene knowledge and its application in practice to test two hypotheses. H1) There are no differences between dentists and dental hygienists in their knowledge, opinions, and practices in the etiology, early detection, and prevention of dental caries, periodontal diseases, and oral cancers. H2) There are no differences across provinces with different dental hygienist regulatory requirements between dentists and dental hygienists in their knowledge, opinions, and practices in the etiology, early detection, and prevention of dental caries, periodontal diseases, and oral cancers. Dentist and dental hygienist knowledge, opinions, and practices were measured in a single mail survey of probability samples in one provincial jurisdiction and populations in the other. Although telephone surveys were considered, mail surveys have greater uniformity in the way the questions are posed, and they permit wider coverage for less cost (Dillman 1978, 1983; Miller, 1991). An increased response rate was anticipated by permitting dentists and dental hygienists to select the time and

location of survey response, rather than pressing them to preselect a half-hour for a telephone interview. The pivotal roles of dental hygienists and dentists in early detection and prevention can significantly reduce incidence and mortality of oral cancers. It was believed that the respondents would similarly find this content area compelling enough to motivate response to the survey. The primary sources consulted in the design, construction, and testing of the survey instrument, and the implementation and analysis of the survey are Aday (1996), Carmines and Zeller (1979), Dillman (1978, 1983), and Fink (1995).

Sample Selection

Random samples of dental hygienists and dentists licensed in British Columbia, and populations of these groups in Nova Scotia, were selected from the registrars' listings of active dentist and dental hygienist licensees at the time of inquiry. The numbers of active practitioners at the date of initial telephone inquiry in August, 1997 were then 441 dentists and 391 dental hygienists in Nova Scotia and approximately 2,450 dentists and 1,800 dental hygienists in British Columbia. Calculations of the sample size for the survey were based on the formulae constructed for the case where an initial estimate of the characteristics of interest is unknown, with a second step adjusting the sample size for population, and a third step adjusting for the expected response rate (Gower & Kelly, 1988). Using these formulae the sample sizes for simple random samples were calculated at a 95 percent confidence level and an expected return rate of 60 percent from dental hygienists and 40 percent from dentists. This range was based on response rates reported for other mail surveys of health practitioners (Asch, Jedrzejewski & Christakis, 1997) and also on the potential for higher returns from dental hygienists who have, perhaps, been less involved in surveys than dentists and may be more motivated to respond by personal recognition of the researcher.

The initial and final sample sizes are shown in the Table 3. The calculations based on initial estimates of population sizes for Nova Scotia approached or were greater

than the population sizes (323 for dental hygienists and 512 for dentists) so the decision was made to do census surveys of those dentists and dental hygienists. Practitioner lists from registrars (practitioners licensed at that time but not confirmed as active) were used to determine the final sample sizes for British Columbia dental hygienists (BCDH) and dentists (BCDDS) as well as Nova Scotia dental hygienists (NSDH) and dentists (NSDDS).

Stratification by primary professional role of both dentists and dental hygienists was considered. The role of the dental hygienist is defined by CDHA (1996a) as clinical therapy, health promotion, education, administration, and research, but this information is not available from registrar lists of licensees and it is known that about 85 percent of dental hygienists in Canada are employed by dentists in private clinical practices (Johnson, 1989). Dentist specialties were also anticipated to be a small portion of the dentist population.

Ultimately, the population lists of dentists and dental hygienists in Nova Scotia were constructed from the address labels purchased from the Nova Scotia Dental Association and an address list supplied by the Nova Scotia Dental Hygienists Association. Membership in the professional association is compulsory for annual licensure for both dentists and dental hygienists in Nova Scotia so current membership lists are consistent with licensure. In British Columbia the lists of licensed members supplied by the Colleges of Dentists and Dental Hygienists were used to construct sample frames. The College of Dental Hygienists of British Columbia supplied a current list of licensees in electronic form. A software program of random numbers was used to generate the final random sample of dental hygienists. An address list purchased from the College of Dental Surgeons of British Columbia was used to construct a sample frame through a systematic random selection process. In this case a table of random numbers (Blalock, 1960) was used to determine the starting point on the address list and every

third person was then selected for transfer to a sample frame. This systematic random procedure is an approximation of the simple random design.

Instrument Development

To promote the comparability of results with other studies, and in accordance with principles of survey design which advocate adoption or adaptation of questions from other surveys (Fink, 1995), the initial pool of items were selected from two instruments designed and tested in the United States. They were developed for surveys of dentists and dental hygienists at the state and national level (Forrest et al., 1997, 1998, 1999; Horowitz et al., 1998, 1999; Yellowitz et al, 1997, 1998, 1999). A first step in examining the surveys was a content analysis of the items in both questionnaires by comparison to the literature reviewed by the researcher. Multiple domains of knowledge and practice were included in the surveys with knowledge items representative of both diagnostic knowledge and knowledge of risk factors for oral cancers. The items were then compared with the guidelines provided by Fink (1995c) and related to purpose, language, closed versus open question format, categorical responses and corresponding nominal, ordinal, or numerical measurement, distinctions among items eliciting knowledge, attitudes, and behaviours, and techniques to determine vital statistics and demographic information. Survey items from both surveys were then located in a matrix of knowledge, opinions, and practices by etiology, risk factors, and early detection.

Questions unique to this study were then developed. Choices reflecting appropriate Canadian options and a new item related to risk factors were incorporated. An additional section of four questions on regulatory requirements was constructed. One question relates to required reporting of oral cancer lesions. Three others relate to the role of the dental hygienist in two areas of practice: oral cancer examination and patient education, and, for purposes of comparison, scaling and root planing as the most common regulatory specification for dental hygienists. Dentist attitudes regarding these areas and

their understanding of regulatory requirements for supervision of the dental hygienists for these two areas were also included.

The instruments shown in Appendix A1, Dental Hygienist Survey Instrument and Appendix A2, Dentist Survey Instrument, were constructed to reflect content and format consistency within and between the one designed for dentists and that for dental hygienists. Both have sections on practice setting, signs, symptoms and risk factors, health history taking, opinions, basic and continuing education, regulatory requirements and personal data. Practice settings and practices related to oral cancer examination are established in the first section. Knowledge questions follow, and are closed-ended and either multiple choice or forced choice. Attitude items, and a few restructured knowledge items, are Likert-type ordinal ratings. Sections on education and continuing education, regulatory requirements and personal data are on the last two pages of the survey. The items were organized to progress from less difficult to more difficult (Dignan, 1995; Miller, 1991).

The survey methods of Aday (1996), Dillman (1978, 1983) and Fink et al. (1995a) were consolidated and adapted to enhance the design of the instrument and to increase the probability of response. The format, order, and context of questions, instructions, and expressions of thanks for response were reviewed for clarity, coherence, and consistency as advocated by Aday (1996). The questionnaire was limited to six pages in a booklet form with a cover page including title and instructions, and a blank back page for additional comment. The appearance was designed to enhance readability and motivation to complete through the use of serif font in a two-column format, framed or italicized instructions, framed and bolded section headings, progression from less difficult to more difficult items, consistency in numbering and lettering of items, and colour. The final survey booklets were colour coded: grey for Nova Scotia (N.S.) dentists, blue for N.S. dental hygienists, buff for British Columbia (B.C.) dentists, and green for B.C. dental hygienists.

Validity and Reliability

Content validity of the original instruments used in the U.S. was assessed by a panel of content experts in oral medicine, oral cancer, public health and clinical dentistry in a formal review as recommended by survey experts (Aday, 1996; Carmines & Zeller, 1979; Fink, 1995). The content experts were identified in consultation with Dr. A. M. Horowitz and her associates at the National Institute of Dental Research and the validation reported in Yellowitz et al. (1998). The suggestions of the content reviewers were incorporated into the instruments. The dental instrument was pretested on convenience samples of dentists, revised and shortened, and then used in a pilot survey of 500 randomly selected general dental practitioners (Yellowitz et al., 1998). The results were used to further refine the instrument for the national survey of dentists (Yellowitz, 2000).

The content validity of the instruments revised and constructed for use in this study was again assured by a Canadian internationally acclaimed expert in oral pathology. The content was affirmed and the format was commended (M. Cohen, October, 1997, personal communication). The need for incentives for completion of the survey instruments by both dentists and dental hygienists was raised for discussion by Cohen who also has some experience in survey research. This issue was addressed later in the process and is reported in the section on implementation of the survey.

Confirmation of the face validity of the instruments in this study was initially addressed by conducting a literature review, and later by pretesting with both dental hygienists and dentists as recommended by Litwin (1995). The pretest reviewers provided feedback on clarity, order, and design of the instrument. Implementation and results of the pretest are discussed in a following section.

The aggregate results of this study and the application of the survey instruments in various U. S. populations of health care providers contribute to the construct validity of the instrument. The potential for construct validity increases with wider application.

Ultimately a theoretical measure of the meaningfulness of the instrument may be created (Litwin, 1995).

Reliability of the survey is demonstrated in several forms. The survey items are nearly all unique forms relating to either oral cancer risks or diagnostics. Only two items have alternate forms, and these are discussed in the chapter on results. Although test-retest measurement was not possible with the same set of respondents, a measure of external reliability is the comparison of these survey results with those data collected and analyzed by researchers in the United States. These comparisons are described in the chapter on discussion.

Ethical Considerations

Ethical considerations were reviewed and approved by the Human Ethics Review Committee of the Faculty of Graduate Studies of Dalhousie University prior to any pretesting as stipulated by the requirements for research with human participants. The requirements for approval included a full submission describing the nature of the research and the ethical considerations. The ethical issues of informed consent to participate and withdraw at any time, incentive to participate, confidentiality and anonymity of information, data use and storage, and use and dissemination of findings were elaborated for the Review Committee.

The mail survey included an explanatory cover letter with the invitation to participate and assurance of confidentiality and anonymity. Participants were not identified by name on the questionnaire or in any of the data analyses or dissemination of results. Addresses for the samples and populations were prepared from the sampling frames and address lists were used to track returns. Respondent consent and anonymity were assured by the use of a separate return consent notification card, a successful strategy although more expensive and administratively more intensive than simple mail-back of the questionnaire which assumes consent has been given. The absence of an absolute link between the consent card and the returned questionnaire is the element of

the research process that assures the respondent his or her anonymity. Only the researcher and a data entry assistant had access to the questionnaires. The first mailing, reminder card, and second selective mailing, including all materials, are further elaborated in the section on implementation of the survey. The Ethics Committee's recommendations regarding all of the foregoing issues, as well as some related to format and letterhead were incorporated in a revision of the survey package.

Pretest of the Instruments and Cover Information

The instruments were completed and ready for pretesting by November of 1997. Extensive pilot testing in the provinces selected was considered a high risk in terms of alerting the proposed samples and populations which could result in both test preparation and significantly decreased response rate. In order to reduce the considerable risk of sample contamination, particularly in Nova Scotia which was selected for population surveys of both dentists and dental hygienists, a merged pretest and pilot test was planned with convenience samples of practitioners in other provinces. This composite testing was intended to provide feedback about whether the items were appropriately 'Canadianized' and to validate the new questions.

Five key individuals in two provinces, Alberta and Ontario, were contacted by telephone and asked to assist in soliciting the names of four or five dental hygienists currently involved in clinical practice who would consent to participate in this pre/pilot test. Dental hygienists not personally known to the researcher were requested in order to reduce bias. It was reasonable to anticipate that dental hygienists might have more difficulty with the items than dentists so a greater number of dental hygienist participants was sought. The target number of dental hygienists in each province was twenty. At the same time, personal contact was made with four dentists: one in each of Alberta and Ontario, and two in British Columbia (one not licensed to practice in the general population at that time, and one known to be excluded from the sample frame). In all, four dentists and forty-four dental hygienists agreed to participate in the test.

The Canadian postal strike in November and December delayed the mailing of the questionnaires until the second week in December of 1997. Each survey package included a cover letter with instructions, a preaddressed and stamped envelope for the return of the questionnaire and a single page feedback form to provide responses regarding the purpose, instructions, questions, and format of the questionnaire. In anticipation of the overload of Christmas and backlogged mail, responses were not requested or anticipated until mid January of 1998. Three dentist and 42 usable surveys from dental hygienists were analyzed by item and 42 feedback forms were analyzed for suggested improvements.

In the four categories of questions on the feedback form, no suggestions for improvement were made by the dentists. Most of the dental hygienists' comments in both provinces were related to the new section on regulatory requirements which were confusing to interpret. The mean time required for completion of the survey was 15 minutes, with a range of 10 to 85 minutes. Suggestions for improvements in wording and minor suggestions regarding format were incorporated into a further refinement of the instruments.

In the preparation of the final draft of the survey, a graphics artist and a publications specialist were consulted regarding the colour, font, spacing, and readability of the instruments. Letterhead for letters and envelopes was designed with the identifying logo for the project: Oral Health in Canada: Practice and Profession. A decision was made to distinguish the instruments by province and group by colour: cream and grey for dentists in British Columbia and Nova Scotia respectively, and green and blue for dental hygienists in British Columbia and Nova Scotia respectively. The separate consent forms were printed in a bright yellow colour and the reminder cards in purple to facilitate motivation and identification.

Implementation of the Survey

The implementation of the survey followed an administrative method adapted from Dillman's Total Design Method (Dillman, 1978, 1983; Salant & Dillman, 1994) with modifications as suggested by Aday (1996) and Fink (1995b). Each survey package contained the appropriate questionnaire (by group and colour) with a cover letter and an information page, a preaddressed envelope for the return of the questionnaire, and a consent card for separate return, all in an envelope identifiable with the project. Both the cover letter and the information page noted the incentive of a draw for a one-year subscription to a professional journal of personal choice for each of the two groups - dentists and dental hygienists - to a maximum value of \$200. Both the preaddressed envelope for the return of the questionnaire and the preaddressed consent card were stamped with a 'postage paid on returned mail', by arrangement with the mail services of Dalhousie University. Postage on all returned questionnaires and consents was billed directly to the research accounts of the author. Plain copies of the instruments for dental hygienists and dentists are included in Appendix A. The cover letter, as shown in Appendix B, was designed to motivate respondents and was prepared in consideration of the criteria of Bourque and Fielder (1995). The information page on oral cancers in Canada stressed the important role of dentists and dental hygienists and is shown in Appendix C. A plain copy of the consent form for return separate from the questionnaire is shown in Appendix D.

Canada Post confirmed delivery times as three days within a province and four days out of province. The optimistic out-of-province estimate was adjusted to allow for two days difference in delivery time. A staggered mailout strategy was developed with the first mailout to British Columbia recipients on February 23, 1998, and Nova Scotia recipients on February 25. Although the returns began with a one-day turnaround time for several Nova Scotia participants, the rather erratic numbers returned daily and reports of delayed mail from British Columbia suggested that reminders be withheld for two

weeks. At that time purple reminder cards were sent to all of the addressees except for the small number for whom signed consent cards had been received. A plain copy of the reminder card is shown in Appendix E.

The second complete mailing to those addressees who had not yet returned signed consent cards or identified themselves as inactive or unable to complete the questionnaire was due to be mailed March 24 to March 27. The cover letter date was revised and the letter stamped 'FIRST FOLLOW-UP'. The package otherwise consisted of the same elements as the first mailing. A second major interruption in the survey process was the advent of the strike by Faculty at Dalhousie University. Fortunately, the second complete mailing to select dentist addressees in both British Columbia and Nova Scotia was mailed on the day prior to the strike on March 24. The second mailout to dental hygienists in both provinces was delayed until March 26. This mailout and subsequent pickups of returned questionnaires were accepted by the mailroom in the early days of the strike. Returns then simply accumulated until the strike was officially ended. The second mailout letter is shown in Appendix F.

The response was overwhelmingly positive. Although the advantages of a second reminder card and a complete third mailout were considered, five weeks after the first mailout the Nova Scotia returns exceeded 50 percent of the populations and the returns from British Columbia were nearly that for dental hygienists and over 35 percent for dentists. Returns from the first and second mailouts were so high that further mailings were considered unnecessary. The sampling criteria were satisfied by mid April, 1998. A draw for the winners of the journal subscriptions was held in April. The winners were notified and arrangements were made for their choice of journal subscriptions to commence.

Data Management and Analysis

Returned questionnaires and consents were sorted by group and province and returned consents were recorded by date on master lists of addresses. Mail returned to

sender and questionnaires returned with consents also were noted on the master list. A log of telephone, personal inquires and comments was maintained.

Data entry and editing were managed by an experienced data entry specialist. The questionnaires were coded with a unique identifying number and entered into a data base using SPSS-PC software. A codebook for open-ended questions and respondent comments was created. Logic checks were run on all cases and variables, and the SPSS software was used to generate a ten percent random sample of cases for verification of data entry accuracy.

The response rates were based on the numbers of usable responses in each of the four groups as a proportion of the target population in that group. The target population was the original sample or population reduced by those returned surveys which indicated that the respondent was licensed but non-practicing at that time. Reasons given for dentists and dental hygienists non-practicing were retired, long-term illness, maternity leave, or practice limited to a nonclinical service. Surveys returned with incorrect addresses and no known forwarding address were included in the target population.

Analyses of the mail survey data included the distributions of frequencies of the knowledge-related items for the etiology, early detection and prevention of oral cancers, and cross-tabular comparisons of these frequencies for dentists and dental hygienists within and between the two provinces. Two knowledge indices were constructed empirically to consolidate knowledge of risks and knowledge of diagnostic factors into two aggregate knowledge indicators. One-way analysis of variance was used to compare the mean aggregate scores on each of the knowledge indices of dentists and dental hygienists within each province and between the two provinces, and to test the hypotheses.

Phase II Exploration of Politicolegal Recognition

The second phase of this investigation, a qualitative exploration and description of the factors shaping politicolegal recognition of dental hygiene, examined three research

questions. R1) What are the dominant views of political leaders in dentistry, dental hygiene, and government regarding health promotion and its relationship to oral health, dentistry and dental hygiene? R2) To what extent is change in the politicolegal recognition of dental hygiene shaped by the political, legal, economic, and organizational characteristics of dental hygiene, dentistry, and government? R3) To what extent is the regulatory requirement for dentist supervision a perceived barrier to public access to dental hygiene? Document review and semi-structured interviews were designed for the collection of data regarding these three research questions.

Document Review

The researcher identified documents for review through personal knowledge as a licensed dental hygiene practitioner in both British Columbia and Nova Scotia, and through consultation with the College of Dental Hygienists of British Columbia, legislative planners in B.C., and the Provincial Dental Board of Nova Scotia. Regulatory documents for dental hygienists in Nova Scotia are limited to the Dental Act - an umbrella act for dentists, dental hygienists and dental assistants - and the regulation pertaining to dental hygienists. More extensive regulatory documents in British Columbia are collected and interpreted by the College of Dental Hygienists of British Columbia in a Handbook provided to each registrant (CDHBC, 1999). A requirement for maintenance of dental hygiene licensure in B.C. in 1999 was the successful completion of a self-examination termed a 'regulation assessment' and consisting of a set of 70 true or false statements about the Code of Ethics, relevant portions of the Health Professions Act, and the Dental Hygienists Regulation, Bylaws and Practice Standards. The assessment was intended to be completed individually or collectively and was required to be submitted with a signed declaration of completion. This exercise was timely for the researcher and instructive in a reanalysis of the document elements examined previously. A listing of the documents reviewed is provided in Appendix G.

The analysis of documents included content pertaining to dental hygiene and including the scope of practice and supervision requirements, as well as the language and tone of the regulatory documents. Marshall and Rossman (1989) refer to document analysis as a data collection method appropriate for determining policies and events which shape research phenomena, in this case determinants of politicolegal recognition of dental hygiene in two provinces. Documents contribute to a temporal interpretation of current phenomena and demonstrate markers of change in the phenomena. Interpretation of all documents was facilitated by the researcher's personal knowledge and experience as a licensed dental hygienist in both provinces. The recent analyses of Brownstone were consulted as a source of comparison for the analysis of some of the documents and researcher interpretation (Brownstone, 1999). The document review contributed to the development of appropriate interview questions, the interpretation of interviewee responses, the associations among interview responses, and the linkages among sets of data.

Interviews

Semi-structured interviews were selected as the most appropriate method of collecting data regarding the questions on health promotion and the politicolegal determinants of the professional status of dental hygiene. The perspectives of those stakeholders most highly involved in shaping the politicolegal determinants are those Marshall and Rossman (1989) term 'elites' - the dental hygienists, dentists, and public or government representatives likely to be highly knowledgeable about the current status and to have linkages to the public policies which are the legislated parameters of dental hygiene practice. Exploration of salient themes and patterns in participants' meanings facilitated identification of important variables and conditions related to the research questions. Two features of in-person interviews important in this study were the potential for investigation of several topics with each participant, and the potential requirement for assurance of anonymity and confidentiality.

Sample Selection

In each province representatives of professional associations and regulating authorities were identified as sources of purposive samples of interviewees. Nominations of members representative of the association, and, in the case of regulating authorities, names of elected or appointed officials who are currently or had recently been involved with the regulation of dental hygiene were solicited from the College of Dental Hygienists of British Columbia (CDHBC), the British Columbia Dental Hygienists Association (BCDHA), the College of Dental Surgeons of British Columbia (CDSBC), the British Columbia Dental Association (BCDA), the Provincial Dental Board of Nova Scotia (PDBNS), the Nova Scotia Dental Hygienists Association (NSDHA), and the Nova Scotia Dental Association (NSDA). Since the interviews were limited to the resources of a single researcher, a minimum of eighteen interviewees, nine in each province, was the total number targeted, with the mix in each province to be representative of dental hygienists, dentists, and the government representatives of the public. With a minimum of 3 cases in each sample group, multiple case analysis was anticipated.

Letters to all organizations were mailed on October 30, 1998. The form letter requesting recommendations for interview nominees is included as Appendix H. Letters of reply were received from all organizations in November and December of 1998. Some telephone and electronic mail prompts were used to stimulate reply with the anticipation of beginning interviews in January of 1999. Only one professional organization declined to suggest nominees. The President of the Nova Scotia Dental Association stated that no members were to speak on behalf of that Association but that individual members might be directly solicited. He noted that there are position statements on such matters by the national body, the Canadian Dental Association, and that the NSDA would not want to establish any precedent or be in conflict with those position statements. Further, he stated that any conclusions drawn from any dentists interviewed were not to be represented as

the official opinion of the Nova Scotia Dental Association. (Dr. N. Andrews, personal communication, November 10, 1998).

Interviewees were selected from those nominated by representatives of the organizations and governments noted above. The form letter requesting interview participation and the attached consent form are included as Appendices I and J. A variant of this letter to potential dentist participants in Nova Scotia noted the official response of the NSDA and clearly identified any outcomes as not representative of NSDA or having official status. The option to be identified or to remain unidentified was given to all participants and is included in the consent form. Preaddressed and stamped envelopes for the return of consents were included in each request to participate. The process of selection was somewhat iterative in that initial contacts were not always successful. The greatest number of contacts made to solicit interviewees was to dentists in Nova Scotia, even though the letter of request to participate clearly exonerated interviewees of representing dentists in Nova Scotia and further specified that only their individual opinions would be presented in reports and publications. Follow-up by telephone and electronic mail to solicit reply was required in nearly all cases. Two telephone contacts following the initial letter requesting participation were deemed adequate to determine whether reply was simply delayed or intended to be negative. A record of all telephone and electronic communication was maintained. A matrix of interviewees in the six groups is provided in Table 4. Those who gave consent to be identified are named and others are identified by province, category and gender. All participating dental hygienists and dentists had 10 or more years of practice experience.

Development of the Interview Guide

The interview guides are semi-structured with open-ended questions intended to allow for some unanticipated responses while directing the responses to the predetermined issues and questions (Crabtree & Miller, 1992; Fontana & Frey, 1994; Miller, 1991; Strauss & Corbin, 1990). The key issues of professionalism of dental

hygiene and its development in the two provinces were addressed. The questions are derived from the literature review, preliminary consultations with organizations previously noted, the document review, the problem statement and research questions, and the theoretical framework of this investigation. Interview items reflect the work of dental hygienists, past and current regulation for dental hygienists, political perspectives, and indicators of future political intent and action regarding the public policy pertaining to dentists and dental hygienists.

The interview guide has 11 questions with an expected time of 45 minutes to one hour for completion of the interview. The first question established the respondent's relationship to dental hygiene and credibility as a participant. It facilitates the communication process by allowing the participant to speak first of her/himself prior to answering the directed questions about dental hygiene. The last question simply asks for further comments; it is an opportunity to return to previous questions or summarize or note important points from the participant's perspective. Questions 2 through 10 are grouped into three sets relating to the work of dental hygienists, dental hygiene and public needs, and the regulation of dental hygiene, in ascending order of anticipated variation of opinion and controversy. Questions related to the work of dental hygiene were designed to explore the role in prevention of disease and promotion of health; the complete range of scope of practice is not included as this varies by province.

Ethical Considerations

Application for human ethics approval of the interviews was made to the Faculty of Graduate Studies, Dalhousie University, August 24, 1998; the requirements for approval included a second full submission describing the nature of the research and the ethical considerations. Approval was received on October 21, 1999 following minor revision. The ethical issues of informed consent to participate and withdraw at any time, confidentiality and anonymity of information, data use and storage, and use and dissemination of findings were elaborated for the Review Committee. With minor

revisions, the form letter requesting nominees, the form letter to nominees requesting their participation, and the consent form for participants were approved, as well as the use and storage of audiotapes and transcriptions.

Interview Data Collection

The prototype interview guide was pretested with dental hygiene leaders not residing in either of the test provinces. Their suggestions related to the wording of question 10 regarding the circumstances changing the supervision requirement for the practice of dental hygiene which either took place in the case of British Columbia, or could take place in the future in the case of Nova Scotia. To clarify this temporal distinction separate guides for British Columbia and Nova Scotia were created.

Electronic and hard copies of the interview guide for British Columbia and Nova Scotia, included as Appendix K.1 and K.2, were mailed or sent as facsimiles, as each participant preferred, to allow for advance preparation. Twenty-two interviews were conducted from January to May, 1999. Some involved travel within Nova Scotia, and all except one in British Columbia were conducted in person during two trips to Vancouver and Victoria. The single exception in British Columbia was a telephone interview with one participant. Some interviewees were high-profile with minimal time available for interviews. The sensitivities of interest groups and health reform issues created some apprehension but did not dissuade some participants from speaking at length during the interview.

Audiotaping was used to capture exact wording and notes were taken by the interviewer. With consent, only one interview was not taped. During each interview the purpose of the investigation was presented and reinforced to assure informants of the intent to analyze their contributions and to disseminate the results, and participants were again informed that all tapes would be transcribed and transcriptions viewed only by the investigator and the supervisor.

Awareness of respondent differences and adjustments for unanticipated developments are critical not only to the mechanical aspects of interviewing but also the interviewer's ability to elicit adequate response (Fontana & Frey, 1994). In this case, the interviewer's knowledge of the field, its history, and contemporary issues were applied to the interviewing technique to encourage full and truthful response. Although structured interviews typically do not assess emotional dimension (Fontana & Frey, 1994), the open-ended style of questioning captures terms and phrases which demonstrate emotion and are supportive of themes.

Data Analysis Procedures

All audiotapes were transcribed using a Word Perfect software program, The Ethnograph, version 4.0. Each participant was mailed a copy of the transcription along with a cover letter requesting verification of the transcription and return of any revisions in the preaddressed and stamped return envelope provided for that purpose (see Appendix L). The verification process was intended to permit participants to add or change significant remarks without editing detail. Only one substantive revision was received, most were minor revisions. All revised transcripts were used to update the computer versions.

Interviews were digitized for computer-assisted identification of themes and categories. All final transcriptions were translated into numbered line versions by the computer software program Ethnographer 4.0. A legend of codes was developed by the investigator employing strategies of grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1990) and with reference to the notes taken during the interviews or to the documents provided by interviewees. Some themes arose directly from the question as pre-established categories, for example, yes or no. Most, however, were derived from successive readings and iterative verification of consistency in meaning. Iterations of theme codes were confirmed and the data were reduced by consecutive readings of the coded interviews and printouts of interview lines by code. The findings in the form of

themes supported by direct quotations from the interviews are the basis of the analytic interpretation.

Trustworthiness

The trustworthiness criteria of qualitative research - credibility, transferability, dependability, and confirmability - are used to assess validity and generalizability of the data and results (Guba & Lincoln, 1994; Lincoln & Guba, 1985). Credibility parallels the concept of internal validity in quantitative research and is a demonstration that the inquiry was conducted in a manner ensuring adequate identification and description of the subject. A strength of this study is the credibility of the data and interpretation. The data were derived from the semi-structured interviews of six sample groups who can be characterized as 'elite' because they hold positions within the politicolegal realm of dental hygiene and can provide overall views of policies, histories, and future plans (Marshall & Rossman, 1989). The 'elites' in this case were selected for their expertise in areas relevant to this research. The single sample group which demonstrates less strength in this area of credibility is that of Nova Scotia dentists who were not nominated by the professional association but are, in reality, well established and credible although unidentifiable through their requests for anonymity. The credibility of the participants is not in question; participants had no reason to lie, conceal the truth from their perspective, or deliberately undermine the purposes of the study. They were, on the contrary, generally willing to take more than an hour of their time for the interview, in addition to whatever time they may have taken in preparation for the interview. Their responses gave no indication of being contrived, exaggerated or malevolent.

A triangulation of the data from these expert groups contributes to the validity or trustworthiness of the interview analysis. A further validation of interview data is provided by the comparative document analysis which was used to develop the interview guide as well as to verify participant responses regarding regulatory requirements. Other measures to ensure credibility of the interview data were the careful notetaking on the

part of the researcher to identify key phrases or unique descriptors, the paraphrasing and repetition of participant responses to check for intent and accuracy, and participant confirmation of the transcriptions.

Confirmability parallels the concept of objectivity in quantitative research. The data collection in this study contributes to the confirmability of the data. Attention to several 'controls' for bias in the interpretation included value-free, verbatim note taking, the use of a digitized software program to assist with coding of categories and themes, rechecking of the data with testing of possible rival explanations, and a searching for negative instances, as illustrated in the results and discussion of this study (Denzin & Lincoln, 1994; Marshall & Rossman, 1989).

Transferability, a concept parallel to external validity or the generalizability of results, is limited by the minimal numbers in the sample groups and the procedure of 'elite' sampling. The data on most interview items were, however, triangulated through the use of six groups as informants (Lincoln & Guba, 1985; Marshall & Rossman, 1989). Consistency and repeatability in their accounts contribute to the transferability of the findings.

Dependability in this study is enhanced by the extensiveness and thoroughness of the planning, the length of lead time to prepare for the technical aspects and the role of the interviewer, and attention to the data collection setting and participant needs. For example, considerable efforts were made to ensure confidentiality and anonymity of those participants who requested these assurances by meeting and interviewing at their convenience and in circumstances of their choice whenever possible. The actual time allowed for interviews was not rigidly prescribed but was flexible pending the circumstances of the participant. Although the data are not replicable, the qualities of trustworthiness are exhibited in the data collection, analysis and the subsequent interpretation.

CHAPTER IV

RESULTS

Results are given in this chapter for both phases of the research including three distinct collections of data. The first phase of the research was a quantitative measurement of dental hygienist and dentist knowledge, opinions, and practices regarding oral cancer in two provinces. The second phase was a qualitative exploration of politicolegal determinants through examination of regulatory documents and field interviews with selected participants. The results presented in this chapter are largely descriptive with limited comparisons among the three research strategies. The explication and interpretation of linkages among the results of the three data collections are presented in CHAPTER V, DISCUSSION.

Phase I Knowledge, Opinions, and Practices of Dental Hygienists and Dentists

The analyses of the survey of dentists and dental hygienists in British Columbia and Nova Scotia were used to determine a profile of respondent characteristics, overall levels of knowledge related to risk factors and diagnostics of oral cancers, and comparisons of knowledge levels and practices of dentists and dental hygienists within and between the provinces. Two knowledge indices were constructed to consolidate knowledge of risks and knowledge of diagnostic factors to allow further comparisons among the four groups. In addition to their knowledge, the practices of dentists and dental hygienists with regard to oral cancer examination were determined and compared. Finally, their opinions with regard to the regulatory requirement and the importance of dentist supervision for dental hygienist practices were determined for both groups in both provinces, and comparisons were made. The following results address the two hypotheses regarding the knowledge which is fundamental to the prevention and early detection of oral cancer by dentists and dental hygienists.

Response and Characteristics of Respondents

The response percentages are based on the numbers of usable responses in each of the four groups as a proportion of the target population in that group. The total number of usable responses was 1276, providing an overall response rate of 61 percent. The highest group response was from Nova Scotia dental hygienists and the lowest from British Columbia dentists. Table 5 indicates the responses by group, province, and as a percentage of the target population. In each case, the target population was the original sample or population reduced only by those returned surveys indicating that the respondents were licensed but non-practicing at that time. Surveys returned with incorrect addresses and no known forwarding address were included in the target population.

The age and gender characteristics showed some variation by province and group. Two thirds (67 %) of the dentists were in the age groups between 30 and 49 years with more in their 30s in Nova Scotia, and more in their 40s in British Columbia. In contrast, nearly three quarters (74%) of the dental hygienists were in that age range. More dental hygienists were in their 30s in both provinces, 51.5 percent in Nova Scotia and 42.9 percent in British Columbia. A few respondents were much older practitioners; three British Columbia dental hygienists were in their 60s and a total of six dentists were in their 70s. Figure 3 compares the respondents' ages by group showing the relatively younger dental hygienists in both provinces and the wider age distributions of dentists in both provinces. In these analyses and all those that follow, missing values were excluded.

Gender varied little by province but notably by group. Females represented only 20 percent of dentists in Nova Scotia and 17 percent in British Columbia. More notable are the low numbers of male dental hygienists: three percent in British Columbia and only two percent in Nova Scotia. Figure 4 illustrates these dramatic differences in gender within each group.

Year of graduation distributions also showed some variation between dentists and dental hygienists (see Figure 5). Both provinces showed increased responses from dentists who graduated in the years from 1975 to 1980, with some decline in the 1990s. Distributions of dental hygienists, on the other hand, were less consistent and showed substantial increase from 1985 to 1995 in Nova Scotia, and from 1990 to 1995 in British Columbia. Figure 5 displays the range of year of graduation in each group with 50 percent captured in each box and the median year displayed as a black line within the box. Six respondents are shown as having a much earlier year of graduation than the greatest majority in each group. Among dentists, the median year of graduation was 1981 in British Columbia and 1983 in Nova Scotia; among dental hygienists the median year of graduation was 1990 in British Columbia and 1987 in Nova Scotia.

The educational qualifications reported by respondents showed that 87 percent of all dentists were general practitioners with a basic dental degree and only 13 percent held a specialty certification (38 dentists in each province). The highest level of education for 74 percent of the dental hygienists was a diploma in dental hygiene or equivalent qualification. Less than one percent of dental hygienists held a baccalaureate degree in dental hygiene, but 22 percent held baccalaureates in arts or sciences. Only two percent of dental hygienists held masters degrees.

Knowledge Related to Oral Cancer Risk Factors and Diagnostics

A total of 1247 responded to the question regarding whether their knowledge of oral cancer was current. In both British Columbia and Nova Scotia, 57 percent of dentists agreed with the statement that their knowledge of oral cancer is current. Fewer dental hygienists in both provinces agreed with that statement, 49 percent in British Columbia and 28 percent in Nova Scotia. Very few dentists or dental hygienists in either province strongly agreed that their knowledge was current. Among dentists, 32 percent in British Columbia said they disagreed that their knowledge was current and 30 percent in Nova Scotia also disagreed. Among dental hygienists 36 percent in British Columbia said they

disagreed that their knowledge was current and 50 percent in Nova Scotia also disagreed with the statement. More respondents strongly disagreed than strongly agreed that their knowledge was current. Table 6 summarizes the respondents' beliefs about how current their knowledge was at the time of the survey.

A total of thirty knowledge items were included in the following analyses, 16 related to risk factors and 14 related to diagnostics. On four of these items, using the Likert-type scale of agreement, the correct response was defined as the total of both those who agreed and those who strongly agreed or, similarly, the total of both those who disagreed and those who strongly disagreed. These aggregated categories allowed for correct response without penalty for degree of certainty on these items.

Overall Knowledge of Risk and Diagnostic Factors

Overall, two-thirds of the items were correctly identified by 50 percent or more of all respondents. Both risk and diagnostic factors showed a wide distribution of responses. Almost all, 99 percent, recognized tobacco as a risk factor. Other high risk factors, prior oral cancer and use of alcohol, were correctly identified respectively by 98 percent and 91 percent of respondents. Lip cancer related to sun exposure was correctly identified by 65 percent. Correct responses for several risk items were low: only 48 percent correctly identified human papillomavirus, 37 percent identified the age of majority with oral cancer as 60 years of age or older, and 34 percent recognized low consumption of fruits and vegetables as a real risk. One of the two alternate items in the survey showed inconsistency. Although 77 percent knew that older age is a high risk factor, only 37 percent identified that the age of majority with oral cancer is 60 years of age or older.

Nonrisk factors were identified correctly by fewer respondents: hot beverages and food (69 percent), use of spicy foods (59 percent), obesity (68 percent), poor oral hygiene (50 percent), poor fitting dentures (31 percent), the use of smokeless tobacco as a higher risk than smoking tobacco (18 percent), and family history of cancer (7 percent).

Two diagnostic factors were identified by very high numbers of respondents.

That early detection improves the five year survival rate was identified by 96 percent and oral cancer exams may not be discontinued after three negative exams by 91 percent. The complete examination of the tongue procedure, early oral cancer is asymptomatic, and the appearance of early oral cancer lesions as small, painless, and red also were correctly identified by large numbers of respondents, 86 and 82 and 77 percent respectively. Nearly 60 percent identified the stage of most oral cancer diagnoses as advanced. At the lower end of correct responses were two conditions associated with oral cancer, erythroplakia and leukoplakia in order of their level of association (35 percent), and that lesions associated with smokeless tobacco generally resolve when use is discontinued (28 percent). Responses to the second alternate item in the survey also were inconsistent. Although 77 percent identified the early appearance of oral cancer lesions as small, painless, and red, only 35 percent correctly identified erythroplakia and leukoplakia, in that order, as the conditions most associated with oral cancer.

Comparison of Knowledge of Dentists and Dental Hygienists on Risk and Diagnostic Factors

The responses of dentists and dental hygienists in each province to all knowledge items were compared. Table 7 summarizes these responses and shows significant differences between dentists and dental hygienists overall, and in each province, using the chi square distribution to assess the probability that any differences occurred by chance, if the null hypotheses are true. Overall there were significant differences between dentists and dental hygienists on half of the risk items and 11 of the diagnostic items. Sun exposure as a risk factor for lip cancer was significantly different ($p \leq .001$) due to the very high frequency of correct answers by Nova Scotia dentists. More dentists than hygienists identified obesity as a nonrisk factor ($p \leq .01$) and this difference was related to the high number of correct answers by British Columbia dentists. Dental hygienists had higher scores on poor oral hygiene as a nonrisk factor ($p \leq .01$), but more dentists correctly identified as risks the human papillomavirus and the age of majority with oral

cancer as 60 years of age and older, and the nonrisks of familial clustering and poor fitting dentures, all at $p \leq .001$. Graphic comparisons of the correct responses to risks and nonrisks are displayed in Figures 6 and 7.

Group comparisons of correct responses to diagnostic items are illustrated in Figure 8. On two diagnostic factors, the examining procedure for the tongue and early oral cancer is asymptomatic, more dental hygienists scored correct answers than dentists, both at $p \leq .001$, with Nova Scotia dental hygienists contributing the difference to the second factor. Other diagnostic factors were answered correctly by more dentists than dental hygienists. On two diagnostic factors, the floor of the mouth as one of the two most common sites and lymph nodes are characteristically hard, painless, mobile or fixed, differences between dentists and dental hygienists were significant at $p \leq .01$. Other diagnostic factors were significantly different at $p \leq .001$: early detection improves five year survival rates, the most common form of oral cancer is squamous cell carcinoma, the ventral-lateral area of the tongue as the most likely site, lesions associated with smokeless tobacco generally resolve when use is discontinued, and erythroplakia and leukoplakia as associated conditions, both in that order or in any order.

The associations between the type of respondent being dental hygienist or dentist and the item of knowledge were not large. The statistic Cramer's V was used to measure the strength of the relationship. Between dental hygienists and dentists in both provinces, only six items showed a moderate association of ≥ 0.2 and ≤ 0.3 . Four of these were items answered correctly by more dentists than dental hygienists in Nova Scotia. These were two risk factors, the majority of oral cancers are diagnosed at age 60 or older and lip cancer is related to sun exposure, and two diagnostic factors, the most common form of oral cancer is squamous cell carcinoma, and erythroplakia and leukoplakia, in any order, are the two lesions most likely to be associated with oral cancer. The remaining two items showing moderate relationships were between dental hygienists and dentists in British Columbia. More dental hygienists identified correctly the examining procedure

for the tongue, a diagnostic item, and more dentists identified correctly that poor fitting dentures are a nonrisk. Overall, only one item showed an association of 0.2 (Cramer's V); more dentists than dental hygienists correctly identified poor fitting dentures as a nonrisk.

Composite Knowledge of Risk and Diagnostic Factors and Comparisons of Dentists and Dental Hygienists

Indices of aggregate knowledge were constructed by adding the number of correct scores for each respondent in each of the two domains of risk knowledge and diagnostic knowledge, summarizing the frequencies of respondents with correct scores, and plotting the distribution of respondents' correct scores. Overall, on the composite knowledge index of 16 risk factors, no respondents had all 16 items correct, one had 15 items correct and 18 had 14 items correct. Three respondents had zero correct. The mean was 8.8 and the standard deviation was 2.4 for the total number of 1276 respondents. On the composite knowledge index of 14 diagnostic factors, 32 respondents answered all 14 items correctly, one respondent had zero correct, and one had one item correct. The mean was 9.7 and standard deviation 2.4 for the total number of 1276 respondents.

Comparisons of the aggregate knowledge of dentists and dental hygienists were computed by one-way analysis of variance (ANOVA) of the means of all scores for each group in both provinces (see Table 8). On the knowledge of risks index, the means for all dentists at 9.4 and all dental hygienists at 8.7 were significantly different ($p \leq .001$). In British Columbia, the means of the risks index were significantly different between dentists (9.4) and dental hygienists (8.7) at $p \leq .001$. In Nova Scotia, the means of the risk index were also significantly different between dentists (9.6) and dental hygienists (8.8) at $p \leq .001$.

On the knowledge of diagnostics index, the mean for all dentists at 10.2 and all dental hygienists at 9.5 were significantly different ($p \leq .001$). In British Columbia the diagnostic index showed no significant differences between the means of dentists at 10.2

and dental hygienists at 9.8. In Nova Scotia the diagnostic index showed significant differences between the means of dentists (10.4) and dental hygienists (9.2) at $p \leq .001$. Figure 9 illustrates the comparison between all dentists and dental hygienists and between those groups within British Columbia and Nova Scotia.

Practices of Dentists and Dental Hygienists

Practices of dentists and dental hygienists were analyzed to determine how many provided oral examinations and their reasons for not providing examinations. Regulatory issues were examined including their practices with regard to reporting of oral cancer, and their opinions regarding the need for, and importance of, dental hygienist supervision by dentists during the hygienist's provision of oral cancer examinations, education regarding oral cancer, and scaling and root planing. Dental hygienists were also asked to identify if they or the dentist or both were appointed to see a new patient at the initial visit.

Oral Cancer Examination Practices of Dentists and Dental Hygienists

Dentists in both provinces provided more oral cancer examinations than dental hygienists. Dentists and dental hygienists demonstrated significant differences in their provision of oral cancer examinations in both of the age groups 18 to 39 years and 40 years or older, at both initial and recall appointments. With a single exception, all comparisons were significantly different at $p \leq .001$. Dentists and dental hygienists in British Columbia differed less significantly on their provision of oral cancer examinations to ages 18 to 39 at their recall appointments ($p \leq .01$). Dental hygienists in Nova Scotia provided the fewest examinations for oral cancer at either patient appointment. Table 9 summarizes the comparison of mean percentages of oral cancer examinations provided.

Dentist and dental hygienist reasons for not providing oral cancer examinations were largely different with one notable exception. Overall, one quarter of dentists and one third of dental hygienists felt they were not trained to do it (for examinations age 18 to 39, 23 percent of dentists and 33 percent of dental hygienists, and for age 40 and older,

25 percent of dentists and 34 percent of dental hygienists). One quarter of dentists felt exams for age 18 to 39 were not necessary, and 15 percent felt exams for age 40 and older were not necessary. About 20 percent of dental hygienists felt exams for any age group take too much time. The greatest 'other' reason among dentists for not providing exams was that oral cancer is considered part of the specialist's territory or role; 10 percent gave this reason for the younger age group and 11 percent gave this for the older age group. The greatest 'other' reason among dental hygienists for not providing exams was that oral cancer exams are provided by the dentist at either or both of initial and recall appointments, or that it is the dentist's responsibility.

These patterns between dentists and dental hygienists were consistent in both provinces but there were differences between dentists and between dental hygienists. In British Columbia, 11 percent of dentists said they were not trained to do examinations for the younger age group and 14 percent said this with regard to the older age group. In Nova Scotia, more dentists said they were not trained to do examinations, 23 percent for the younger age group and 25 percent for the older age group. For examination of age 19 to 39, more dentists in British Columbia (34 percent) felt that it was unnecessary than dentists in Nova Scotia (26 percent). Similarly, for examination of the older age group, more dentists in British Columbia (18 percent) felt it was unnecessary than dentists in Nova Scotia (15 percent). Dental hygienists in both provinces felt the examination takes too much time; in British Columbia, 23 percent reported this for the younger age group and 19 percent for the older age group, and in Nova Scotia 20 percent reported this for each of the two age groups. More dentists in British Columbia than in Nova Scotia reported that oral cancer examinations for both groups are the role or territory of the specialist. In British Columbia, 13 percent gave this reason for the younger age group and 17 percent gave this reason for the older age group. In Nova Scotia, 11 percent gave this reason for the younger age group and 10 percent, for the older age group. Less dental hygienists in British Columbia than in Nova Scotia gave the reason for not doing

examinations as that being the dentist's role or responsibility. In British Columbia, 16 percent gave this reason for both age groups and in Nova Scotia, about 23 percent gave this reason for both groups.

Requirements for Reporting Oral Cancer

On the question of reporting of oral cancer, more dental hygienists (79%) than dentists (42%) did not know if reporting to any authority or organization was required by regulation or policy. About half of the dentists said it was not required (47 % in British Columbia and 58 % in Nova Scotia). Only 55 respondents said that oral cancer must be reported and 38 of these were British Columbia dentists. Most said they would report, if they felt they must do so, to the British Columbia Cancer Agency (33 dentists).

Dentist Awareness of Oral Cancer Examination Practices of Dental Hygienist Employees

With regard to whether the dental hygienist provided oral cancer examinations in their dental practices, nearly twice as many British Columbia dentists said 'yes' - 41 percent in British Columbia and 22 percent in Nova Scotia. About 71 percent of dentists in Nova Scotia said that dental hygienists in their practices did not provide oral cancer examinations. The percentage of dentists who did not know if dental hygienists provided oral cancer examinations in their practices was 10 percent in British Columbia and 7 percent in Nova Scotia.

Supervision Practices and Opinions

Whether or not the dental hygienist is supervised in providing three services, and how important that supervision is, was answered differently by dentists and dental hygienists. Table 10 displays the differences between dentists and dental hygienists in each province. With regard to the regulatory requirement for supervision in their provincial jurisdiction, both dentists and dental hygienists in Nova Scotia were more certain than dentists and dental hygienists in British Columbia. Among dental hygienists in Nova Scotia, 86 percent said that dental hygienists must be supervised to provide oral cancer examinations, 98 percent said they must be supervised for scaling and root

planing, and 62 percent said they must be supervised to provide patient education on oral cancer risk factors, signs and symptoms. Among dentists in Nova Scotia, the corresponding percentages of beliefs about the requirements for dentist supervision for these services were 91 percent to provide oral cancer examinations, 96 percent to provide scaling and root planing, and 86 percent to provide patient education on oral cancer. Only the requirement for supervision of oral cancer patient education was significantly different between dentist and dental hygienists ($p \leq .001$).

Dental hygienists in British Columbia were more certain than dentists about regulatory requirements. Fewer dental hygienists (7 percent) than dentists (26 percent) reported that supervision of dental hygienists was required for them in providing oral cancer examinations. One quarter of all dentists (24 percent) did not know if supervision was required for this service. Similarly, 8 percent of dental hygienists and 25 percent of dentists reported that supervision is required for scaling and root planing. Finally, 2 percent of dental hygienists and 16 percent of dentists in British Columbia reported that supervision is required for the provision of oral cancer patient education. All of these differences were significant at $p \leq .001$.

Dentists and dental hygienists in both provinces were very different in their opinions about whether it is important for dental hygienists to be supervised by dentists to provide oral cancer examinations and patient education, and scaling and root planing. With regard to the provision of oral cancer examinations, dentists in British Columbia were more equally distributed in their opinion among very important (39.8 percent), somewhat important (38 percent), and not very important (23 percent). In contrast, three quarters of dentists in Nova Scotia (76 percent) felt that it is very important for the dentist to supervise the dental hygienists doing oral cancer examinations. About one quarter to one third of dental hygienists in both provinces said it was very, somewhat, or not very important respectively, with more dental hygienists in Nova Scotia reporting this as very important (39 percent) than in British Columbia (23 percent).

With regard to dentists being present for scaling and root planing by dental hygienists, 61 percent of dentists in Nova Scotia said this was very important and 30 percent said somewhat important whereas only 26 percent of dental hygienists said this was very important and 35 percent said this was somewhat important. A greater proportion of dentists in British Columbia (48 %) said that it was not very important for the dentist to be present, and 76 percent of the dental hygienists reported this opinion.

Dentists in Nova Scotia were less convinced that supervision was important for patient education in oral cancer than for the other two services. Only 51 percent said it was very important and 15 percent said it was not very important. British Columbia dentists' opinions varied from 21 percent very important, and 40 percent somewhat important, to 39 percent not very important. Only 8 percent of British Columbia dental hygienists and 17 percent of Nova Scotia dental hygienists believed that it was very important for the dentist to be present when they are providing oral cancer patient education. Two thirds of British Columbia and 56 percent of Nova Scotia dental hygienists said this was not very important. Differences between dentists and dental hygienists in reporting that supervision is very important were significant at $p \leq .001$ for all three services in both provinces.

Initial appointments of New Patients

Nearly half of dental hygienists (48 %) reported that new patients were booked with the dental hygienist for the initial visit of the patient. More dental hygienists in British Columbia reported this (53%) than in Nova Scotia (42%). This difference between dental hygienists was greater in reporting that new patients were booked with the dentist for the initial visit, 39 percent in British Columbia and 54 percent in Nova Scotia. Booking new patients with both the dentist and the dental hygienist was reported by 8 percent of dental hygienists in British Columbia and 4 percent in Nova Scotia.

Phase II Determinants of the Politicolegal Recognition of Dental Hygiene

In the second phase of investigation, a qualitative exploration and description of the factors shaping politicolegal recognition of dental hygiene, the nature of consultations with organizations to determine the documents to be reviewed and the key informants to be interviewed was not predictable. The selection of documents and interview participants varied from initial projections according to the responses from those agencies and associations contacted.

Document Review

Documents in each province were reviewed independently and then compared. Notable differences between British Columbia and Nova Scotia in the volume of pertinent documentation and in the published interpretation of these documents for practitioners were apparent from the outset.

British Columbia

The six documents reviewed pertinent to the regulation of dental hygiene in British Columbia demonstrate a progression of change in the regulation of dental hygiene consistent with a provincial review of all health professions and a major shift from individual acts for each profession to umbrella legislation for all health professions. Established professions such as medicine and dentistry have maintained individual acts to date but the more recent omnibus legislative framework has permitted some professions to be regulated by their own governing structure rather than under other professional acts. Also of note is the persistence of a separate act for dental technicians and denturists in British Columbia.

Health Professions Act

The Health Professions Act (1990) serves as the umbrella legislation under which health professions are regulated in British Columbia. The Act describes the application process for professions seeking designation under the Act, allows for the establishment of colleges for designated professions, sets out the responsibilities of the boards of the

colleges, specifies how inspections, inquiries and disciplinary actions are to be carried out, and gives general direction for registering members of a designated profession. The act serves as a framework to consider and regulate any unregulated professions, and to bring existing professions under the umbrella.

The Health Professions Council, appointed by the Minister of Health and formalized under this Act, reviews applications for designation under the Act and reviews existing professions with separate legislation. The terms of reference of this Council specify five Criteria and Guidelines and five Core Principles to be used in reviewing the scope of practice and the legislative framework for all recognized health professions (Schedule A, Health Professions Act, 1990). The core principles refer to the mandate of the regulatory body, the registration requirements for entry into the profession, quality assurance measures, complaint and disciplinary processes, and accountability mechanisms. The five criteria are the following:

1. How should the existing scope of practice for the health profession be legislatively defined in order to reflect fairly and accurately the current state of practice in that field of health care and reflect the public interest in the practice of the profession?
2. Should any of the tasks or services performed by the health profession be considered "reserved acts," exclusive to that health profession (or jointly with other related professions) because of the risk of harm involved to the health, safety or well-being of the public?
3. Which of the reserved acts, or aspects of the reserved acts, may be performed by persons supervised by practitioners, and under what terms and conditions?
4. Would designation of the health profession under the Health Professions Act be in the public interest or are there unique features of the health profession, or other relevant factors, that justify a continuing need for a separate Act?
5. What amendments, if any, are required to the current Act, rules, regulations and bylaws for each profession to adequately provide for the regulation of the profession

in the public interest and to ensure they contain the core principles of professional regulation reflected in the Health Professions act and discussed in Schedule B?

(Schedule A, Health Professions Act, 1990 p. 1)

Recommendations on the Designation of Dental Hygiene

The British Columbia Dental Hygienists' Association (BCDHA) applied for designation of dental hygiene as a profession in 1991 and were designated under the Act in 1994, despite the strong opposition of the dentists (described by British Columbia government interview participants). Until 1994 dental hygienists were regulated as an auxiliary body under the Rules of the College of Dental Surgeons of British Columbia (CDSBC) under the Dentists' Act. Dental hygiene services were defined under that regulation and their delivery was limited to provision under the general supervision of a dentist with a requirement for direct supervision for the provision of local anaesthetic. In practice, the dentist was not required to be onsite except for the provision of local anaesthesia.

The Recommendations on the Designation of Dental Hygiene (1993) by the Health Professions Council outline the case for acceptance of the BCDHA submission. This 32 page report documents the submission of BCDHA, the objections of the CDSBC and the views of other stakeholders, and the recommendations and rationale in accordance with the Criteria and Principles applied by the Health Professions Council. The rigorous analysis using the Public Interest Criteria are noteworthy. The risk of harm to the public from incompetent, unethical or impaired delivery of services was established by noting: (a) the specific services performed by dental hygienists, (b) the instruments and materials used by practitioners, (c) the invasiveness of the procedures, (d) the degree to which dental hygiene was supervised until that time, (e) the public interest in ensuring the availability of regulated services, (f) the demonstrated and recognized benefit of the services, (g) the body of knowledge that forms the basis of standards of practice, (h) the requirement of post-secondary education, (i) the importance of

monitoring continuing competence, demonstration of leadership to regulate in the public interest, (j) the likelihood of a College capable of carrying out the duties of the Health Professions Act, and (k) the assurance that designation would not limit the availability of services. In summary, the recommendations showed that designation under the Act was appropriate.

Dental Hygienists Regulation

As with other professions designated under the Act, dental hygiene has a separate regulation which identifies the scope of practice, reserved acts and limitations on the practice of a profession. The Dental Hygiene Regulation was approved in 1994 permitting dental hygiene to become a self-regulating profession in March, 1995. The Regulation reserves the title 'dental hygienists' for registrants. The scope of practice is defined as "Subject to the bylaws, a registrant may assess the status of teeth and adjacent tissues and provide preventive and therapeutic dental hygiene care for teeth and adjacent tissues" (Dental Hygienists regulation, 1994, p. 1). This scope of practice is interpreted in more detail in the bylaws with reference to the five roles of the dental hygienist originally defined by the Canadian Dental Hygienists Association (1995a) as clinical therapy, health promotion, education, administration, and research. The regulation also stipulates that no person other than a dental hygienist (or dentist) can perform supragingival and subgingival scaling, and subgingival debridement or root planing, or administer local anaesthetic.

The supervision requirement is described as a limitation on practice. Supervision is maintained for administration of local anaesthesia and a requirement for the client to be examined by a dentist either at the time of a dental hygiene appointment or prior to being seen by the dental hygienist within the previous 365 days. The only dental hygienists who are exempt from this requirement, known as the 365-day rule, are those defined in the bylaws as working in public health, or those having met additional qualifications and working in collective living residences.

College of Dental Hygienists of British Columbia, Bylaws

The CDHBC Bylaws (1999) define the Board of the College, College administration, registration, standards of practice, and a code of ethics. These 1999 draft bylaws have been submitted to government to replace those originally approved. Registration for residential care is defined in the Bylaws as one meeting the requirements for full registration and having been assessed by an agency approved by the Board as being able to work in an interdisciplinary health care team providing services to the chronically disabled, and able to develop a dental hygiene diagnosis based on the client's needs, produce oral care plans, provide services, and evaluate outcomes of client care for the chronically disabled. Dental hygienists so approved and registered may practice in residential care without the limitation of a prior dentist's examination of their residential care clients.

College of Dental Hygienists of British Columbia, Practice Standards

The original practice standards approved by the government in designating dental hygiene under the Health Professions Act were those of the Canadian Dental Hygienists Association (1995b). More recently, the College compiled their own which they plan to submit to government for approval in 2000 (College of Dental Hygienists of British Columbia, Registrant's Handbook, 1999). The Practice Standards and associated statements describe minimum levels of practice that are required for protection of the public. Disciplinary action can result if practitioners perform below the standards. The 10 standards are focused on clinical care because the risk of harm to the public is greater in this area of responsibility than in health promotion, education, administration and research. The standards are supported by statements that define required criteria to meet the standard, as well as additional guidelines for ideal or 'best' dental hygiene practice. In addition to practicing within the laws set out in British Columbia and Canada, Standard 3, of note in this study, requires that dental hygienists make evidence-based practice decisions by applying current and accurate knowledge.

College of Dental Hygienists of British Columbia, Registrant's Handbook

The second edition of the Registrant's Handbook (1999) is the official reference for dental hygienists in British Columbia. The Handbook is intended to help registrants gain an understanding of the legal framework as well as to provide information about daily practice issues. The requirement for each registrant to complete a self-assessment of the Handbook in order to be licensed in 2000 is indicative of the role of the College in maintaining the public interest. All documents regarding the regulation of dental hygiene in the province of British Columbia are referenced in this resource. The 14 sections of the Handbook cover the details of the history and role of the College and all pertinent legislation and regulation and their interpretation in commonly understood language. The Handbook reference to 11 agencies and acts (other than the Health Professions Act and the Dental Hygiene Regulation) which also impact on the practice of dental hygiene is characteristic of the intent to be as comprehensive as possible.

Nova Scotia

The two documents regulating dental hygiene in Nova Scotia are the Dental Act (1992) and the Dental Hygienists Regulation (1994). Additional regulations regarding continuing competency and discipline procedures also apply to dental hygiene. Unlike British Columbia, the regulation of dental hygiene in Nova Scotia is by a governance structure defined for dentists.

Dental Act

The Dental Act establishes the Provincial Dental Board as the body responsible for the registration, annual licensure, monitoring of continuing competence, and discipline of dentists, dental hygienists, and dental assistants in Nova Scotia. The Board also has wide ranging power to set the educational requirements for registration and licensure, approve clinical training programs for students in dentistry, dental hygiene, and dental assisting, and set examinations for licensure and practice. Board membership consists of eight dentists, two dental hygienists, two dental assistants, and two persons

who are not members of any of the previous groups. The distribution of professional members is divided between those appointed by their professional associations and those appointed by Cabinet. Of the eight dentists, five are appointed by their association. One dental hygienist and one dental assistant also are appointed by their respective associations. The two persons who are not members of any of the three professional associations are presumed to be public members but this is not specified in the Act. The Board, however, is intended to "represent and protect the interests of the general public in matters pertaining to the practice of general dentistry" (Dental Act, 1992, p. 6).

This Act also establishes the Nova Scotia Dental Association with its objects or purposes, membership, responsibilities, Executive Director and quorum. "Hygienists' Association" is used to refer to the Nova Scotia Dental Hygienists Association (NSDHA) but there are no further provisions in the Act for the NSDHA. A similar reference is used for dental assistants.

The Dental Act (1992, p. 1) defines dentistry as "the services usually performed by or under the supervision of a dentist" and outlines a full range of services which may be provided. Although dental hygiene services are specified in a separate regulation, the Act does give the Board authority to grant permission to both dental hygienists and dental assistants to practice their professions without the supervision of a dentist. This provision allows the Board to consider written requests from collective living residences to use the services of a dental hygienist under the general supervision of a dentist in private practice as detailed in the Dental Hygiene Regulation. Mandated requirements for continuing competence and disciplinary action are provided in separate regulations not reviewed for this study.

Dental Hygienists Regulation

The Dental Hygienists Regulation (1994) limits the use of the title 'dental hygienist' to one registered and holding a current license under the Act. Dental hygiene practice is defined as "the provision of preventive, educational, clinical and therapeutic

dental hygiene services" (Dental Hygienists Regulation, 1994, p. 2). A listing is provided of five functions which may not be undertaken by a dental hygienist or delegated by a dentist to a dental hygienist. The standards of practice for dental hygienists are those from the 1988 Health and Welfare Canada report (HWC, 1988b).

This Regulation states that dental hygienists may only practice in the employ of a licensed dentist or work under the supervision of a licensed dentist and that the dentist is accountable for the quality and delivery of that care. The requirement for supervision means that a dentist must be present in the office premises when a dental hygienist is practising. The supervision requirement is not imposed for dental hygienists employed by the Department of Health and subject to the general supervision of a dental consultant retained by the Department. An exception is also made for any "authority, institution or board, having the written permission of the Board" (Dental Hygienists Regulation, p.3).

Comparative Analysis of Dental Hygiene Regulation in Both Provinces

The regulatory frameworks for professional legislation are remarkably different in British Columbia and Nova Scotia. The umbrella legislation in the Health Professions Act of British Columbia is a structure and guide applicable to all health professions. Those elements which are common to all, such as registration, discipline, and organization of the governing body, are described in clear terms with sufficient detail to enhance comprehension and minimize misinterpretation. Each health profession designated under the Act becomes self-regulating with a separate College to govern the profession and carry out the responsibilities outlined in the Act and in accordance with the regulation specific to that profession. Nova Scotia's Dental Act encompasses dentists, dental hygienists, and dental assistants with separate regulations for each group as well as the collective. This Act, and the Board it establishes to govern all three, is a broader and more inclusive piece of legislation than a separate act for each, and it imposes a subservient relationship of dental hygiene and dental assisting to dentistry. The differences in tone and language of the documents are also conspicuous. Those in British

Columbia tend to use comprehensible terminology which appears to be more common usage and is less exclusive to legal interpretation than that of the Nova Scotia documents. The Act in each case sets the structure and tone for accompanying regulations.

Differences in public representation on governing boards are manifest. British Columbia requires that one third of Board membership for each profession be representative of the public, and Nova Scotia has only two public representatives (not including those dentists, hygienists and assistants appointed by the Cabinet), about one seventh of a Board governing three professions. The requirement for public representation in British Columbia is established by the Act for all health professions designated under the Act. In Nova Scotia, the Dental Act is different from the Medical Act which was recently amended to require one-third of its Council to be persons who are not members of that College (Province of Nova Scotia, 2000). This amendment to the Medical Act in Nova Scotia may indicate a transition in professional regulation to a greater requirement for public representation on governing boards.

Although critical differences exist in their regulated relationship with dentists, similarities in the scope of practice of dental hygiene are apparent from the regulation governing practice in each province. The British Columbia description includes assessment of teeth and adjacent tissues and the provision of preventive and therapeutic dental hygiene care. The scaling of teeth and administration of local anaesthesia are acts reserved for dental hygienists and dentists. The Nova Scotia regulation also refers to the provision of preventive educational, clinical and therapeutic dental hygiene services but no reserved acts are specified. The listing of five items which may not be undertaken by a dental hygienist serve to further restrict dental hygiene practice. The detailed descriptions of the practice of dental hygiene in the British Columbia regulation, bylaws, and standards of practice circumscribe the work of dental hygiene, in contrast to the brief description of what dental hygiene work is not in Nova Scotia.

The major exception to the regulation governing private practice in both provinces applies to dental hygienists who are employed in public health programs. The legislation in all provinces has historically granted exceptions to these dental hygienists with the proviso that there be a general arms-length supervision by a dental consultant (HWC, 1988a). This is still the case in the Nova Scotia regulation. The regulation in British Columbia specifies that those dental hygienists who are employed in public health programs provide nonclinical services. The additional exception in British Columbia is the dental hygienist licensed to practice in residential care settings. In Nova Scotia, the Board can give special dispensation to an institution to employ a dental hygienist but only if a supervising dentist is also employed. The dentist can, in this case, delegate any defined functions to the dental hygienist even though they may not be on the premises but only following examination of the patient(s) by the dentist. The delegation can take the form of verbal or written instructions, standing orders, or a general policy statement.

Interviews

The results of the interviews recorded here reflect both the interpretation of the investigator and the expression of the participants. This dual character, typical of qualitative data (Patton, 1990), provides a basis for rational answers to the interview questions as well as a richness of supportive statement. The balance between 'thick' and 'thin' description is a subjective judgement to establish credibility and trustworthiness. The ultimate answers to the research questions are interpretive blends of the rational and the emotional responses of the interview participants.

A total of 22 participants were interviewed with representatives in each of three groups as shown previously in Table 4. The addition of four participants over the target resulted from a number of factors: the iterative nature of soliciting interviewees, recommendations of more than three nominees by professional associations, and the unanticipated recommendations of individuals contacted. One participant, a British Columbia government representative, responded only to questions 9 and 10. The final

mix of gender is suggestive of the gender distribution in the designated groups: almost exclusively female in dental hygiene, predominantly male in dentistry, and predominantly male in government or public elected and appointed officials.

Responses to question 1 were summarized to establish relevant participant experience in, with, or related to dental hygiene, and to confirm the qualifications of the participants who consented to identification. Responses to questions 2 to 11 were analyzed by noting the frequencies of explicit and implicit references by code, the mix of responses, and the range of illustrative quotes, most listed in tabular form from least expressive to most expressive. Tables 11a to 11c, the final coding legend for Questions 2 to 11, is the result of three iterations of coding. Summaries of the analyses were prepared for each of questions 2 to 11 by using a matrix as shown in Figure 10 to compare and contrast responses to each of these interview questions. The analyses were then grouped into three broad areas of interest, as stated in the interview guide: the work of dental hygienists, dental hygiene and public needs, and the regulation of dental hygiene. Since one participant, a British Columbia government representative, responded only to questions 9 and 10, frequencies noted for questions 9 and 10 are for a total of 22 respondents; all other frequencies are for a total of 21 participants. The comments made additionally under Question 11 were mostly reiterations or reinforcement of earlier comments.

Three criteria were applied in selecting illustrative quotations. Many categories of responses demonstrated a range of emphasis and that range is represented in the quotations illustrating those categories. Those categories of responses which were expressed exactly or very similarly by most participants are illustrated by quotations that are representative of the large majority. In the third case, those responses that were unique or insightful are included for their distinctive meaning. Tables of quotations include province and designated group. There are virtually no quotations included as implicit in order to maintain the trustworthiness and strength of the meaning. Since

gender is mixed in only two of the six designated groups, it is not included as an identifier in the tables of quotations.

Question one, "Could you clarify, please, your role in relation to dental hygiene in Nova Scotia? That is, how are you or have you been involved with dental hygiene?", was intended to allow the participant time to become comfortable with the interviewer and the audiotape by speaking of his or her own careers and relationships with dental hygiene. It succeeded in reducing anxiety and clearly established the credibility of those interviewed. All dentists and dental hygienists had 10 or more years of professional experience. Government representatives included lay or community representatives on regulatory boards, elected officials, and appointed civil servants. The depth and breadth of experience are manifest and impart trustworthiness to their expressions and responses.

The Work of Dental Hygienists

Question 2

In thinking about the role of the dental hygienist, what would you say are the components of their work?

Participant agreement on this question was overwhelming and the fundamental components of the work of the dental hygienist were clearly identified in terms of degree of agreement and expression. Two-thirds of the participants distinguished immediately between the work in a private practice setting and the work in public health. Table 12 illustrates quotations demonstrating the range of expression and emphasis used to describe private practice work. The overall description of the work components was articulated by a British Columbia (B.C.) dental hygienist.

In thinking of the role of dental hygienists and the components of their work, I would say the macro picture is basically the preventative and therapeutic care of supporting structures and adjacent tissues. And preventative care of the hard tissues as well. And within that, there has to be health promotion as part of the preventative aspect of it. There's education as part of the preventative and therapeutic aspect of that care. (B.C. dental hygienist)

Comments on public health work were equally distributed between the two provinces but there were differences related to descriptions of the work involved. A general description of public health work was given by a Nova Scotia (N.S.) dentist as "So I think from that point of view, the public health person is more perhaps focused on making the people aware of problems that they may have without knowing that they have. More so than being out there and trying to treat it." Nearly all references to public health work noted that this has changed over time and especially in recent years, "It seems to me that the emphasis has changed. It's less clinical, less emphasis on clinical activities than on general education and promotion" (N.S. dentist). Much of the change is attributed to reduced funding in the public health sector, "there seem to be fewer opportunities in that arena for dental hygienists or for a number of health care providers right now because the funding situation doesn't provide for the employment of people in the community like it used to" (B.C. dental hygienist). Four British Columbia participants referred to public health work as planning and evaluating programs and lobbying, while the specific activity of public health work currently in Nova Scotia was described as dental caries prevention through education and fluoride rinse programs: "public health may be more in the section of dental caries prevention" (N.S. dentist) and "implement a fluoride rinse program in schools that are considered 'high risk' for dental decay" (N.S. dental hygienist). The history of dental public health services in Nova Scotia was elaborated in the following:

My understanding is that program historically went through an evolution where traditionally it started as direct service provision to children in schools. So that this would help ensure that children that did not have access to dental services could get some basic level of service. . . . I think with the advent maybe of the children's dental program, and also with wider availability of dental services, my understanding is that they started to change the program to be more of an educational, health promotion type of service whereby they would try to provide information to children while they were still at an age where perhaps it was easier to learn life long habits than older children. (N.S. government representative)

Explicit references were made by nearly all participants to the terms education, prevention, and treatment or therapy as being significant components of dental hygiene work with fewer references to various aspects of these components. Without hesitation, 20 participants reported that education of the patient or client is a major component and all of these participants used the term education (see Table 13). This was most broadly and emphatically expressed as "And everything I have ever learned about dental health, I learned from my dental hygienist" (B.C. government representative). The term prevention was used by 17 participants, and 15 stated this was a major component (see Table 14). In the next largest category of work component, equal numbers of participants, 11, referred to treatment or therapy and periodontal therapy specifically (see Table 15). There was no obvious distinction or preference between usages of the terms treatment and therapy. With the exception of one participant, those citing therapy or treatment were different from those citing periodontal therapy specifically, perhaps indicating a different perception of the role of the dental hygienist in therapy or treatment. That is, for some the role may be only related to periodontal treatment whereas others may see a more general role for therapy and including areas in addition to, or other than, periodontal disease. Two hygienists and one dentist noted that care is provided in the context of the entire family, not just an individual client, as in "When you see clients in your care, it's not just the individual client that you are involved with but the client's family member, and consider the client in that realm of their family and what is best for them, and hope that you can be as supportive as possible" (N.S. dental hygienist). This collaboration with the family seems to be closely related to the role in communication.

The term communication was used and emphasized by 10 participants as being something related to, but different from, education. One interpretation by a dentist stated that communication is an essential pre- or co-requisite of education. "In order to educate, you have to be able to communicate." In this context the meaning is clearly linked to the interactive skills required to help patients or clients to understand cognitive concepts,

practice motor skills, and develop positive attitudes towards selfcare, the foundation of disease prevention. The same dentist (B.C.) emphasized the importance of communication skill for all oral health professionals who provide patient care. Nearly all the dental hygienists made some reference to the ongoing nature of the educative role during an appointment with a patient or client as in "I just give them information and try to get their feedback, be that effective listener. So I do most of my education throughout the whole appointment" (B.C. dental hygienist). It is, perhaps, this perception and expression of the educative role that is most in keeping with the notion of appropriate communication, whereas the notion of lecturing to clients is not appropriate as in "When I listen to members of the public, even personal friends, they often still feel they are being lectured to by dental hygienists" (B.C. dental hygienist). A similar or slightly different meaning may be suggested by the notion of a public relations person as in "to me the dental hygienist is, in my opinion, should be the PR person in a dentist's office. . . . I think the patients will feel more comfortable with the hygienist the first time out" (N.S. government representative). Similar comments suggested that dental hygienists are ideally suited for this function within the dental office and also in other practice venues. Illustrative quotes for expressions of the term communication are given in Table 16.

Different roles for dental hygienists, adjunctive components within the traditional role, and examples of major components of the traditional role, were cited by fewer numbers, but are notable. Health promotion was noted by eight participants as a component of the dental hygienist's role but half of these suggested this was part of the role only in public health. The responses to question 4 which specifically requests comment on health promotion are not consistent with this split and are noted under that question. Six participants noted the role of dental hygienists who work exclusively in long term care. Five of these were in British Columbia where a new category of license for dental hygienists enables this practice, and one was a Nova Scotia dental hygienist who wants to see this practice in Nova Scotia. References to specialized roles were made

for each of the following: educator of dental hygienists (five participants), researcher (four participants), and administrator (four participants). Some of these were made in the context of the Canadian Dental Hygienists Association description of the role of a dental hygienists encompassing five primary responsibilities: clinical therapy, health promotion, education, administration, and research (CDHA, 1995) such as "Of course I think of dental hygiene in the broadest sense - of the clinician, the educator, the administrator, health promotion or community health, and in sort of their overall mission as prevention and educators" (N.S. dental hygienist).

Although the interview questions were clearly designed to explore the preventive and health promotion roles of the dental hygienist, six participants noted the role in expanded function or restorative service. One Nova Scotia government representative noted this capacity of dental hygienists without comment, and two dental hygienists (B.C.) noted that restorative service is included in some education programs and is permitted in some provinces but not in British Columbia. Three Nova Scotia dentists noted that in Nova Scotia dental hygienists are regulated to place restorative materials after dentists have done the cavity preparation in teeth. Two of them were not supportive of this role and one stated "it's a good thing for hygienists to know because you never know where you are going to end up after you graduate".

Explicit references to an established process of care advocated in all Canadian hygiene programs (CDAO, 1992; CDHA, 1995a; HWC, 1988a) were made by three dental hygienists and two dentists who mentioned the phases of dental hygiene care: assessment, planning, implementation, and evaluation. In one case, the reference was limited to public health programs; in others, the process of care was applied to both public health and private practice. The actual sequencing of work components and the delivery of service are clearly outlined in these references to the model or process of care - assessment, planning, implementation, evaluation (APIE) - that guides dental hygiene work.

Further specific references to the assessment stage - sometimes called examination - were made by nearly all participants. One participant in each group in both provinces referred to a collaboration between the dentist and the dental hygienist in examining patients and recommended this method of "two pairs of eyes" as being beneficial to the patient. Table 17 illustrates this sense of collaborative work. At least two-thirds of the participants in each group except the Nova Scotia dental hygienists made references to the examination of the dental hygienist as being separate from, and occurring prior to, the examination of the patient by the dentist. Table 18 lists illustrative interpretations by province. The notion was both described in detail as carried out in practice and also simply as identifying variations from normal.

The legal interpretation of the regulation and practice standards with regard to examination by dental hygienists in British Columbia was referred to in the following quotations.

It [the regulation] says that a registrant, being a dental hygienist, may assess the status of teeth and adjacent tissues, and provide preventive and therapeutic care for teeth and adjacent tissues. (B.C. government representative)

The dental hygienist, if they are practising according to the practice standards in B.C., are expected to complete an assessment of a person's oral health, analyze the medical/dental history, design interventions to meet individual needs, and identify any conditions that need to be seen by someone with more specialized education and skill. (B.C. dental hygienist)

Although this legal interpretation was not given by Nova Scotia participants, references were made to the common practice of examination by the dental hygienist, generally without any recognition, as in the following:

The dental hygienist cleans your teeth, as you probably know. And then they never say to you, "I think that there may be a problem there, or it's looking fine," or anything. They get the dentist to come in and look in your mouth and he tells you whatever it is. But she has made notes. He has read the chart after she has cleaned my teeth or whatever. He reads the chart. He comes in and looks in my mouth and says, "Well, __, it's this I've got to do or that I've got to do. Or I don't need to do anything" or whatever. But unless I knew differently, I would think,

Well, she doesn't know anything. The dentist comes in and looks in my mouth. He knows everything that is going on in my mouth because that is the impression I'm left with. I mean I know that it's not true because I see the dental hygienist working on my chart, and I know that she has highlighted everything, and he gets the chart before he comes in. So he reads the chart and when he looks in my mouth, he knows exactly what he's looking for in many cases, I'm sure. But she doesn't get any credit for that. Because if I didn't know better, I would think he came in and . . . I don't know if anyone else has said that. (N.S. government representative)

A further set of responses to this question and the second one on the role of dental hygienists in the prevention of specific oral diseases included references to the sequencing and sharing of specific work activities, especially examination or assessment of clients, in relation to the work of dentists. Eight participants referred to the dental hygienist seeing the client before the dentist, four of these at a recall appointment and four of these on initial appointment (see Table 19).

A notable and apparently important set of references were made by nine participants to the role of the dental hygienist in referring to dentists and other care providers, services, or resources. Participants in all groups except Nova Scotia dentists made reference to referrals by hygienists and suggested that this was a normal part of the practice of dental hygiene. Specifically, any periodontal therapy outside the dental hygienist's scope of practice and any unusual conditions are normally referred to specialist dentists. Two government representatives in British Columbia and one in Nova Scotia stated that their beliefs that dental hygienists know when to refer and do refer to a dentist if the patient requires dental treatment.

Question 3

Do you think dental hygienists have a role to play in the prevention of periodontal diseases, dental caries, and oral cancer?

All of the participants agreed that dental hygienists have a role in the prevention of periodontal disease. An important distinction between periodontal treatment or therapy

and prevention of periodontal disease was made by 14 participants. Four saw the actual treatment or therapy role as being the primary role and three saw it as secondary to client education to prevent periodontal disease (see Table 20). About half of the dental hygienists recognized the difference between primary and secondary prevention, and one expressed this as "It's secondary prevention in the sense that they are doing a lot of clinical care that will prevent further disease or further breakdown. But it's not primary prevention in the sense that health promotion would be" (N.S. dental hygienist). Both a dentist and a dental hygienist referred to the inclusion in periodontal therapy of local anaesthetic, a regulated service provided by dental hygienists in British Columbia under the supervision of a dentist, or a nurse or doctor in residential care.

The dual, overlapping, or associated role of client education with client therapy or hands-on treatment was emphasized by all participants. The primary prevention role of education in the prevention of periodontal disease was noted by 16 participants, most rather briefly, but one lengthy quotation specified a number of strategies to prevent periodontal disease.

Again, I would have to say that education is the most important role. Monitoring the state of health of the client. Providing therapy as necessary. . . . Hygienists teach them different ways to change the oral flora either through mechanical plaque removal or using different toothpastes or mouth washes or other adjunctive kinds of therapies. They can recommend continuing care intervals and suggest referrals for other care. (B.C. dental hygienist)

Nearly all participants noted the role of dental hygiene in preventing dental caries as primarily one of client education and about half the participants noted the prevention of dental caries through the application of anticariogenic agents, mainly fluorides. Along with fluorides, the application of sealants was noted by nine participants, and fewer numbers mentioned fluoride varnishes and the application of antimicrobials such as chlorhexidine. Desensitizing agents were mentioned by two people even though these are not necessarily anticariogenic agents.

The educative role was noted as being essential and including the topics of dental caries as a disease process, the role of fluorides in caries prevention, the importance of good nutrition and diet, and oral hygiene. Some educational strategies for the prevention of dental caries are the same as for the prevention of periodontal disease, for example, oral hygiene instruction. The educational and preventive needs of individual patients were said to vary by age and oral condition. In discussing the difficulty of providing diet counselling for patients, the influence of parents on their children was noted.

The other thing I'm finding very hard is talking to people about diets because it's such a personal thing. People don't want to admit whether they have money or don't have money, and what kind of foods they buy, or whether they read labels. Like I've always found nutritional counselling to be one of the tough ones because it's so personal to them. And if you are working with a child, you've got to work with the adult. And if the adult is not going to help then you are never going to get anywhere with the child. (B.C. dental hygienist)

The important role of early detection of oral cancer or precancer was noted by half of all the participants, including all of the dental hygienists, half the dentists, and one-third of the government or public representatives. Personal experience in detecting oral cancer and in having been treated for cancer perhaps understandably heightened the intensity of belief and expression in two of the accounts by dental hygienists (see Table 21). Risk reduction through education to promote cessation or reduction of personal use of tobacco and alcohol were noted by nearly half the respondents as an important role of the dental hygienist, with all dental hygienists making references to this and slightly less than one third of dentists and government representatives (see Table 22). Teaching self examination for oral lesions which could be precancerous or cancerous was also noted by a British Columbia government representative as a role for the dental hygienist.

Question 4

I'm also interested in your ideas about health promotion.

Responses to this question varied considerably but were consistent among nearly all participants in suggesting that health promotion is something more than, and different

from, disease prevention. Six respondents were equally divided on the context as being either in private practice or more in a public health setting. The difficulties in defining and expressing the nature of health promotion are illustrated in the following:

But it's become a topic of debate about exactly what is health promotion. We have people on this committee who are from interdisciplinary studies, and their argument to us is that there is really no agreed upon definition of health promotion. That this term means different things to different people. And when people come together for meetings, it means different things to different people. But I guess for me, before I was coloured by that influence, I really saw it as a large concept; associated with the strive towards the achievement of health for the population. So I saw it as a big picture activity that involves communities, legislators, health care providers of all sorts. It involves notions of prevention, educational strategies, political initiatives, that kind of thing. Is that too vague? (B.C. dental hygienist)

Descriptions of health promotion ranged from very broad health determinants which are nearly universal in application, to the role of education in a private dental office. The more limited notion is expressed by "I mean we are promoting oral health all the time. It's a preventive practice like most dental practices are. And a large part of our day is dedicated to education - educating the public. So we are teachers in effect" (B.C. dentist). The most expansive notion is demonstrated in the following:

I just think in the next century, promotion is going to be so important. Lifestyle is important. We look at high rates of certain kinds of illness, and we can look at what contributes to that. I know that the environment. . . . There are so many factors - job opportunities and all that. We've got to look at the environment we live in. But I think the more we do on the promotion side, the healthier we are going to be. It's going to be better for everybody. We've just touched the tip of the iceberg in that area really. (N.S. government representative)

Increasing public awareness of health concerns and health practices was noted by half the participants as health promotion activity, and two individuals noted the responsibility of all health professionals to participate in increasing public awareness to improve the health of all people.

I think health promotion begins in the home. But those involved in the field of medicine and dentistry and so forth, I think it's incumbent upon them to make sure that the general public is well informed through literature and clinics and so forth, and seminars. (N.S. government representative)

I think if you are a member of any health profession that we all have an obligation and a professional duty to communicate preventive medicine as often and as much as possible. . . . So I think it starts with members of the profession. And I'm not saying the dental profession - anybody in medicine. (B.C. dentist)

The notion of being active in the community was expressed by nearly all the dental hygienists. "In their community whenever they have an opportunity to be involved with community groups, that they bring with them that perspective of health in everything they say and do in their life. Extend it far beyond the private practice" (N.S. dental hygienist). The concept of population health was linked with health promotion by five participants, primary health care by only three. Designing programs for different population groups was noted by five individuals. Two dental hygienists mentioned determinants of health and one mentioned community-based clinics as a potential work environment for the dental hygienists, but none of these concepts were discussed or described in detail.

The notions of holistic health and whole body health were noted by half the participants. The notion of health as including mind, body, and spirit and involving lifestyle choices, was stressed as the purpose of health promotion activity. The physical relationship between oral and general health was described by a British Columbia dental hygienist as "the port of entry for many pathogens." The importance of the relationship of oral health to general health was captured in the following:

Obviously healthy teeth, healthy gums, all of that, is so important to one's overall health because it can lead to so many other problems. And I think people sometimes are not aware of what problems can occur by not having healthy gums and teeth and so forth. It's very, very important. (N.S. government representative)

Nine participants made specific reference to the term **lifestyle** and suggested that health promotion activity is the encouragement of healthy choices such as nonsmoking and appropriate diet and exercise. A unique interpretation of lifestyle health promotion activity was given as a more negative perspective.

What I see out there is three kinds [of health promotion]. One of it is the highly commercial promotion. You know, eat cornflakes with milk. . . . There is a kind of middle area which I am not in a position to judge. . . . Which is all the Crest toothpaste kinds of stuff. And I don't mean just Crest toothpaste. . . . But I think there is a third which is largely government sponsored, not terribly effective a lot of the time . . . And it's the negative stuff like the anti-smoking thing, anti-drinking, all this sort of stuff. Don't drink alcohol when you are pregnant, and on and on and on. A bunch of stuff like that which seems to pop out of government coffers somewhere, trying to undo the damage of all the commercial promotion. I'm not sure that I would call that in general terms health promotion. It's a promotion of products and services which people perceive might have some impact on their health. (B.C. government representative)

The term **proactive** was used by four dentists and four dental hygienists as a general approach to the activity of doing health promotion. One dentist qualified this approach by stating that there are many instances in a community when we might need to be reactive to an existing situation and that needs assessment is critical in determining appropriate strategies. Strategies for promoting healthy choices and lifestyles included a range from teaching self care skills and educating people to take individual responsibility in all aspects of their lives to broadly based policy initiatives illustrated by "It can be broad public policy. It can affect many things in terms of diet, housing, behaviours, activities. It is often a very challenging area" (N.S. government representative). The difficulties in changing behaviour and lifestyle were also noted, "Sometimes the people who have the poorest health are the hardest ones to inspire or get a message to or affect some change in because of some of their learned behaviours and where they are at" (N.S. government representative).

Consistent with the varied responses to health promotion in general, the role of dental hygiene in health promotion in particular, was more limited in "trying to encourage people to take responsibility for their own health, oral health, in all those areas that we talked about before - oral cancer and self care for periodontal disease and caries and so on" (N.S. dental hygienist) and more expansive in the following:

I think our role is expanding, and I think health promotion is changing and expanding as well. I think that impacts dental hygiene's role within it, because let's face it, two or three decades ago health promotion didn't really exist. Nobody cared about it, so it would be pretty difficult for dental hygiene to have a defined role in something that nobody had thought about yet. But I just had enabling individuals and/or communities . . . and as I say, to me community can be a family, a group of people, a professional community, a population community, to increase control, and to improve their health. So to empower a group or an individual to improve their own health. (B.C. dental hygienist)

Other illustrative quotes regarding the role and the importance of the dental hygienist's work in health promotion, including primary health care, are given in Table 23. Six dental hygienists and one dentist specifically referred to the dental hygienist collaborating with other health care providers or working in an interdisciplinary mode to promote health. Most dental hygienist participants distinguished between the role of health promotion in private practice and the role in public health settings. Although most suggested that those dental hygienists working in private practice volunteered their time in community health promotion activities, one did suggest that providing information to the community might be a paid activity.

Three dentists and one dental hygienist referred to the collective role of the professional associations of dentist and hygienists in promoting health and two of the dentists suggested that this is a primary mode of health promotion. However, one dentist cautioned that promotion to enhance the image of dental hygiene is self-serving and he did not think that other people would want to get involved in that.

In private practice settings, health promotion activity would be directed mostly to smoking counselling / cessation (10 participants) and to diet counselling (three participants) as previously noted under the work of the dental hygienist in prevention.

Three dental hygienists referred to risk assessment and risk reduction as in the following:

Very definitely we're working with different communities. The individual in your chair. Student groups. Baseball teams. Men at rodeos. Wherever you identify a community that is at risk. Whether it's tobacco use, or any other behaviours or lifestyle factors that we learn about in the future. I think right now tobacco is on of the big ones that we're aware of, whether it's smoking, or snuff, chewing tobacco in the school. (B.C. dental hygienist)

In attempting to change lifestyle and health choices, the concept of advocacy was expressed as reducing barriers (2), enabling (2), and empowerment (1), and illustrated in "What we haven't really done is all we can do in the role of advocacy because there are many underserved groups that are still in need" (B.C. dental hygienist) (see Table 24). Only one person used the term empower and it was used in the context of both an individual and a group.

Although not solicited by the question, three skills or characteristics that would contribute to health promotion by dental hygienists were identified: the skill of effective listening "I think we need to be good listeners" (B.C. dental hygienist), the characteristic of personal interest in this area, "I guess some hygienists obviously just naturally would, either through their own training, their backgrounds, continuing education, might have a future interest and might be better aware of things from a health promotion. . . point of view" (N.S. dentist), and, the capacity to act as a role model "If we are going to be promoting health, we also have to live the way of somebody who is supposedly healthy or living a healthy lifestyle" (B.C. dental hygienist).

Question 5

How well does their current education prepare dental hygienists for the work you just described?

Twenty participants affirmed the current educational preparation for the dental hygiene work they described (see Table 25). Six of these had the following reservations or qualifiers: more education would increase the level of confidence of graduates (1), more education in health promotion would be helpful (but is probably) not possible with the current necessary emphasis on clinical skills (3), continuing education throughout one's professional life is critical (1), and more knowledge in soft tissue health and disease would lend more strength and credibility in this area (1). The single dissenting comment noted the need for more education for all dental professionals in effective communication.

Five of the individuals who said the present education was acceptable also suggested that a degree (baccalaureate level) would be a more comprehensive level of education with more curriculum emphasis in critical thinking skills and problem solving (3), and that it is the appropriate level of education for professional credibility and public recognition (3). The case for a baccalaureate degree was presented in the following:

With things changing so rapidly in our society today, I would advocate a degree program for hygienists so that they are fully competent and qualified. Not to be dentists, mind you, but to be better informed on dental hygiene. Because our dentists are becoming so specialized, somebody has got to be a generalist. And I said this before, it's the hygienist who has got to promote good oral health. (N.S. government representative)

Two dental hygienists made reference to the need for a degree as a requirement for practicing more independently than presently permitted in either province. This notion is explored further under questions 9 and 10.

Dental Hygiene and Public Needs

Question 6

How do you think dental hygienists can best meet the needs of the public?

One third (7) of the participants, including three dental hygienists (one from Nova Scotia) and three government representatives in British Columbia, responded that increasing access to dental hygiene care or services is the best way to meet the needs of the public (see Table 26). All of these participants indicated awareness that increased public access implies that supervision by a dentist is not required for the provision of dental hygienist service. Four participants stated that dental hygienists can best meet the needs of the public by doing their job well and meeting the needs of their individual clients. Individuals also suggested the following specific strategies: increase the numbers of dental hygienists (1), the government should provide more money for people who can't afford dental hygienist care in the private office (3), and dental hygienists should become more involved with the community such as participating in other health initiatives and associations, health boards, and health reform issues(3). One suggested that dental hygienists should define more clearly their role and how they are the same or different from dentists as in the following:

Well, I think by becoming more clear on who we are and what it is that we do have to offer. I think we've taken our definition so much from what dentistry has sort of allowed us. And even talking around question 5 and education, even our educational programs are preparing dental hygienists to go and be in the more traditional clinical role. But have we ever stepped back really and looked at ourselves and said 'Here are some voids. Here we don't have to duplicate or replicate what dentists are about'. (B.C. dental hygienist)

Increasing access to dental hygienist services through alternate practice arrangements was viewed more negatively by dentists in both provinces. The team approach including the dentist, dental hygienist, and other dental professionals was given by five participants as a preferred approach to providing dental hygiene services. One dentist (B.C.) stated that this is a more convenient arrangement for the public. One

government representative (N.S.) suggested that this approach may be driven by economics, or consumer choice, but that the dental hygienist in this team arrangement has "the time to go through and be thorough". One dental hygienist noted that the team approach works very well only for the people who can afford to go to the dentist. One dentist stated that "the public is their patient. Their role is primarily what they do in the course of their professional lives. . . . The British Columbia Dental Hygienists Association could promote oral health, especially in collaboration with the British Columbia Dental Association, to meet the needs of the public" (B.C. dentist).

Question 7

Do you think that the role of dental hygienists is changing in any particular way?

Sixteen participants said that the role of dental hygienists is changing. Nearly all said it was changing in private practice (15) but one did note the change in the role in public health. There was little agreement about the nature of the change (see Table 27) except that their role is larger now than previously and there are new roles emerging in long term care and interdisciplinary settings. One dental hygienist noted a negative change in a trend towards dental hygienists "selling dentistry". Formal requests by dental hygiene for role change through regulatory change were noted in the following:

I think the traditional role is changing. We know that currently the B.C. Dental Hygienists association and the College of Dental Hygienists. Which is, as you know, an independent College now from our College. . . . But we understand that dental hygiene is urging government to allow elimination of the 365 day a year rule. . . . If that's eliminated, my understanding is that the patients would not need to see the dentist. . . . So that is being challenged. Also prescribing radiographs is being urged as well. Also another changing role is they would like to have billing numbers to insurance companies, separate billing numbers. They would like to be able to employ certified dental assistants and dentists if they so choose. Currently in B.C., dentists are not allowed to work for anyone except themselves or another dentist. Or I guess in specific cases, a hospital. So we currently would not be permitted to be employed by a hygiene clinic run by hygienists. So that is being looked at as well. I'm just trying to think if there are others. Radiographs is one. Employment another. Billing numbers. I guess that is it. (B.C. dentist)

Three of the four participants who did not think the role is changing referred to this lack of change in the private practice setting, and one person noted that there is no real change in Nova Scotia. Five participants noted that there is some overlapping by other dental professionals with the role of the dental hygienist, either by new graduate dentists building their practices by providing typical dental hygiene services, or by dental assistants through both formal regulation change and informal office work.

Nine participants cited the dental hygiene profession as being the major contributor to change in the role of the dental hygienist by organizing the movement towards self-regulation and independent practice. This belief was expressed in a positive way by the dental hygienists (4), less positively by the dentists (3), and negatively by one dentist (see Table 28). Two British Columbia government representatives stated that the situation in British Columbia is part of the political climate which permitted dental hygiene to seek greater independence and two of the dental hygienists also questioned whether the drive to independence was being led by the profession or simply part of a larger political climate as suggested in the following:

Sometimes I think that the things that have happened that relate to self-governance in some respects haven't really been so much the doing of dental hygiene as it has been dental hygiene taking advantage of windows of opportunity that have been created through favourable legislation, the times that we live in.
(B.C. dental hygienist)

Increased public or consumer awareness was cited by eight participants as contributing to a role change. Some of this awareness was attributed to the fact that people are now keeping their teeth longer than ever before and therefore need to maintain them. Some was attributed to product advertizing as in "You know, 'Ask your dentist or dental hygienist', that is said a lot on television, and on American and Canadian channels"
(B.C. dentist).

Three dentists and three dental hygienists noted the high cost of dentistry either directly or indirectly in response to this question; implicit in this response is that dental

hygienists practicing independently would be, or are purported to be, less costly than those practicing with dentists. One dentist discussed the practice of using 'front end fees' - examinations, cleanings, x-rays, prophylaxis, scale and rootplaning - as a 'loss leader', a way to attract the public. One dental hygienist noted that cost is a barrier for some people regardless of whether the dental hygienist is in a clinical practice of their own or working in a practice with a dentist. Lack of "dollars for public health" was noted as a barrier to a change in the public health role of the dental hygienist by three participants.

Treatment needs of underserved populations were cited as also contributing to role change including seniors (5), long term care residents (3), unemployed (2), and minorities (1). One dentist (B.C.) wondered, however, if "there will ever be money for those things? I mean should we even consider them if nobody is ever going to pay to hire hygienists in institutions or to put public health hygienists into school boards"?

Employment problems were cited by five dental hygienists and one government representative as a contributor to role change. Lack of time to provide adequate patient care, dentist demand for increased productivity, lack of employment benefits, and hiring new graduates at low salaries to replace experienced graduates at higher salaries were cited as specific examples of employment issues which are contributing to change in the role of the dental hygienist.

Participants also cited changing educational preparation (6) and gender (3) as contributors to role change. The changing educational preparation was said to incorporate more comprehensiveness in assessments, a shift from the medical model to a wellness model, the more recent emphasis on research and evidence based practice, and a higher level of knowledge overall. Gender was noted by three British Columbia dental hygienists as a positive force for changing the role of dental hygiene, a female dominated profession. One of these suggested that dental hygienists have interest in caring for the homebound and elderly because they are women and the "women are in that role in the society anyway".

The gatekeeping role of the dentists was cited by two-thirds of the participants (14) as an important barrier to the role of the dental hygienist changing; the responses were equally divided between British Columbia and Nova Scotia with three dental hygienists, one dentist, and three government representatives in each province (see Table 29).

Nine participants cited differences between the dentists' and the dental hygienists' professional agendas, particularly with regard to legislation and regulatory change (see Table 30) and two British Columbia dentists suggested that within the dental hygiene profession itself there may be differing agendas.

Legislation and the political climate were cited as barriers through several means: restrictive regulation (6), political climate unfavourable to dental hygiene (2), and limiting policy in public health (1). All but two of the comments were from Nova Scotians (see Table 31) and one dentist (B.C.) questioned whether the barrier is regulation or dollars available for required services.

Seven participants cited limited dental hygiene initiative as a barrier to role change and five of these were dental hygienists (both B.C. and N.S.) as in "I think the biggest barrier to change has always been the hygienists themselves". Reluctance to change, and limited promotion of dental hygiene in the public forum, were cited as the main outcomes of this lack of initiative.

Gender as a barrier was noted by three participants but one said that the dental hygienists he knew on the Provincial Dental Board of Nova Scotia "were able to stand their own with the male-dominated board'. I was quite impressed with them" (Nova Scotia government representative). One British Columbia government representative stated that some dentists still see a dental hygienist as a "hot and cold running hand maiden" and the government officials think "Oh God, it's that group of women again". One dental hygienist (B.C.) referred to the independence of dental mechanics or denturists and suggested that a gender characteristic of dental hygienists may be that

"women are smarter to say no to the presidency, they're quite happy with the vice presidency because they also have to go home and deal with kids and family".

Lack of esteem by dentist employers was cited by dental hygienists (one B.C., one N.S.) as a barrier to change, but one of these expressed the notion that, traditionally, dental hygienists have been relatively comfortable, but that is changing.

And that is why I'm saying that tradition will keep us in this same comfortable role, as long as it is comfortable. I guess what I am seeing happening is it is getting less comfortable. I'm hearing more about how it is less comfortable from our graduates and other colleagues. (B.C. dental hygienist)

One British Columbia dentist also suggested that the role of the dental hygienist was changing in the continuing need to maintain current knowledge of oral health trends and treatments, and he suggested that a barrier to this would be a lack of available continuing education courses to facilitate continuing competence.

Question 8

Do you think dental hygienists are generally recognized by the public? Why? Why not?

Twelve participants agreed that dental hygienists are generally recognized by the public while nine said they are not. Those who agreed included nearly all dentists, about one half of the dental hygienists, and one third of the government representatives. Three Nova Scotia hygienists believed that hygienists are recognized by the public while three British Columbia hygienists did not believe that the public recognizes dental hygienists.

Those who said that dental hygienists are recognized by the public cited several examples of their beliefs: television and other public media have discourse on dental hygienists, people at social events mention dental hygienists, and, even when people do not distinguish between the dental hygienist and other oral health practitioners, they seem to understand the kind of service provided by the dental hygienist. One person suggested that dental hygienists who have worked in public health settings in Nova Scotia for a long time have "done a fair amount about public recognition" (N.S. dentist). Those who do

not believe hygienists are recognized generally noted that they are not distinguishable or distinguished from other women or men in the private office, and two stated that the overlap in skills with dental assistants confuses the public. One suggested that this is intentional, "Well, that is what I said to you earlier when you said to me what are the barriers. The dentists have made the dental hygienist's role no different than the dental tech and all the rest" (N.S. government representative).

Seven people stated that they believe that the lack of public recognition is a shortcoming of the dental hygiene profession and individual dental hygienists. The predominant view was that dental hygienists must identify themselves individually in the private office and collectively in public initiatives. One government representative (B.C.) further suggested that the public will not be influenced by health promotion by the dental hygienist until dental hygienists are recognized as a distinct profession (see Table 32).

The Regulation of Dental Hygiene

Question 9

Do you think the current legislation regarding dental hygienists is appropriate?

Why? Why not?

This question was intended to be answered on the basis of existing regulation in both provinces, recognizing that the regulation of dental hygienists is distinct in each and notably different regarding level of supervision required. In British Columbia, three dental hygienists, two dentists, and three government representatives believed that the legislation is appropriate, although one dental hygienist and one government representative qualified this legislation as a satisfactory transition to something more appropriate, and all of the government representatives suggested that legislative change is ongoing. In Nova Scotia, all four dental hygienists and two government representatives believed that the current regulation is inappropriate, citing the level of supervision as the main reason, and one government representative noted that he wasn't sure that "it has gone far enough in giving them enough autonomy as an individual group."

In British Columbia the notion of appropriateness was generally linked with the view that the dental hygienists should and do have their own College or regulatory body separate from dentistry because they are a distinct profession providing different services than dentists provide, and further, that the process for the regulatory development was appropriate as illustrated by the following quotation.

And as to whether we think it is appropriate, our view is that it is quite satisfactory because it is fairly contemporary and was developed with the input of many professionals with legal and differing backgrounds in terms of determining what would be the most desirable and applicable legislation for governing professions. At the same time though, we acknowledged that the evolution of legislation is ongoing, and that there are undoubtedly improvements to the legislation that can and will need to be made from time to time. (B.C. government representative)

The notion of appropriate process for developing legislation was also noted by one government representative in Nova Scotia even though there was a clear recognition that the legislation was not satisfactory to dental hygienists.

I would have to say generally yes, given that it went through the processes to be developed and was in fact given approval or the regulations were approved by government after consideration. My understanding is that the dental hygienists perhaps wanted some more autonomy in carrying out their function. But generally the process, with all the players involved in coming to fruition on that, and government's ultimate decision. . . . And legally in the end, they make the decision through the laws. (N.S. government representative)

In response to the question regarding more specifically why the legislation was appropriate, the provincial and professional differences were demonstrated, although one dentist in each province said the regulation was appropriate because it does not permit direct access of the public to the dental hygienist. In British Columbia, the legislation was regarded as appropriate by dental hygienists because it permitted self-regulation and did not require that dental hygienists be supervised by a dentist. Three Nova Scotia dentists, by contrast, believed the legislation is appropriate because it requires direct supervision, even though two of the three stated that the indirect supervision requirement

in public health settings was also appropriate. The scope of practice was mentioned in Nova Scotia: one government representative stated that it is always an issue in medical care, and one dentist said the scope of practice was appropriate for the level of education, specifically related to the administration of local anaesthetic. The point was made that scope of practice can only change if education is provided to support that change. Table 33 illustrates the differences in supervision between provinces and the differences between private practice and public health supervision requirements in Nova Scotia.

In response to the question why the legislation was not appropriate when that was the participant's answer, more than half of all respondents in each province expressed strong feelings and beliefs about public access to dental hygiene care, and the provincial and professional differences were once again demonstrated on a number of issues. Seven participants in both provinces noted that the current legislation restricts patient choice in selecting care. Table 34 illustrates the range of expression and shows that this belief was almost exclusively held by dental hygienists and government representatives.

Dental hygienists in both provinces also stated that the legislation restricts the employment of dental hygienists; one noted that this barrier does not exist for physiotherapists or nutritionists.

All Nova Scotia dental hygienists, one dentist, and two government representatives stated that the level of supervision required by the current legislation is not appropriate and is different in public health, private practice, and even an extension of the private practice into long term care facilities. Further, two dental hygienists and one government representative noted that common practice is not consistent with the current requirement. Table 35 illustrates these notions about restrictive supervision in Nova Scotia. One dentist and one dental hygienist in Nova Scotia referred to the need for dental hygiene to become self-regulating in Nova Scotia, although the same dentist did not approve of independent practice for dental hygiene citing the potential for 'smile

clinics' providing inadequate care but suggesting also that there are already dental clinics which operate in this way.

One British Columbia dental hygienist expressed the notion that the level of education of the dental hygienist was inconsistent with the supervision requirement, "What other health professional must have the approval of another profession to provide care for the way they have been educated?"

Half of all participants - five in British Columbia and six in Nova Scotia - referred to the possibility and desirability of the public having direct access to the dental hygienist, or that dental hygienists should be able to practice independently. None of these were dentists. This notion is illustrated in Table 36 and was expressed most strongly in the following statement. The interviewer's statement is presented first as context.

[I'M WONDERING IF YOU COULD CLARIFY FOR ME WHAT SELF-REGULATING REALLY MEANS IN TERMS OF LEGISLATION, AND WHETHER OR NOT THAT PERMITS DENTAL HYGIENISTS TO WORK INDEPENDENTLY THEN.]

That is where it would go, yes. But with some safe guards. We allow other professional groups to work independently. And there are obviously guidelines. And they would have their own code of ethics to follow. If you didn't follow it, there would be a mechanism to deal with those professional people that didn't follow the code. I just think they are a professional group. It's time that they had their own professional organization, the same as any other health profession. They are no different. But that is where I see it going. (N.S. government representative)

Question 10 (N.S.).

Nova Scotia. Are there any circumstances which might cause the regulation to change to permit dental hygienists to practice without the supervision of a dentist?

Organized action on the part of dental hygienists to influence the public and the government was the basis of nearly all responses in Nova Scotia. All of the dental hygienists and government representatives, and one dentist in Nova Scotia believed that

political action on the part of dental hygienists could cause the circumstances to change, citing either the public or legislators or both as targets of such action, as in "Groups have found they have to be proactive to get legislation changed. . . . I think dental hygienists have not been as high profile in that area as they could be" (N.S. government representative. Table 37 lists a range of expressions of this notion. One dental hygienist and one dentist emphasized the role of dental hygienists increasing public awareness, and two dental hygienists suggested that action taken by the public would promote change as in "So, I think administrators in long term care can place some pressure on the government to change. Because those services are very expensive. Dental hygiene services are very expensive to get into their facilities under the present regulations" (N.S. dental hygienist). Two dental hygienists noted that some political climates and governments might be more open to change in the regulation than others.

Two different viewpoints were expressed about whether dentists would have to agree to change. One dentist said that the initiative would have to come from dentists, "It's going to have to come from dentistry, really, in order for that legislation to change" (N.S. dentist). One government representative mentioned the possibility of dentists establishing partnerships with dental hygienists, even though a dentist's office must be owned by a dentist in Nova Scotia.

Question 10 (B.C.).

British Columbia. _____ What things happened to change the regulation for dental hygienists to permit them to practice without the supervision of a dentist?

Although most responded to this according to historical events, some did make reference to the future as well. A blend of political climate and political action on the part of dental hygienists was cited as the foundation of the current legislation. The enforcement of the Health Professions Act in 1991, and the appointment of the Health Professions Council to review legislation "provided an opportunity for the British Columbia Dental Hygienists Association [BCDHA] to make an application to the

Council" (B.C. government representative). A key part of the process was "the entitlement under the Health Professions Act for them to initially apply for the creation of their own College" (B.C. government representative). Dental hygienists did apply and were ultimately given their designation as a separate profession and their own College. One dental hygienist emphasized the process involved in the review of the dental hygiene application for a separate designation and College, noting public hearings where seniors, other public groups, dental hygienists, and dentists made presentations. One dental hygienist described this as moving "in the direction of being a profession, a free-standing profession." Discussions at that time went beyond these issues as stated in the following:

But as well, it did set in motion a series of discussions and further reviews in relation to either expanding the scope of practice for dental hygienists or reducing some of the constraints on independent practice, depending on how you might want to characterize that. . . . The real focus of the discussion was in relation to the treatment of long term care patients - people who were resident in facilities - as opposed to independent community-based practice. But I think that . . . What I surmise is that dental hygienists are looking at their expanded scopes of practice in phases, and really looking at expansion in the long term care setting as one significant point that needs to be established and demonstrated to be done satisfactorily and without difficulties before moving on to attempt to achieve a whole broader, possibly unrestricted professional practice, private practice in the community without involvement of dentist. (B.C. government representative)

A different interpretation of the events of that time was also given.

They got their own College. They separated from under the umbrella of the College of dental Surgeons, which effectively at that time administrated the Dental Act for everybody. At that time, and once again, there was a feeling and perception amongst the dental hygienist community that they didn't have the input that they felt they should into the dental profession. So if they weren't having their needs met or addressed then it's just like a job - at some point in time, you say, "I'm no longer comfortable working in this environment or under these conditions," and they formed their own College. Breakdown in communication again. (B.C. dentist)

All of the participants referred to the 365-day rule, a regulatory restriction on dental hygiene practice described as "there needs to have been an examination by dentists within the prior 365 days. . . . If there hasn't been an examination, they have to make arrangement with the College (of Dental Surgeons) and advise them that this hasn't happened" (B.C. government representative). That rule does not apply, however, in residential care settings, "Yes, that is what has been taken away in the residential care setting. There doesn't need to be a prior exam. They can work independently and assess" (B.C. government representative). The function and value of this rule was expressed differently by different groups and by members within groups (see Table 38).

Two participants used the term 'self-regulation' in reference to the current legislation. One dentist stated that "Self regulation hasn't changed the rules all that much, although it has certainly given it an opportunity. So self-regulation has been the big thing". Similarly, a dental hygienist stated "I mean the biggest change, I think, in self-regulation was the decisions about dental hygiene were now being made by dental hygiene, not by dentists and dentistry."

A sense of future events or directions was also clearly distinct between dentistry and dental hygiene. All of the dentists spoke against the elimination of the 365-day rule and the establishment of completely independent dental hygiene practices. Three dental hygienists and two of the government representatives were in favour of this status. One dental hygienist stated that more dental hygienists would have their own independent practices if the 365-day rule did not exist. Two dentists also noted their professional concerns with the possibility of their College becoming designated under the Health Professions Act and the recent initiative by the BCDHA to formally suggest to the British Columbia Government that this would be appropriate.

The notion of public interest was raised in several contexts, some conflicting with others: the legislative decision to regulate Dental Hygiene to provide unsupervised care in residential care facilities, the requirement for one-third of the membership of all boards of

health professions, advocacy of public service by dental hygiene, the inappropriateness of the Health Professions Act for dentistry, and the merit or lack of merit of independent dental hygiene practice. Table 39 illustrates these expressions relating legislation to the public interest.

Question 11.

Do you have any other comments or suggestions you would like to make about this interview or dental hygiene?

About three-quarters of the participants, including all of the Nova Scotia interviewees, made additional comments when given the opportunity. These were generally reiterations or reaffirmations about dental hygienists, dentists, or future action. In British Columbia two dentists focused on the current and future differences in political agendas and political action by the dental hygienist and dentist organizations. A recent (at that time) action taken by the BCDHA was found to be objectionable - a letter to the Health Professions Council apparently suggesting that the Dental Act be repealed and dentists be brought under the umbrella of the Health Professions Act. The President Elect of the British Columbia Dental Association [BCDA] then notified that membership and suggested that dentists discuss the issue with their dental hygienist employees. He suggested that in-depth discussion and communication between the two groups was necessary.

And I mean dental hygienists and dentists alike need to sit down and at least talk and communicate, and say where are their respective concerns, and can we find some common ground. Because there are dentists out there who are going to want to be, frankly, very protective of the profession. And they see this as an encroachment on their scope - if hygienists carry on with independent practice and expanding their scope of practice. This, I think, is critical. (B.C. dentist)

Ms. McAlease, the British Columbia independent practitioner who, at the time of the interview, did not press for direct access to dental hygiene services without reference to dentists, changed her belief and expressed her new commitment with the returned transcript of the interview.

After seeing the extended care regulation, which uses the word 'advise' to have an examination by a dentist, I have changed my mind. In my opinion, the new regulation still leaves the responsibility for a dentist's exam with the RDH and will probably be an administrative nightmare for those working in extended care. (B.C. dental hygienist)

Two British Columbia government representatives reiterated their strongest beliefs. One stated that dental hygiene must take more initiative to achieve greater recognition by the public, the other emphasized the belief that self care is fundamental to health as in the following:

What drives me in my involvement to some degree is the belief that each of us is responsible for our own health, and that we each ought to be able to access whatever services we deem to be best, that we each have a personal responsibility to educate ourselves in terms of what will provide us with long and trouble-free lives. (B.C. government representative)

In Nova Scotia the comments were less focused on regulation. One dentist reiterated that the best way for dental hygienists to meet the needs of the public would be to do the job well. Another suggested that a major change in attitude on the part of dentists would be helpful to alleviate the tension between dentists and dental hygienists.

I would hesitate to change the legislation because of losing the goal. Because there is just too much water gone under the bridge between the two professions, I think. But it has to be improved. It just can't stay where it is at.

[WHAT HAS TO BE IMPROVED?]

The relationship, I think, or the attitude of dentists towards hygiene. And I think from the start, if the attitude was different, the hygienists would not be wanting their own place to go - if they felt an equal part of the team. (N.S. dentist)

The Nova Scotia dental hygienists commented on the need for a degree program and further education in general, interpretations of the current regulation, employment problems of dental hygienists, and the usefulness of articulating beliefs and understandings that arose from the interview process. One Nova Scotia dental hygienist noted that change takes longer in the Maritimes than in other parts of Canada. One

focused on employment issues citing the problems of working in private practices where "you are at the whim of those you work with".

The Nova Scotia government representatives all had final comments. One reiterated that dental hygienists need to increase the awareness of the public about their role because they are not well recognized and, more important, they actually play a vital role in promoting oral health. Another made some comments about health professions in general in the following:

I guess with health professions in general, it is an evolutionary approach. I mean for most of them. We are not dealing with a static population. Technology is changing things dramatically in terms of the approaches that can be used for providing care. And that often affects the people who are providing the care - whether they have a job or what that job might be as we make advancements in some areas. And I think I had given the example of the increasing growth rate of specialties and sub-specialties in medicine and nursing. It is just exploding all the time as we gain more information and have technology and whatnot. I think as a generality, that is true for most of the health professions. Most are not static. They are constantly having to re-evaluate. So to suggest that there is not an opportunity for change in the future for some of those services, I think would be in error. But it's often less than an exact science as to when those things occur in terms of either the scope of practice or working under supervision. It can be a moving target. (N.S. government representative)

One final comment was a notable reinforcer of the value of this investigation, "I'm pleased to see somebody have a look at dental hygienists and their role. I think there will be changes. I think the time has come" (N.S. government representative).

CHAPTER V

DISCUSSION

Indicators of dental hygiene professionalism in Canada have increased in the past decade, affirming the movement of dental hygiene towards professional status and recognition by the state and the public. During this same period of time there has been a paradigm shift in beliefs about the determinants of health status as well as dramatic changes to professional legislation to protect the interests of the public. With growing demands for dental hygiene services and renewed emphasis on the importance of prevention and health promotion in health care, a dental hygiene professional goal of increasing autonomy is consistent with public interest in enhanced access to dental hygiene services.

In this study, a new approach was taken to understand dental hygiene as a profession by employing the conceptual framework of Abbott (1988). Nearly all previous examinations of dental hygiene as a profession have applied attribute theory to describe the professional status of dental hygiene without examining shortfalls in dental hygiene attributes or the limitations of attribute theory in explaining these deficits and the means by which professional status may be achieved. In this study a new perspective of dental hygiene in Canada was guided by Abbott's theory of a system of professions with emphasis on the foundation knowledge of dental hygiene and the relationships of dental hygiene with other professions, the public and the state. Abbott's unique contribution in the case of dental hygiene is the explication of jurisdictional struggle and competition as a norm for all professions, a 'way of life' for professions.

This research examined two aspects of dental hygiene as a profession: knowledge and its application in dental hygiene practice, and the politicolegal status of dental hygiene along with factors contributing to that status. In Abbott's theoretical framework these aspects represent the distinctive knowledge of a profession and the recognition of that profession by the state. These two, in turn, represent two of the three arenas in which

jurisdictional claims are made. A third arena, that of public opinion, is the popular view of a profession and the one in which a jurisdictional claim is a profession's claim to both social and cultural authority. In this case, dental hygiene knowledge is a measure of the strength of the workplace jurisdictional claim; the politicolegal status and determinants are described as the legal jurisdictional claim. Public opinion about dental hygiene was not assessed in this study. In reality, however, there is significant crossover in jurisdictional claims and disputes as the results of this study demonstrate and are discussed in this chapter.

The interpretation of the results and their contextual meaning in relation to dental hygiene and the conceptual framework are presented in an incremental arrangement to accommodate the large volume of data and analyses in this investigation. The results of each phase are interpreted separately, followed by the associations among the results. This chapter concludes with an interpretation of the status of dental hygiene as a profession. Conclusions and recommendations from this study form the final chapter.

Phase I Professional Knowledge, Opinions, and Practices

The survey of dental hygienist and dentist knowledge, opinions, and practices regarding oral cancer provided a measure of the knowledge base of dental hygiene in a circumscribed and somewhat small but important area of practice. The morbidity and mortality associated with oral and pharyngeal cancers is a significant social burden which is largely preventable and, when diagnosed at an early stage, successfully treated. Relative to the other two more prominent oral diseases, dental caries and periodontal diseases, oral cancer receives less attention in both the public and oral health professional domains. The case for increased professional knowledge and practice among dental hygienists and dentists has been clearly established by recent initiatives and publications in the United States (Horowitz et al., 1996). A practical knowledge of risk and diagnostic factors, and the application of these in the daily practices of dentists and dental hygienists are strongly advocated.

At the time of this investigation there were no published results of knowledge levels of dentists and dental hygienists which would influence the direction of the research hypotheses. The higher level of education of dentists, however, would suggest that they could have more knowledge. Similarly, since most dental hygienists are not permitted by regulation to diagnose oral conditions, it is reasonable to suggest that dentists would provide more oral cancer examinations as part of their diagnostic protocols. The null hypotheses in this study stated that there are no differences in the knowledge, opinions, and practices of dentists and dental hygienists and that there are no differences even under distinctly different regulatory requirements for dental hygienists. The argument for acceptance or rejection of these hypotheses, based on statistical procedures, and the importance of these similarities and differences, are further discussed and compared with other findings.

Methodological Rigour

Strict adherence to a protocol consolidated from the survey methods of Aday (1996), Dillman (1978, 1983), and Fink et al.(1995) enhance confidence in these findings. The overall response rate, at 61 percent, differed among the groups with the highest at 73 percent from Nova Scotia dental hygienists and lowest at 50 percent from the largest sample group, British Columbia dentists. In the case of the British Columbia samples of dentists and dental hygienists, the response rates specified in the sampling formula (60 percent for dental hygienists and 40 percent for dentists) were exceeded by the returns. The returns of 66 percent from dental hygienists and 50 percent from dentists exceed the required returns for a confidence level of 95 percent. In the case of Nova Scotia dentists and dental hygienists, the samples were, in reality, the populations. The entire populations were surveyed in Nova Scotia since the number required for a statistically acceptable sample size was either marginally less, in the case of dental hygienists, or slightly more, in the case of dentists, than the population.

These response rates also compare very favourably with those recently published for state and national surveys in the United States. The following are the response rates for surveys of oral cancer knowledge, opinions, and practices in the United States: 60 percent on a Maryland state survey of dental hygienists (Syme, Horowitz & Drury, 1998), 64 percent on the national survey of dental hygienists (Forrest, Horowitz & Schmuely, 1998), and 50 percent on the national survey of dentists (Horowitz et al., 2000; Yellowitz et al., 2000). A higher response rate may have been achieved in this study with more follow-up reminders to non-respondents.

The response rates do, however, introduce the question of potential nonresponse bias. To determine whether the nonrespondents were different from the respondents, verification of the characteristics of nonrespondents was attempted through communication with the regulatory bodies in each province. In the case of Nova Scotia, the Registrar for both dentists and dental hygienists was able to provide some 1998 data that had been included in the annual report for that year (D. Bonang, personal communication, June 29, 2000). He confirmed that 14 percent of dentists were certified specialists in that year, and that 20 percent of all licensed dentists were female. In this survey 14 percent held specialist certification and 20 percent of respondents were female. Nonrespondent dentists in Nova Scotia were therefore the same as respondents in gender and specialist distribution.

In British Columbia, neither the College of Dental Surgeons of British Columbia nor the Association of Dental Surgeons of British Columbia were able to provide a demographic profile of dentists in that province (CDSBC, personal communication, July 30, 2000). The Association did acknowledge, however, that dentists are surveyed annually by an external consultant and the results of these surveys are confidential and available only to the dentists in that Association (ADSBC, personal communication, July 4, 2000). To date, no response was received to a further request for confirmation from the external consultant. Data from the College of Dental Hygienists of British Columbia

confirm that the respondents in this survey were similar to those currently licensed in British Columbia regarding gender, age, year of graduation, and highest education at the diploma level (CDHBC, S. Malerby, personal communication, July 17, 2000).

If there is bias associated with the nonresponse, it is probably in the direction of higher reported levels of assessing patients' risks and providing examinations than may actually be the case in the target populations. That is, the survey results may describe a situation that is actually better than in the general population. Compared with nonrespondents, respondents tend to have a greater interest in the topic of the survey and may have been more motivated not only to respond, but also to actually have more knowledge of this area and incorporate it into practice (Horowitz et al., 2000; Yellowitz et al., 2000).

Characteristics of the Groups

Gender, age, year of graduation, and educational qualifications of the respondents were consistent with expectation. Gender distinctions are the most dramatic and demonstrate the virtually all-female nature of dental hygiene. The greater proportion of female dentists, nearly one-fifth of the dentists, is perhaps related to the recruitment and retention efforts of education programs and are likely demonstrative of the larger social phenomenon of more women in traditionally male roles. Although some deliberate recruitment of males may occur in dental hygiene, the very small number of male respondents does not indicate a shift of men from traditionally male to female occupations. The national survey of dentists in the United States reported similar gender proportions with slightly fewer females (14 percent) than this study (Horowitz et al., 2000). Demographic data on U.S. dental hygienist surveys are not yet reported.

In both provinces dental hygienists are clearly a younger group than dentists and this is consistent with the history of dental hygiene in Canada. It is a more recent profession with the first Canadian graduates entering the field in 1953 (HWC, 1988a). Three quarters of the dental hygienists in this study were aged 30 to 49 compared with

only two-thirds of dentists. The mid quartile ranges and median year of graduation of the groups also showed that dental hygienist respondents in both provinces had graduated more recently than dentists. Compared with the U.S. national survey of dentists, in this survey respondents from both provinces were more recent graduates; only 13 percent in each province graduated before 1970 compared with 22 percent in the U.S . (Horowitz et al., 2000).

The educational qualifications of the respondents were also consistent with expectation. The majority of dentists (87%) have a basic dental degree with no specialization or graduate qualification. The majority of dental hygienists (74%) have a diploma qualification, or an associate degree which is the diploma equivalent in the United States. More than one-fifth of all dental hygienists have baccalaureate levels of education although most of these are not professional dental hygiene degrees. The implications of this additional education are explored further with the results of the interview in the last section of this chapter.

Knowledge of Oral Cancer

Only half of all respondents correctly responded to at least two-thirds of the items. Although in each province 57 percent of dentists agreed that their knowledge of oral cancer was current, no dentists in either province correctly answered all 16 items on risk factors and only four percent in British Columbia and two percent in Nova Scotia correctly identified all 14 diagnostic factors. Dental hygienists responses were more consistent with their reported lack of current knowledge. Only 49 percent in British Columbia reported current knowledge and only two percent achieved 13 correct risk items. They did, however, perform better in the diagnostic domain; three percent correctly identified all diagnostic factors. In Nova Scotia, only 28 percent agreed that their knowledge was current and only two percent achieved scores of 13 correct risk items. Slightly less than two percent correctly identified all diagnostic factors.

Overall, the pattern of correct identification of real risk, nonrisk, and diagnostic items was a near replica of the recently reported national survey of dentists in the U.S. (Yellowitz et al., 2000). Differences between that survey and this one in percentage of correct response were 10 percent or less, and, on three items, were the same. Gaps in knowledge of oral cancer are clear from the results and should be considered in both undergraduate and continuing education programs for dentists and dental hygienists. The differences in the number of items between the U.S. national survey of dentists and this survey are accounted for by the additional items in this survey, two real risk items and five diagnostic items. Four of these additional items (one risk and three diagnostic) were actually constructed from the opinion section; two represented single parts of a multiple-part question, and one was a new risk factor.

The differences between all dentists and all dental hygienists were on half of the risk factors and 11 of the 14 diagnostic items. On three of these items, more dental hygienists than dentists gave correct responses: examining the tongue procedure, the patient is asymptomatic in the early stages of cancer, and poor oral hygiene is not a real risk factor for oral cancer. In examining the tongue procedure, more dental hygienists identified the correct answer than dentists in both provinces. On patients being asymptomatic in early stages, more correct responses by Nova Scotia dental hygienists contributed to the difference. On poor oral hygiene as a nonrisk factor, more correct responses by British Columbia dental hygienists contributed to the difference. Overall, however, only one item demonstrated a mild to moderate association with the type of respondent being either dentist or dental hygienist. Within a province, only six of the 30 items demonstrated a mild to moderate association with the type of respondent being either dentist or dental hygienist, and one of these favoured dental hygienists in British Columbia. Although there were statistically significant differences between dentists and dental hygienists, the associations between the respondent being a dentist or dental

hygienist and correct scores on individual items were weak on nearly 80 percent of all items.

The knowledge indices are an indicator of total knowledge of oral cancer. It is these indices which were used to test the knowledge component of the two hypotheses. There were statistically significant differences between the means of all dentists and all dental hygienists and also between the means of dentists and dental hygienists in Nova Scotia on both the risk and diagnostic knowledge indices. In British Columbia, however, there was no difference between the means of dentists and dental hygienists on the knowledge of diagnostics index. Although the null hypotheses were rejected, the weak association between the type of respondent being either dentist or dental hygienist and individual items of knowledge, and the similar patterns of knowledge between dentists and dental hygienists, suggests that dental hygienists and dentists share a common knowledge base in the area of oral cancer prevention and early detection.

All four groups of dentists and dental hygienists in both provinces demonstrated similar patterns of knowledge and all were lower levels of knowledge than desirable. The type and amount of knowledge that would be acceptable in professional practice is not readily determined. It would be difficult to argue against the aphorism that 'more is better'. Both dental and dental hygiene educational programs have requirements for promotion and graduation, and licensing bodies have certification requirements for initial licensure and annual license renewal. The certification for initial licensure for dental hygiene in all provinces involves graduation from an accredited program within the past five years and, in British Columbia, Alberta, Saskatchewan, and Ontario, applicants must have passed the National Dental Hygiene Certification Examination. The knowledge required for successful completion of the national examination and entry into practice, commonly referred to as minimal competence, is established and reviewed by ongoing national committees of the National Dental Hygiene Certification Board and guided by evaluation experts. The acceptable level of knowledge on this examination is not

predetermined in advance of the exam but is based on a process known as Angoff's Method which uses panels of judges to identify item weights for each examination item. The weights are developed on the probability of minimally qualified candidates getting the item correct (D. Landry, National Dental Hygiene Certification Board, personal communication, May 30, 2000). The end result of this process is that a different passing grade may be determined each year; this year the passing grade was 75 percent but it could change from year to year. If the passing grade of 75 percent were applied to this survey, then the majority of dentists and dental hygienists would not have passed.

In addition to the initial certification procedure which examines knowledge, one of the requirements for ongoing licensure for dental hygienists in most provinces including both British Columbia and Nova Scotia, is proof of continuing education credit. The amount of credit and the distribution for attendance at courses within a specified period of time varies in these provinces, and there are no content requirements or recommendations (CDHBC, 1999; Provincial Dental Board of Nova Scotia, 1997). Some provinces, including British Columbia, also have a requirement for proof of practice during a specified time period. In the context of licensure, mandatory continuing education is viewed as a reasonable proxy for continuing competence but the relationship between participating in these courses and improvement in practice is widely debated.

Voluntary practice standards for dental hygiene developed by the Canadian Dental Hygienists Association state that dental hygienists should adhere to provincial or territorial dental hygiene licensing and other pertinent regulations and codes, and also that they access and utilize current research based knowledge through analysis and interpretation of the literature and other resources (CDHA, 1995b). In this study, dental hygienists in both provinces were not practicing with the most current knowledge and literature in oral cancer detection and prevention. The College of Dental Hygienists in British Columbia have adapted the CDHA practice standards and have incorporated into their draft a legal requirement for compliance (Registrant's Handbook, 1999). The extent

to which dental hygienists provide information to patients and clients, support for behaviour change to reduce risk, and follow-up reinforcement, are largely a function of communication knowledge and skill, and consultation with patients and clients to ensure their agreement and commitment. Current knowledge is essential to ensure that these efforts lead to outcomes of reduced risk.

Opinions and Practices of Dentists and Dental Hygienists

Dentists' and dental hygienists' oral cancer examination practices and opinions regarding examinations differed remarkably. Overall, more dentists provided oral cancer examinations for all patients at initial and recall appointments than dental hygienists and the differences were large in both provinces. Still, about one fifth of all dentists did not provide this examination for any patients at the initial appointment and about 65 percent did not provide this for any patients at the recall appointment. In this survey, 82 percent of all dentists provided this examination for their patients 40 years of age or older at the initial appointment and this is consistent with the U.S. national survey of dentists which reported 81 percent of dentists (Horowitz et al., 2000). For patients 40 years of age or older at the recall appointment, the U.S. survey reported a higher percentage of dentists providing examinations, 78 percent in the U.S. compared with 69 percent here (Horowitz et al., 2000).

Some of the lack of oral cancer examination may be explained by the lack of training expressed by one fourth of dentists and one third of dental hygienists. A large proportion of dentists said it was unnecessary, particularly for younger age groups, and some saw this as being the role or territory of the specialist. The major reason for dental hygienists not providing examinations was that it takes too much time. Dental hygienists, typically, may not be expected to provide this service in many practices. This lack of expectation on the part of the dental hygienist or the dentist employer may, in part, account for dental hygienists not allowing, or being allowed by their dentist employers, adequate appointment time to accommodate this examination. These findings are

generally disturbing as they confirm that many dentists and dental hygienists - key providers of oral care - are not seeking to detect precancer and early oral cancer lesions.

A proposed standard of The College of Dental Hygienists in British Columbia requires the collection of baseline data on a variety of clinical indicators including head and neck examination, intra-oral soft tissue examination data, and pertinent risk factors (Registrant's Handbook, 1999). Although not specified, this standard for assessment may be understood to include the assessment of oral cancer risk, and examination for detection of lesions and abnormal lymph nodes in the head and neck area. The manner of monitoring compliance with standards and determining punitive action are not yet outlined.

Dentists' and dental hygienists' opinions with regard to the regulatory requirement and the importance of supervision were also remarkably different. Although beliefs about regulatory requirements for supervision were expressed as opinions, the regulatory requirements are detailed in legislation, and could be defined as knowledge of professional legislation. There was a much greater degree of uncertainty about the regulatory requirement in British Columbia, particularly among dentists, than in Nova Scotia. Some of this uncertainty may be explained by the change in legislative structure for dental hygienists in that province. The establishment of a College or regulatory body for dental hygienists separate from the dentists, along with some regulatory change in recent years, may have contributed to some uncertainty, particularly among dentists. The certainty of dental hygienists is reassuring regarding the legitimacy of their practice. Less than 10 percent of dental hygienists believed that supervision was required for oral cancer examinations and education, and scaling and root planing. Indeed, no requirement for supervision for these services is specified in the limitations on services summarized in the CDHBC Handbook (1999).

Although there are no equivalents of this document for dental hygienists in Nova Scotia, there was a high level of agreement among respondents that the regulation

requires supervision for scaling and root planing, fewer agreed that supervision is required for oral cancer examinations, and only three-fifths agreed that supervision is required for oral cancer education. Dentists demonstrated this same pattern with more agreeing that regulation requires supervision for all three services. The regulation in Nova Scotia does, in fact, require direct supervision which is interpreted as on-site, but the regulation specifies those services which a dental hygienist may not provide in contrast to those which may be provided.

Opinions about the importance of supervision were generally not consistent with the beliefs about regulatory requirements. In British Columbia, more dentists and dental hygienists felt that supervision was important for the dental hygienists to provide oral cancer examinations and education than believed it was required, while fewer dentists and dental hygienists felt that supervision was important for scaling and root planing than believed it was required. The difference between requirement and importance were dramatic in Nova Scotia among both dentists and dental hygienists; both believed it was much less important to be supervised for any of the three services than actually required by regulation.

The initial appointment of patients to dental hygienists has implications for practice. Half of all dental hygienists, slightly more in British Columbia and slightly less in Nova Scotia, reported appointments with new patients. Whether or not this is acceptable from a regulatory perspective is an issue related to the delegation of work by the dentist. Since supervision is not required in British Columbia and there is no requirement for a referral from a dentist, there are no apparent contraindications for this practice in that province. In Nova Scotia, the regulatory requirement stipulates that the dentist delegates work to the dental hygienist and then directly supervises that work.

Summary of Knowledge, Opinions, and Practices of Dental Hygienists and Dentists

Regarding Oral Cancer

The first phase of this investigation was intended to measure the knowledge of dental hygienists and dentists in an area of practice that has become more important in the past decade and which could potentially save lives. Two hypotheses were constructed: H1) There are no differences between dentists and dental hygienists in their knowledge, opinions, and practices in the prevention and early detection of oral cancers. H2) There are no differences across provinces with different dental hygienist regulatory requirements between dentists and dental hygienists in their knowledge, opinions, and practices in the prevention and early detection of oral cancers. The survey measured knowledge on individual items and at an aggregate level. On most individual items and on the composite knowledge indices dentists, overall, have a higher level of knowledge of risks and diagnostic procedures than dental hygienists. This pattern is also true for the two groups in Nova Scotia. In British Columbia, however, dental hygienists and dentists were different on the risks index but not on the diagnostic index. In both provinces measures of opinions demonstrated that dentists were more confident than dental hygienists about their learning and preparation to provide oral cancer examinations. Similarly, measures of practices regarding oral cancer also demonstrated that dentists provide more oral cancer examinations than dental hygienists in both provinces. Measures of opinions regarding regulatory requirements and their importance were also different between dentists and dental hygienists. Dental hygienists were more certain than dentists regarding dental hygiene regulation in British Columbia. In Nova Scotia, both dentists and dental hygienists had a high level of certainty about the requirement for supervision in the regulation and most believed it was not very important for the services listed.

The statistical results of the survey of oral cancer knowledge, and the measures of opinions and practices of dentists and dental hygienists in British Columbia and Nova

Scotia are not consistent with either of the hypotheses and require rejection of the null hypotheses. The weak relationship, however, between the type of respondent being dentist or dental hygienist and most of the individual knowledge items and indices of knowledge, as well as the similarity in patterns of knowledge, suggest that dental hygienists had a knowledge level very similar to dentists in this defined area important for the prevention and early detection of oral cancer. These results are also meaningful when linked to other analyses in this work.

Phase II Exploration of Politicolegal Recognition

The second phase of investigation explored and described the factors shaping politicolegal recognition of dental hygiene through a qualitative examination of regulatory documents and interviews with individuals who represent dental hygienists, dentists, and the government or public. Three research questions guided this phase: R1) What are the dominant views of political leaders in dentistry, dental hygiene, and government regarding health promotion and its relationship to oral health, dentistry and dental hygiene? R2) To what extent is the politicolegal recognition of dental hygiene shaped by the political, legal, economic, and organizational characteristics of dental hygiene, dentistry, and government? R3) To what extent is the regulatory requirement for dentist supervision a perceived barrier to public access to dental hygiene?

The strategies to enhance the qualitative constructs which parallel validity and generalizability in quantitative research were discussed in the METHODS chapter. For the qualitative data of both documents and interviews, the data collection methods were made explicit, potential and real variants from original strategies were identified, the participants' truthfulness was assessed, biases were identified and discussed, and all the data are preserved. The following discussion notes the negative influences in the findings, uses the data to suggest analytic constructs, and makes explicit the theoretical significance and generalizability of the results. These criteria collectively establish the acceptability of the qualitative data and their interpretation.

Document Review

The review of regulatory documents for dental hygiene in Nova Scotia and British Columbia brought to light differences in regulatory requirements, the organizational structure of the legislation, and the language and tone of the documents. The regulatory status of dental hygiene and the relationship of dental hygiene to dentistry are strikingly different in the two provinces. These differences may be due to their construction and acceptance by different provincial governing parties, even though the fundamental legislation in both provinces was established at relatively the same time. In British Columbia, dental hygiene is regulated by a College which was established by an umbrella act for health professions, and is distinct from the regulatory body for dentists which is not presently designated under the umbrella act. The Health Professions Act (1990) provides a framework for the equitable regulation of all health professions and extends the protection and interests of the public by requiring all designated professions to have one-third of their governing boards composed of public representatives. Procedures for handling inquiries and complaints are detailed in the Act rather than in the regulation, a further demonstration of the intent to protect the public interest. Under this Act, written complaints must be reviewed by the Inquiry Committee, a procedure distinct from historic Acts which allowed the Registrar more power to consider and refer inquiries and complaints.

In contrast, the regulation of dental hygiene in Nova Scotia is established by the Dental Act (1992) which gives authority to dentists to delegate work to dental hygienists as defined in the Act and the regulation for dental hygiene. All dentists, dental hygienists and dental assistants are regulated by the Provincial Dental Board of Nova Scotia. Public representation on this Board is limited to two persons who are not members of any of the three professional groups. The five dentists, one dental hygienist and one dental assistant who are appointed by their respective professional associations might reasonably be expected to represent those associations. The three dentists, one dental hygienist, and one

dental assistant who are appointed by the Cabinet may question whether their appropriate roles are to be representative of their professions or the public, since this is not specified in the Act.

These different legislative arrangements set the tone for professional relationships regardless of the scope of practice for dental hygienists in these two provinces. The British Columbia model defines a more independent arrangement of dentists and dental hygienists in contrast to the Nova Scotia model which stipulates a subservient relationship of the dental hygienist to the dentist. The form of regulation for dental hygienists in British Columbia is commonly known as self-regulation. The term results in some confusion as the legislation does not confer complete autonomy but provides for the registration and licensure of dental hygienists largely by dental hygienists but with a limited scope of practice. Regardless of the varied interpretations of self-regulation, dental hygienists in British Columbia are responsible for their own registration and licensure through the College while dental hygienists in Nova Scotia continue to be registered and licensed by a body on which their representation is only two in fourteen if the Cabinet appointed dental hygienist represents the interests of the professional association.

Further distinctions are evident in the scope of practice for dental hygienists. The regulation in British Columbia has a general definition which is described as a range of services in the Registrant's Handbook (1999). Those services are based on the roles of dental hygienists defined by the Canadian Dental Hygienists Association (1995a) as clinical therapy, health promotion, education, administration, and research. The definition of dental hygiene in Nova Scotia is very similar to that in British Columbia but the interpretation is detailed in the regulation as five functions or types of services that a dental hygienists may not do. The implication is that a supervising dentist may delegate anything else, although it is not clear how dentists may determine precisely what is

appropriate for delegation. This arrangement may be desirable as there is more flexibility than a long listing of services might provide.

Supervision is a distinguishing feature of dental hygiene regulation. The supervision requirement in British Columbia is included only as a limitation on practice in the regulation. Direct supervision by a dentist is maintained for administration of local anaesthesia, although this procedure can be simply authorized by a physician in a collective living residence. Another form of supervision exists as a requirement for the client to be examined by a dentist either at the time of a dental hygiene appointment or prior to being seen by the dental hygienist within the previous 365 days. Supervision in Nova Scotia is interpreted in the regulation as on-site supervision of the dental hygienist by the dentist in the office of the dental practice. The only dental hygienists who are exempt from supervision requirements in both provinces are those defined in the regulation as working in public health, or those having special dispensation. In British Columbia the dispensation is given to dental hygienists who have met additional qualifications and are working in collective living residences. In Nova Scotia the dispensation is granted to institutions which request special permission and have the services of a dentist for initial examination.

The language used in the legislation conveys certain images or meanings. The regulation in Nova Scotia accentuates the domination of dentistry over dental hygiene through the use of terms such as 'delegation' and 'supervision' with several accompanying interpretations of supervision for different employment situations. Brownstone (1999) asserted that the terms in the Nova Scotia regulation "point to the entrenched powers of dentistry that are, in this case, embedded in the legislation" (p. 250). In contrast, the British Columbia regulation refers to 'reserved acts' and 'limitations on practice'. The legislation is the legal foundation for the relationship between dentistry and dental hygiene; it may also serve as an influential model for much of the social and professional discourse between dentists and dental hygienists.

The assumptions that form the basis of the legislation in both provinces dictate their differences. Dental hygiene in British Columbia was designated under the Health Professions Act because that regulatory structure was in the public interest, dental hygienists were already working in relatively unsupervised settings, and they were capable of maintaining the ability to register applicants and monitor registrants. The Registrant's Handbook is a capably managed College initiative, representative of their role in assisting practitioners to understand and accept full professional responsibility in providing services in a manner consistent with the interests of the public. Dental hygiene in British Columbia is a well-described, self-regulating profession. In Nova Scotia, dental hygiene is a profession described obliquely and directed by the dentists who retain the legal responsibility for delegating appropriately.

Interviews

The interviews of dental hygienists, dentists, and government or public representatives in both provinces were intended to describe some of the major components of dental hygiene work, particularly prevention and health promotion, as seen by the three groups in each province, and to identify some determinants of the politicolegal status of dental hygiene. The credibility and trustworthiness of the findings were assured through attention to the methodological rigour associated with qualitative data collection and analysis as well as the deliberate selection of elite informants as described by Marshall and Rossman (1989). The interviewees were acknowledged to have particular knowledge and insights about dental hygiene and the regulatory requirements in each province. The dental hygienists in both provinces and two of the dentists in British Columbia were nominated by their professional associations. All of the government or public representatives were at that time or previously on the regulatory body governing dental hygiene in each province or they were government employees or elected officials who had been involved in regulatory decision-making regarding dental hygiene. The results demonstrate the unquestionable agreement on many aspects of

dental hygiene work, the generally supportive view of dental hygiene by government and public representatives, and the differences in perspectives of dentists and dental hygienists regarding regulation.

The Work of Dental Hygiene

Although the components of dental hygiene work were described in detail by dental hygienists, with less detail by dentists, and more briefly by government or public representatives, there was an extraordinary degree of agreement about the nature of dental hygiene work. Nearly all participants noted elements of prevention, therapy, and health promotion in private practice work at the beginning of their descriptions. These elements are consistent with the regulatory definitions in both provinces and the general definitions of the Canadian Dental Hygienists Association (1995a), the Health and Welfare Canada document describing the practice of dental hygiene in Canada (1988a), and textbooks used in dental hygiene education (Darby & Walsh, 1994; Wilkins 1994; Woodall, 1993). A few Nova Scotia participants emphasized the clinical component in the initial description and several British Columbia participants referred specifically to periodontal therapy or therapy of the supporting structures of the teeth in this initial description of dental hygiene work.

This striking agreement about the nature of dental hygiene work as preventive in nature and including elements of therapy, health education and health promotion is meaningful from several perspectives. The agreement was not unexpected among dental hygienists who were nominated as leaders by their professional associations, in contrast to the findings of Brownstone (1999) which showed a less uniform concept of dental hygienist roles. The extent of the agreement among dentists and government or public representatives was, perhaps, less expected, but indicative of a common understanding and acceptance.

The distinction between private practice and public health work was immediately noted by two-thirds of the participants. Interestingly, the private practice setting was

referred to by several people as traditional dental hygiene when, historically, dental hygiene was originally introduced, legislated, and promoted in Canada as a public health initiative intended to reduce the very high dental caries rates in the post World War II period (HWC, 1988a). Participants stated that public health practice has changed to less work overall due to reductions in the financial support of public health programs and reductions in clinical work. Some specific examples of public health work included lobbying for fluoridation, operating fluoride rinse programs in schools, and providing health education to a variety of groups. In short, public health work was described as making people more aware of problems that they may have and what they can do about those problems but without provision of treatment for the problems in the public health context.

As participants moved into more detailed descriptions of work components, the most extensive agreement about dental hygiene work was the emphasis on the role of patient education. Nearly all participants specifically noted the term education, most suggesting that it is the most important component of work. Others considered that it is equal to other components or is provided in conjunction with other components. Moreover, the educative function was noted by some dental hygienists as occurring throughout the entire appointment, not as a separate entity in time. The relative importance of this role and the general level of success among dental hygienists are described in these quotations by non-dental hygienists: "there are a lot of hygienists . . . probably more successful than the average dentist is in their role as sort of a provider of education as to how patients can and should look after their teeth" (N.S. dentist), and "everything I have ever learned about dental health, I have learned from my dental hygienist" (B.C. government representative). Implicit in these descriptions of patient education is the knowledge of the dental hygienist in providing this service, a working knowledge of strategies and therapies to assist the patient or client in achieving a better health status or in preventing oral diseases and complications of oral problems.

Related to the educative role but distinct from it is the role of communication which half of all the participants noted, and one dentist described as a prerequisite of patient education. Some of the skills involved in communication were given as listening to the patient and providing reinforcement and encouragement without lecturing. A different notion of communication was expressed as a public relations role, specifically to make people comfortable in the dental office. This role could be interpreted in several ways: as a person who looks after the physical and psychological comforts of the patient in that environment, the person who represents the image of the dental practice, or as the person who actively promotes the dental practice to patients.

The extraordinary agreement regarding the educative function of the dental hygienist is wholly consistent with the key features of dental hygiene described by Darby and Walsh (1994) as "the study and management of the preventive oral health behaviours in which human beings engage" (p. 7). This interpretation has elements of Green and Kreuter's (1991) definition of health education which emphasizes systematically planned activity to facilitate voluntary adaptations of behaviours that are conducive to health. The term 'management' in Darby and Walsh implies a planned process to determine patient or client behaviours, and to provide support to achieve health. The support is educative but may also include other preventive strategies and therapies.

In the initial descriptions of dental hygiene work, about half of the participants, including nearly all dental hygienists, made reference to the work of some dental hygienists as educators, researchers, and administrators. These notations were also made in conjunction with the reference to the five role or responsibility areas defined by the Canadian Dental Hygienists Association as clinical therapy, health promotion, education, administration, and research (CDHA, 1995a). It is understood that the educative role is a component of all dental hygiene work but that some dental hygienists are specialized as educators of dental hygiene students. Similarly, the conduct of research may constitute a

significant proportion of dental hygiene work for a few dental hygienists, but all dental hygiene work has an element of research as the basis for dental hygiene practice.

A clear distinction between the provinces was made regarding the role of the Nova Scotia dental hygienist in placing restorative materials in teeth that have been prepared by a dentist. This role is not a legally permitted role in British Columbia, but is in about half of all provinces (CDHA C. A. & A., 1998).

Dentists and dental hygienists in both provinces referred to the process of dental hygiene care as assessment, planning, implementation, and evaluation (APIE), some at the initial stage of identifying the components of work. Although one dentist referred to this only in relation to public health programs, all others referred to this process as applying to both private practice and public health work. The descriptions of the use of this process suggest that the components of dental hygiene work, regardless of classification, are carried out in this systematic manner (CDHA, 1995a; HWC, 1988a).

More specific references to the assessment stage of the process of providing care were described as a collaboration between the dentist and the dental hygienist in the examination of the patient. Two-thirds of the participants in each group, except dental hygienists in Nova Scotia, made reference to the examination by the dental hygienists as being separate from, and occurring prior to, the examination of the patient by the dentist. Some participants gave detailed descriptions of the examination by the dental hygienist, others, brief statements suggesting identification of variations from normal. British Columbia participants referred to the regulatory description providing for assessment by dental hygienists, Nova Scotia participants in all three groups noted the common practice of dental hygienists assessing patients and then having the dentist come into the operatory to examine the patient and note the assessment of the dental hygienist. Some participants distinguished between this practice occurring at either or both of the initial and recall appointments of the patient. Regardless of the legal interpretations, assessment by dental hygienists is a recognized component of the model of practice in dental hygiene literature,

advocated as an initial step in the provision of care at the beginning of every patient or client appointment (CDHA, 1995a; Darby & Walsh, 1994; HWC, 1988a; Wilkins, 1994; Woodall, 1993). Differences between the extent of assessment and the specific purposes of assessment at different appointments are also described.

References to dental hygienists referring patients to others were made in the context of a dental practice. The dental hygienist may refer dental concerns to the dentist, as well as out of the dental practice to specialists such as periodontists, either through the dentist employer, or, in the case of independent practices in British Columbia, directly. In all dental hygiene practice, dental hygienists must confirm certain medical issues of patients prior to providing care so physicians are typically consulted on these health conditions either directly or through the dentist employer. The need for a referral to a dental specialist may be identified by the dental hygienist and suggested to the dentist. Patient conditions which suggest abuse or extreme neglect are legally required to be reported to social services authorities for investigation and, again, these referrals may be made by the dentist on the identification and notation of the dental hygienist in Nova Scotia or directly by the dental hygienist in British Columbia.

All respondents agreed that dental hygienists have a specific role in the prevention of periodontal diseases, dental caries, and oral cancer. Examples of specific strategies and therapies demonstrated a high level of agreement among participants. The prevention of periodontal disease was seen as a dual role consisting of both patient education and clinical therapy which some were able to define as primary and secondary prevention respectively. This role was seen as an essential dental hygiene role by most dental hygienists and two dentists who suggested that, in general dental practice, this area is left to dental hygienists who are acknowledged to have expertise. The patient education role was discussed as involving the patient in the process and decisions, giving them information and strategies to restore periodontal health or prevent problems, and assisting them to change their behaviour to be more supportive of health. In dental

hygiene literature periodontal therapy is emphasized as the foremost therapeutic role of dental hygiene (CDHA, 1995a; Darby & Walsh, 1994; HWC, 1988a; Wilkins, 1994; Woodall, 1993). The removal of hard and soft deposits above and below the gum line is a distinguishing feature of some regulations describing the scope of practice for dental hygienists. In British Columbia this is specified as a reserved act (Province of British Columbia, 1994) and in Ontario the disputed regulation is described as service that can be safely 'self-initiated' by dental hygienists (CDHO, 1995).

The role of prevention of dental caries was given by nearly all as educative with the addition of some preventive treatments, such as the application of sealants and anticariogenic and antimicrobial agents. The educative role was also noted in conjunction with public health programs. The distinction between the educative role and the provision of other preventive therapies is important even though they may all be considered primary prevention. These, again, are described with examples in literature used in dental hygiene education (Allukian & Horowitz, 1998; MacDonald, 1994).

The role in prevention and early detection of oral cancer was acknowledged to be important by most, but described in detail by only a few of the participants, perhaps as a result of the time limitations and broad nature of the interviews. Early detection was acknowledged as an important role of the dental hygienist by all of the dental hygienists, half of the dentists, and a third of the government representatives. The dental hygienists described the procedure of examination in some detail while the dentists simply stated that they expected the dental hygienist to point out to them any variations from normal. The notion of 'two pairs of eyes' was again suggested as being in the interest of the patient. Half the dental hygienists (both B.C. and N.S.) suggested that this is a role which is readily fulfilled by the dental hygienist who tends to focus on the soft tissues of the mouth and who spends more time with the patient at each appointment and in the number of appointments than do dentists. In contrast, dentists were said to focus more on the hard tissues, the teeth, and actually spent less time with patients. Two dental hygienists

noted their personal experiences in detecting lesions, one which was later diagnosed as oral cancer.

Similarly, while all the dental hygienists believed that risk reduction in patients, such as reduction in personal use of tobacco, was an important role of the dental hygienist, less than one third of dentists and government representatives suggested this. The dental hygienists saw this as part of their educative role. Descriptions of extra oral and intra oral visual and palpation examination techniques and risk factors and their reduction are provided in standard dental hygiene references (Darby & Walsh, 1994; Woodall; 1993). Regardless of their source of information or their depth of understanding, dental hygienist participants were able to provide a summary of their role in the prevention and early detection of oral cancer. Their expressed commitment to that role may be indicative of the value they place on the role and their recognition of its potential to save lives.

Participant conceptions of health promotion.

Nearly all participants distinguished health promotion from health education, suggesting that health promotion was something conceptually larger than health education. About one third were divided regarding whether the term is more applicable to private practice or to public health . Most admitted to some lack of clarity regarding a definition and some even talked about debates regarding the meaning. Descriptions ranged from the more limited notion of providing health education in private dental practices to the broadest notion of health determinants including lifestyle, the environment and employment. About half noted that increasing public awareness of health concerns is health promotion activity, but only two said that this was the responsibility of all health professionals. The ambiguity surrounding health promotion concepts may arise from the relative obscurity of the term compared with health education in dental literature. There is some agreement in the health promotion literature that health promotion combines health education with environmental supports for

healthful living (Green & Kreuter, 1991) and that the underpinnings of health promotion are the principles of primary health care (Stewart & Langille, 1995). The difficulty of capturing the broad meaning of health promotion in a single definition was reflected in the uncertainty of participant answers.

The site or place of health promotion activity was said to be the community by nearly all dental hygienists, but only one-third mentioned either population health or primary health care as important concepts related to health promotion. Again, community is generally acknowledged as "the center of gravity for health promotion" (Green & Kreuter, 1991, p,4). The notions of holistic health or the health of mind, body, and spirit were stressed by many, and some stressed the relationship of oral health to general health. More than half noted lifestyle and some noted examples of health promotion activity such as providing people with information about health choices and encouraging them to make healthy choices. In fact, it was the limited success of health education in bringing about changes in lifestyle that prompted the movement towards the broader concept of health promotion (Green & Kreuter, 1991).

A general approach to health promotion was offered by most dentists and dental hygienists in the term 'proactive', a way of having a positive influence on the health of all people. Interestingly, although none of the dentists or dental hygienists offered in-depth descriptions, an encompassing description was offered by a Nova Scotia government representative who stated that health promotion is broad public policy which can affect diet, housing, and personal behaviours. The notions of public policy and proactivity are central to health promotion philosophy and action (Green & Kreuter, 1991, 1994; Stewart & Langille, 1995).

The most conflicting view of health promotion as government sponsored programs such anti-smoking and anti-drinking suggested that these programs are an attempt to revert or recover the damage caused by commercial promotion of the products which cause health problems. Debates about government support for tobacco companies

and tobacco products which are believed to contribute to the rising costs of publicly-funded health care in Canada seem to support this unique interpretation of health promotion.

Health promotion as a component of dental hygiene work was cited by nearly all participants in their initial responses regarding the work of dental hygiene. In their later more detailed responses regarding health promotion, their perspectives of this role of the dental hygienist were consistent with the varied responses regarding health promotion in general. The role was limited by most to teaching and encouraging people to take responsibility for their own health, although there was a suggestion by dental hygienists (both B.C. and N.S.) that their role in this area is expanding. Specific references were made to smoking counselling and cessation, and diet counselling. Half of the dental hygienists located these in a larger category of risk assessment and reduction. The concept of advocacy was expressed by a few individuals as enabling, empowering and reducing barriers to health for individuals, as well as within communities. These concepts are integral to the primary health care principles of equitable accessibility to health care and the determinants of health, individual and community participation in the planning and operating of health services, and interdisciplinary and intersectoral collaboration to integrate health development with economic and social development (WHO, 1978, 1988, 1995).

Few suggestions were made regarding the skills that might be required for health promotion. One person did suggest that role modeling by health professionals was important. Nearly all of the dental hygienists and one dentist referred to dental hygienists collaborating with other health care providers or working in an interdisciplinary mode, and two dental hygienists noted the greater potential in community health for working in more interdisciplinary settings. The health promotion role was said to be different in private practice and public health, and the suggestion was made by several dental hygienists that volunteer work in the community would constitute health promotion

activity. These general comments regarding interdisciplinary collaboration suggest that, among these participants, this primary health care concept has some acceptance and incorporation into practice.

The collective role of the professional associations of dentists and dental hygienists was also seen as having a dimension of health promotion. Two dentists (B.C.) regarded this as the foremost mode of health promotion for dentists and dental hygienists. One dentist suggested collaboration between the two professional associations, while noting the greater resources of the dentists' association. He warned, however, that self-interest should not be a motive for dental hygiene associations to develop health promotion initiatives. If dentistry and dental hygiene are authentic interest groups, by definition they promote the interests of their respective groups. In contrast, health promotion is, by definition, an altruistic philosophy and activity. All professional associations must struggle with the legal, ethical and moral concerns that play a critical role in determining the balance between self-interest and genuine altruism.

The varied responses from interview participants tend to confirm the need for greater clarity of health promotion in the area of oral health, especially among practitioners. The description of dental hygiene roles, accepted nationally in Canada, includes health promotion (CDHA, 1995a), and the term is briefly defined in the Ottawa Charter and subsequent documents (Epp, 1986). The import of one comment regarding effectiveness of health promotion by dental hygienists is striking. This participant, a B.C. government representative, stated that the public will not be influenced by health promotion by a dental hygienist until dental hygienists are recognized as a distinct profession.

Educational preparation for the work of dental hygiene.

Nearly all participants believed that the current diploma-level educational preparation for dental hygienists is adequate for the work of dental hygiene they described. Reservations were expressed by about one third of the participants, most

suggesting that more education in health promotion would be helpful but is likely not possible given the current emphasis on clinical skills in the diploma curriculum. Five of those who said the current education is acceptable stated that a baccalaureate degree would provide a more comprehensive level of education with more emphasis on critical thinking and problem-solving skills. The baccalaureate degree was seen by the dental hygienists as better preparation for dental hygienists and also as conferring greater public recognition and credibility. A government representative (B.C.) thought that a baccalaureate should be required for entry to practice. These suggestions are consistent with the minimum baccalaureate preparation of other health professions such as nursing, occupational therapy, and physiotherapy. They are provocative in the context of recent closures of many baccalaureate programs in the United States, evidence of the continuing power and authority of dentistry noted by Brownstone (1999).

The suggestion of one government representative (N.S.) that dental hygienists could, with a baccalaureate degree, become oral health generalists while the dentists could continue to specialize in other areas, is a conceptual cognate of the intermediate oral health professional described by Nielsen-Thompson (1997) and the dentist-substitute of Manga & Campbell (1994). They are analogous to physician-substitutes such as nurse practitioners or physician assistants. These health care providers are not seen as extenders of physicians or dentists but rather as primary care providers who act in case-finding, provide limited services, and refer to other health and social services providers.

Dental Hygiene and Public Needs

One-third of the participants believed that the best way for dental hygienists to meet the needs of the public is to increase access to dental hygiene services; nearly all of these participants were dental hygienists or government representatives in British Columbia. Only one dental hygienist in Nova Scotia responded with this position. All of these respondents noted that increasing access means eliminating dentist supervision. Several specific strategies for meeting public need were offered including government

funding for care in the private office and dental hygiene involvement with health in the community through board appointments and advocacy of health system reform. Dentists in both provinces did not suggest increasing access to dental hygiene services or alternative practice venues for dental hygienists but emphasized the team approach in the current arrangement for service delivery. One dental hygienist noted that the current arrangement works well only for those who can afford private dental services. Differences between dentists and dental hygienists regarding increased access to dental hygiene services are to be expected in light of the recent history of professional dental hygienist associations promoting increased access in requesting regulatory change.

Although more than two-thirds of the participants said the role of dental hygiene is changing, and nearly all mentioned that change is occurring in private practice, there was almost no agreement regarding the nature or direction of the change. The perception is one of increasing role expectations for dental hygienists and dental hygiene work. Some in British Columbia mentioned the new role in long term care and institutions but, in Nova Scotia, it was said there had been no real change for some time in that province. The overlapping of dental hygiene with dentistry and dental assisting was expressed as a concern by two dental hygienists in each province. The overlap with dentistry was also noted by a dentist (B.C.) and a government representative (N.S.). The dentist expressed this as another dentist in his office 'doing the dental hygiene'. The idea of dental hygienists overlapping with periodontists was not expressed by any participants as earlier suggested by Kazanjian (1993). Differences in describing the nature of the role change in dental hygiene may be explained by the different perspectives of varying social and professional conditions. These include an increasing pace of change in health care services and delivery, economic instability, dental hygiene regulatory change in some provinces and not in others, and widespread recognition of the recent emphasis on health promotion in health care. There is also recognition of the movement towards

interdisciplinary collaboration along with other forms of shared individual and collective responsibility for health.

Major contributors to the change in the role of dental hygienists were believed by half of the participants to be the dental hygienists themselves organizing the movement towards self-regulation and independent practice. This action was viewed as positive by dental hygienists but not by dentists. Participants in all groups in British Columbia acknowledged that the government there had created an opportunity for dental hygiene to become self-regulated. Interest group activity by dental hygiene professional associations, in fact, has been directed towards self-regulation, and even independent practice in some provinces (Alberta Dental Hygienists Association, 1996; CDHA 1997a; College of Dental Hygienists of Ontario, 1995; Health Professions Council, 1993; F. Richardson, personal communication, May 18, 1999).

Other suggested contributors to role change were increasing consumer awareness, especially related to people keeping their teeth longer, high costs associated with dental services, the employment problems dental hygienists experience with their dentist employers, and the changing role for women in society with greater gender equity and increased social value of the caring role of health professionals. The epidemiological trend of people retaining their natural dentitions for more years, and that impact on increasing demand for dental hygiene services was predicted by Lewis (1989). High costs may be associated with dentistry but it is not clear how this contributes to change in the role of dental hygiene. The potential loss of the incomes that dental hygienists generate for dental practices was identified as an economic threat to dentists by Blishen (1991). Employment problems for dental hygienists are not well documented, but the potential for conflict was confirmed by the Health Professions Council of the British Columbia Government, "The Council found it somewhat of a conflict of interest for dentists to be both regulator and employer and supervisor, and preferred that the regulatory arm be separate" (B.C. government representative). Societal changes

promoting gender equity and the notion of female hygienists being accepted as a caring profession may also be accurate but there is no current research to document.

There was more agreement about the barriers to change. About two-thirds of all participants in both provinces cited the gatekeeping role of dentists as an important barrier. The gatekeeping was largely expressed as a legal or regulatory state with access to dental hygiene services only through dentistry, and also as dentists being protective of their territory. Provincial regulation supports this gatekeeping function in both provinces. In Nova Scotia all professional dental hygiene services must be provided under the direct supervision of a dentist with few exceptions. In British Columbia the gatekeeping is the ongoing requirement for examination by a dentist, the 365-day rule, with exceptions only in public health and longterm care. Public health is defined as nonclinical and the longterm care stipulation requires only that dental hygienists advise their clients to see a dentist if they have not been examined by a dentist in the past 365 days. Even the less rigorous requirement in longterm care was seen by one dental hygienist (B.C.) as ongoing dentist gatekeeping requiring unnecessary administrative work. In both provinces the assessment completed by dental hygienists is not recognized as a dental examination and may not be considered as case finding for dental treatment, even though they may be extensive and may be used as the basis for visual examination by the dentist.

In their professional agendas, differences between dentists and dental hygienists were cited by nearly half of the participants. Two British Columbia dentists suggested there may be different agendas within the dental hygiene profession. Dental hygienists were seen to be moving toward more independence and dentists were not in agreement with that movement. Dental hygienists in both provinces cited lack of initiative on the part of dental hygienists as a barrier to movement. Dental hygienist and dentist professional associations are in conflict as interest groups supportive of their respective positions to become more independent as dental hygienists or to retain authority as dentists. The extent to which they are successful in influencing public policy may be

predicted by their level of organization, their commitment, and their resources (Pross, 1992).

A number of Nova Scotians cited restrictive legislation and unfavourable political climate as barriers. The political climate in British Columbia provided the opportunity for dental hygienists to request self-regulation by establishing umbrella legislation for health professions. The precise impetus for the umbrella act is not clear but the conceptual framework and the structural and organizational requirements for public representation on regulatory boards were enacted by a New Democratic Party government (Dental Hygienists Regulation, 1994; Health Professions Act, 1990). By comparison, a revised dental act with provision for the regulation of dental hygiene in Nova Scotia was enacted by a Progressive Conservative government (Dental Act, 1992). To the extent these different legislative approaches are representative of political philosophy and policy, governments and their policies are a critical determinant of dental hygiene recognition.

Gender was cited as a barrier by two B.C. government representatives but one dental hygienist placed the barrier in a favourable context. She suggested that women dental hygienists may deliberately choose lesser roles in order to have time and energy for their families. This more positive interpretation than the view of gender bias in the health professions may relate to the view that dental hygienists have favourable incomes and may be more satisfied with the guarantee of salary income than the unpredictability of commission or fee-for-service income.

Participants were divided in their beliefs about dental hygienists being recognized by the public. Nearly all dentists, half of the dental hygienists and a third of the government representatives believed that the public recognizes dental hygienists. Support for these beliefs was cited as increased commercial advertising acknowledging dental hygienists, more discussion about dental hygiene and dental hygienists at social events, and the long term work of dental hygienists in public health. Those who did not

believe the public recognizes dental hygienists cited the general confusion about the different roles of persons in a private dental office: the dental hygienist, the dental assistant, the receptionist, and, perhaps, even the dental technician. Most patients cannot distinguish these roles and are not guided in this process by dentists or dental hygienists. Participants suggested that dental hygienists should promote themselves more in their private practices and also through public initiatives. The character of public support for dental hygiene is largely undetermined in most jurisdictions and the impact of any initiatives to promote dental hygiene has not been reported (Alberta Dental Hygienists Association, 1996; Ontario Dental Hygienists Association, 1995).

The Regulation of Dental Hygiene

Participant beliefs about the appropriateness of current regulation for dental hygienists were related to the existing regulation in each province. In some instances the responses were remarkably similar despite these regulatory differences. In general, however, comments were distinctly more positive for British Columbia and more negative for Nova Scotia. The majority in each group in British Columbia believed that the legislation establishing self-regulation for dental hygiene is appropriate, and two saw it as a satisfactory transition to independent practice. The reasons for appropriateness were cited as the right of dental hygienists to self-regulation, the right of dental hygienists to be regarded as a distinct profession by legislation, and the lack of a supervision requirement other than the 365-day rule.

The development and acceptance of the current legislation in British Columbia was seen as a combination of political climate in the province and political action on the part of the dental hygiene professional association. This move was not seen as a positive action by two dentists who suggested that there had been breakdown of communication between the dental hygienists and the College of Dental Surgeons, previously responsible for dental hygiene regulation. They also suggested that leaders in dental hygiene were responsible for the change in legislation but that many dental hygienists may not have

supported that change. Leadership which is not representative of membership views is an important consideration for all professional organizations. The reluctance of dentists to accept the legislative change for dental hygienists may be related to their desire to maintain symbolic and real power and authority including economic control. For dental hygienists, inconsistency within the profession in support of the change may point to increasing internal differentiation.

Differences between dentists and both dental hygienists and government representatives were expressed with regard to future directions. All of the dentists opposed eliminating the 365-day rule to permit dental hygienists to practice independently while three of the dental hygienists and two of the government representatives favoured such a change. The circumstances which might support or reject this change were not stated but the logic of the rule was questioned by both dental hygienists and by government representatives who did not believe there is evidence to support an annual dental examination as a useful health strategy. Individual patient conditions were suggested as a more appropriate determinant of the time intervals between examinations.

In Nova Scotia, all dental hygienists, one dentist and two government representatives believed the Nova Scotia legislation was inappropriate. The main reason given was the requirement for a high level of dentist supervision. The dentist who said the legislation was inappropriate supported self-regulation but not independent practice for dental hygiene. This view acknowledges a difference between the two forms of regulation and the unacceptability of a status independent of dentists. Another dentist suggested that there is a kind of inertia about the situation so, if things are working, there is no need for change. Whether the situation is working for either or both of dentists and dental hygienists was not elaborated. A third suggestion by a dentist regarding the need for dentists to initiate change for dental hygiene may be politically naive regarding the

role of interest groups in general, or it may be simply an acceptance of the ultimate power and authority of dentists as an interest group.

Nearly all of the Nova Scotia participants agreed that organized initiatives by the dental hygiene profession could cause the regulation to be changed to eliminate the requirement for supervision. This suggestion, even by two of the dentists, acknowledges the potential for dental hygiene as an interest group. Dental hygienists noted that some governments might be more receptive than others to regulatory change but did not specify which political parties and policies might be more favourable.

In both provinces, those who said the legislation was not appropriate cited beliefs about the limitation on public access to dental hygiene. Remarkably, half of the participants in both provinces, but no dentists, referred to the desirability of the public having direct access to dental hygienists. Some expressed very strongly the right to have direct access to dental hygienist services. The trend towards direct access to health care professionals such as occupational therapists and physiotherapists may reinforce these beliefs.

The notion of maintaining public interest in British Columbia was expressed in several forms. The required number of public members on the regulatory Board of the College of Dental hygienists of British Columbia is a full one third of the membership and this was cited by government representatives as upholding the interest of the public. Both dental hygienists and government representatives held the view that the right to practice unsupervised in longterm care increases access to dental hygiene services, and this is in the interests of the public. The Health Professions Act was seen by dentists as being inappropriate for dentistry, and the requirement for committee investigation of all complaints was cited as an unnecessary requirement not in the interest of the public. Finally, the independent practice of dental hygienists was described by dental hygienists and some government representatives as upholding the interests of the public, while all of

the dentists said this would not be in the interests of the public. The differing perspectives of stakeholders are a critical consideration in determining public interest.

The blending of bureaucratic and collegial regulation envisaged by the first Canadian health professions legislative review in Ontario (HPRL, 1989), and subsequent reviews in British Columbia, Alberta, and Manitoba, emphasized omnibus legislation to incorporate all designated health professions. The Health Professions Act of British Columbia (1990) demonstrates this legislative structure with criteria for determining public interest. Designation of dental hygiene for self-regulation was determined by application of the public interest criteria. The existence and utility of such criteria is self-evident - the bias of individual and collective stakeholders is less likely to unduly influence the determination. A review of health professions legislation in Nova Scotia as recommended by The Blueprint for Health Care Reform in Nova Scotia (1994) may benefit from incorporating public interest criteria similar to those in British Columbia. The interview findings suggest that a review of dental hygiene regulation in Nova Scotia would be appropriate.

Summary of Findings Regarding Health Promotion and the Politicolegal Recognition of Dental Hygiene

The second phase of this investigation was intended to determine the views of representative dentists, dental hygienists and the government or public with regard to conceptions of health promotion and the determinants of politicolegal recognition of dental hygiene status. Three research questions guided this phase: R1) What are the dominant views of political leaders in dentistry, dental hygiene, and government regarding health promotion and its relationship to oral health, dentistry and dental hygiene? R2) To what extent is the politicolegal recognition of dental hygiene shaped by the political, legal, economic, and organizational characteristics of dental hygiene, dentistry, and government? R3) To what extent is the regulatory requirement for dentist supervision a perceived barrier to public access to dental hygiene?

Among the interview participants, the notion of health promotion was conceptually limited. The few who referred to the more expansive concepts of health promotion as integral to public policy, population health and primary health care confirm the need for greater clarity of health promotion concepts, especially in the area of oral health. Examples of health promotion as lifestyle change and individual behavior modification to reduce health risks were common, even among some dental hygienists, suggesting that the dental hygiene role as described briefly by the Canadian Dental Hygienists Association (1995a) and based on the Ottawa Charter and subsequent documents (Epp, 1986) is not fully integrated into daily practice and discourse. The identification of elements such as advocacy, empowerment, equity and interdisciplinary practice indicates a familiarity with some of the more essential components of health promotion. The dominant views of political leaders in dentistry, dental hygiene, and government regarding health promotion and its relationship to oral health, dentistry and dental hygiene demonstrate recognition of the term and suggest an appreciation of the value of health promotion. The degree of internalization of concepts among interview participants was not apparent.

An increase in knowledge and practice of health promotion among dental hygienists is desirable and consistent with recognized definitions of dental hygiene. Two potentially critical limitations to this development are noteworthy. First, most dental hygienists continue to work in private practices owned by dentists, and nearly all dental services are funded by individuals or through employee benefit schemes. In this respect, these services are essentially different in Canada from publicly funded health services. Models for health promotion in this private sector environment are still to be described. Some aspects of health promotion activity may be readily applied; others with less ease, or not at all. A transition from philosophy to daily practice is predictably more difficult when resources and economics are more readily apparent, and may guide the extent of health promotion activity in the private practice. The second is the suggestion that the

public will not be influenced by health promotion by a dental hygienist until dental hygienists are recognized as a distinct profession. Acceptance of the philosophical underpinnings of health promotion by health professions and governments also implies activity to support this social construction of health and health determinants. If dental hygienists are to be successful in their health promotion role, facilitation of their professional relationship with the public, individually and collectively, is a reasonable expectation.

Table 40 identifies the determinants of the current politicolegal status of dental hygiene described by the interview participants in British Columbia and Nova Scotia. The order of the factors in the table do not represent any temporal or substantive order. Those conditions which favoured consideration of less restrictive dental hygiene regulation in British Columbia were a left-of-centre governing political party, omnibus legislation which promotes self-regulation, explicit public interest criteria for designation as a self-regulating health profession, and opportunistic interest group activity by the dental hygiene professional association. These conditions, in turn, permitted a new category of license not supervised by a dentist and reduced the gatekeeping and economic control of dentists. Although British Columbia dental hygienists and government representatives expressed a degree of satisfaction with the current regulation, there was a clear desire for further legislative change by eliminating the 365-day rule and moving to independent practice for dental hygiene. The strong expressions of desire for change in Nova Scotia were linked to self-regulation with few references to independent practice.

All dental hygienists and most government or public representatives perceived the regulatory requirement for dentist supervision as a barrier to increasing access to dental hygiene services. Dentists, in contrast, perceived that some degree of supervision was desirable and that independent practice for dental hygiene was not acceptable to them. The question of access to dental hygiene services was either not addressed, as in the case of most Nova Scotia dentists, or it was addressed indirectly by dentists in both provinces

by espousing the value of the team approach with the dentist as the team leader. One dentist's unique expression of 'dental hygiene access to the public' rather than 'public access to dental hygiene' is an important reflection. Professions do seek access to the social legitimation expressed as publicly sanctioned autonomy, and the public do seek access to professional services. Public interest is best served by an equitable protection of both the public and the profession, a balance historically favourable to professions but now demonstrating increasing concerns for social equity and justice.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

The findings related to the hypotheses and research questions set out in this investigation revealed that dental hygiene practice is formulated and interpreted by dental hygiene practitioners, dentists, policymakers, and members of the public. Although their practices were slightly different, dental hygienists' knowledge regarding oral cancer was very similar to dentists' knowledge in the two provinces surveyed, and both dentists and dental hygienists could benefit from additional education in this area. This demonstration of practical knowledge in the public interest was not integral to regulatory policy in either province. Other knowledge purported to be important by interview participants but not generally well understood in dental or dental hygiene practice was believed to be the area of health promotion. The role of the dental hygienist in health promotion is valued, but not well described, especially in the private dental office.

The influence of various determinants on the politicolegal recognition of dental hygiene was inconsistent. Political governing party policies, legislative opportunities, and opportunistic interest group activity were distinct in their influence. The indirect influence of economics was less clear. The effects of gender in daily work and in interest group activity were not at all certain. The inconsistency suggested with regard to the effects of gender and economics may reflect provincial, local, even site-specific differences.

Limitations of this investigation were discussed with regard to methodological rigour and are held to be those which are the inherent limitations of quantitative and qualitative data collection methods and analyses. The triangulation of data illustrated associations which are interdisciplinary in character and present dental hygiene as a profession in a new light. The analysis of consonance and dissonance between professional expertise and public policy provides a new perspective on professions in general, and dental hygiene in particular.

Associations Between Knowledge and Politicolegal Recognition

Participants in the interviews were in remarkable agreement about the preventive nature of dental hygiene work and the critical elements of therapy, health education and health promotion. Most also acknowledged the role in oral cancer to be important and dental hygienists were able to describe some details of their role in risk reduction and early detection. This demonstration of commitment on the part of dental hygienists is an important first step in seeking knowledge and incorporating it into daily practice. Risk reduction, such as tobacco cessation support for patients, was readily identified by dental hygienists as part of their educative function, another indication of commitment. Similarly, extra and intra oral examination for early detection of oral cancer were valued as part of their clinical role. Their preparedness for the role was not assessed in the interviews but their aptitude was expressed with references to their emphasis on soft tissue surrounding the teeth, rather than the hard tissue of the teeth.

The measurement of dental hygienist knowledge in this area and their incorporation of oral cancer risk reduction and early detection in daily practice in this survey demonstrated gaps in both knowledge and practice. In both provinces their patterns of knowledge of risk and diagnostic factors were similar to the patterns of the dentists. Both dental hygienists and dentists demonstrated knowledge gaps which can affect daily practice and their provision of service to patients. Although there were differences between dental hygienists and dentists collectively, and within each province, there were only a few items which showed a moderate relationship between the type of respondent and the item of knowledge. Similarly, the means of indices of knowledge of risks and diagnostics showed statistically significant differences between dental hygienists and dentists overall, as well as within province, with the exception of the diagnostic index in British Columbia where differences between dental hygienists and dentists were not statistically significant. Most differences were small and not substantively relevant to the policy and practice issues considered in this research.

Incorporation of the survey knowledge themes of oral cancer risk and early detection into undergraduate and continuing education programs is recommended for both dental hygienists and dentists.

The nearly complete acceptance by interview participants of the appropriateness of the education of dental hygienists for their current roles can be taken as an endorsement of the knowledge base of dental hygiene. The relatively successful performance of dental hygienists in the survey may be attributable to a number of factors: personal interest and experience related to cancer and oral cancer, recognition of the potential mortality associated with oral cancer, undergraduate curriculum exposure to oral cancer knowledge, and choice of continuing education courses. The proportion of dental hygienist respondents who had baccalaureate preparation, nearly one quarter, may also have contributed to patterns consistent with dentists. Although only one percent of the baccalaureates were professional dental hygiene degrees, other skills associated with baccalaureate degrees may have influenced the favourable response. The stated preference for a baccalaureate degree among many interview participants may be reflective of their expectation for this level of education similar to other health professions such as nursing, occupational therapy, and physiotherapy. The knowledge and skills suggested for a baccalaureate degree, however, were not specifically related to any particular oral problem, such as oral cancer, but were related to the concepts and strategies of health promotion, and also to critical thinking and problem-solving.

These suggestions for appropriate baccalaureate degree curricula - health promotion, critical thinking and problem-solving - are conceptually complex. Critical thinking and problem-solving skills are expected to enhance clinician abilities to determine the best available evidence for treatments and to consider the evidence in conjunction with clinical experience and the preferences of patients or clients. These skills may also influence clinician choice in selecting appropriate continuing education programs to maintain competency in practice. Many respondents in this survey reported

a lack of appropriate knowledge and training. Ideally, health care practitioners would determine their own educational needs based on their awareness of current or changing issues through skills acquired in critical thinking and problem-solving undergraduate curricula.

In this study neither dentists nor dental hygienists consistently provided oral cancer examination for all patients at initial and recall appointments. Differences in the reported practices of dental hygienists and dentists with regard to providing oral cancer examinations are consistent with the confusion regarding who is responsible for examination and what is the role of the dental hygienist in assessment and diagnosis. The notion of 'two pairs of eyes' was suggested as being in the interest of the patient, but one dental hygienist, although agreeing, described this as problematic from the patient's perspective. The benefit of 'two pairs of eyes' is apparent and economical if a patient is only required to pay for one examination. A dental hygienist practicing independently in British Columbia is required to complete an assessment in order to provide any services but the patient may be required to pay for that assessment in addition to the required examination by a dentist within 365 days. The independent practitioner in this study referred to the need for accountability by the dental hygienist in providing adequate assessment as required by regulation and practice standards. The legal requirement for a dentist examination and a dental hygienist assessment may be seen as 'two pairs of eyes' which are helpful to the patient but are administratively difficult and more costly to the patient.

Differences between dentist and dental hygienist beliefs about regulatory requirements may be indicators of variation in daily practice routines among both groups. Practitioners would not likely perform daily practices they believed were not legally sanctioned. Uncertainty regarding the legal requirements for practice may, however, lead to daily practices which are not supported by legal interpretation. A degree of uncertainty among dentists in British Columbia is not unexpected following a change to self-

regulation for dental hygiene. A high level of agreement among dentists and dental hygienists in Nova Scotia that the requirements for supervision of three professional dental hygiene services are not important is also cautionary with respect to actual daily practices. Legally sanctioned acts may be interpreted less rigidly by practitioners if they believe that the sanctions are not important.

The critical elements of knowledge and practice regarding oral cancer prevention and early detection are not considered unique to either dentistry or dental hygiene. Annual oral cancer examinations, the use of standardized health history forms that address oral cancer high-risk behaviors, and patient counselling about high-risk behaviors are recommended for all patients or clients by all dentists and dental hygienists, as well as physicians, nurses, nurse practitioners, and physician assistants (Horowitz et al., 1996). Dentists and dental hygienists may be preferred providers because of their expertise in oral health but those individuals who do not receive regular dental care may see physicians or other health care providers. Interprofessional and interdisciplinary approaches are essential to build the partnerships that will reduce the morbidity and mortality of oral cancer. The public interest in these recommendations is indisputable.

In practice, however, the determination of fees for oral cancer risk assessment, risk reduction and examination is problematic. Horowitz et al. (1996) recommended policies to ensure third party payment for annual oral cancer examinations by physicians and dentists. Examinations performed by health care providers other than dentists and physicians may not be reimbursable to the provider. Similarly, costs for patient counselling and risk reduction may be recoverable only by designated health care providers.

The appropriateness of fees for dental hygiene services, raised by some interview participants, has several aspects. The determination of an appropriate fee is an important consideration for independent dental hygienist practitioners in British Columbia. If patients must also pay for an examination by a dentist, they may easily see this as a

duplication of services and fees. The implications of the reference to dental hygiene services as "loss leaders" are even broader than the question of which health care provider may be reimbursed for examination. The term implies a use of services provided at low cost to encourage or promote the demand for services at a higher cost. Applied to dental hygiene services, it serves to devalue those services while emphasizing the potential for dental hygienists to act as agents for more costly dental treatments, a practice alluded to by dental hygienists in both provinces. The economic implications of these issues are well beyond the scope of this work.

The issue of reimbursement for prevention and health promotion services represents a social value which competes with the value for treatment services. Health outcomes for prevention and health promotion may be less apparent and more difficult to measure than treatment effects. Legislation for dental hygiene as reported and analyzed in this study and in Ontario (CDHO, 1995) enshrines the clinical role as the distinguishing feature of dental hygiene. Services such as patient instruction in health strategies and practices and the use of patient empowerment strategies are absent from the regulation, implying that these are not as important and that patient safety is not an issue in these services. In juxtaposition to the legislation, the educative role of the dental hygienist is commonly recognized as an important distinguishing feature and is valued. Social, educational, and regulatory support for that role are implied. Similarly, if health promotion is accepted as an appropriate role for dental hygiene, social and institutional support are indicated.

This study documented the change occurring in both dental hygiene and dentistry in their knowledge gaps and overlaps, and the change in dental hygiene legislation and professional perspectives. The transition period for dental hygiene suggested by interview participant comments is consistent with the more encompassing and detailed findings of Brownstone (1999) which demonstrated an evolving professional project for dental hygiene and a culture with both technical and professional members. Changes

expressed in regulatory requirements are reflective of the changes in professional influence and politicolegal recognition with considerable potential for alteration of both dental hygiene and dentistry. Transition is conceptually integral to Abbott's theory of interprofessional competition and jurisdictional claims. The dental hygiene role, although regulated quite differently in British Columbia and Nova Scotia, was remarkably constant as described in this study. Elements of transition and constancy are informed by reference to Abbott's theoretical construction of professions.

Theoretical Explication of the Status of Dental Hygiene in Canada

Dental hygiene knowledge in this study is a measure of the strength of the workplace jurisdictional claim; the politicolegal status and determinants describe the legal jurisdictional claim. Perceptions about public opinion regarding dental hygiene were not intentionally assessed in this study, but were offered by participants. Collectively these three arenas - workplace, legal, and public - are the sites of professional claims for the social authority and sanction, the primary endeavor of professions. Abbott's theory of professions (1988) encompasses the premise of ongoing professional change driven by internal and external forces, a conceptual framework fundamentally different from attribute theory and the notion of acquiring professional characteristics through a process of professionalization.

Abbott's rationale for rejecting the concept of professionalization is exemplified in dental hygiene. Dental hygiene's professional path is not unidirectional, the implied path in the concept of professionalization. The absence of baccalaureate preparation, a minimum standard for entry to practice among other health professions, and the stunted theoretical development are examples of stalling and, perhaps, some regression. Second, development of dental hygiene is not independent of other professions as suggested by professionalization theory, but is markedly affected by events and developments in dentistry, dental assisting and major social trends. The emphasis on professional attributes in dental hygiene literature suggests that a third assumption, that structure is

more important than work, may have been adopted by dental hygiene rather than developing the focus on work which Abbott supports as fundamental. The fourth assumption of professionalization, homogeneity within the profession, is dispelled by the increasing amount of specialization within dental hygiene including roles such as the regulated role in residential care in British Columbia. Finally, the increasing impact of the state in shaping dental hygiene and other professions is conceptually inconsistent with professionalization which suggests increasing autonomy for all professions.

Abbott claims the knowledge system of a profession is the source of its power, but he warns that abstract professional knowledge may not transfer into practical professional knowledge. Although prestigious academic knowledge implies effective professional work, formal knowledge must be modified and applied to patient or client needs at the level of everyday human experience. Dental hygiene knowledge is believed by dental hygienists to be different from dentistry knowledge and distinctive from other disciplines (Darby and Walsh, 1994). The knowledge, opinions, and practices of dental hygienists and dentists regarding oral cancer prevention and early detection in this study were likely products of more formal academic knowledge acquired in undergraduate or post graduate courses in combination with practice experience and professional exchanges and consultations. The results were not substantively distinct between the groups; the findings showed similar patterns of knowledge regarding oral cancer risk and diagnostic factors and only a few areas of difference. Other areas of dental hygiene work, such as knowledge of periodontal therapy and patient education and counselling, may be more distinct from dentists but these also are all areas of knowledge with practical application in the prevention and early detection of those oral diseases.

The similarities between dentist and dental hygienist knowledge regarding oral cancer risk and diagnostic factors may also be interpreted as an example of Abbott's assertion that there is a high degree of assimilation among professionals in worksites. The measure of professional worth in a worksite is actually the real output of individuals

rather than their credentials. Abbot notes that this workplace assimilation is a stark contradiction to the claims of professions in the legal and public arenas. Public awareness of this, he suggests, would result in public suspicions of professional claims to unique function and comprehensive jurisdictions.

The more abstract knowledge which is Abbott's basis for professional distinctions is not actively generated in dental hygiene at present. The relatively few dental hygienists engaged in research and the limited theoretical frameworks of dental hygiene are evidence of the beginnings of theoretical abstraction in dental hygiene (Bray, Gadbury-Amyot & Williams, 1997; Darby & Walsh, 1994). These abstractions, however, are largely untested in practice. Abbott's second type of academic knowledge is the generation of new diagnoses, inferences, and treatments for working professionals. Again, there are few dental hygienists engaged in the production of this type of knowledge.

In this study references to the professional work actions of diagnosis and inference were indirect in contrast to references to treatment strategies. The legal restriction prohibiting dental hygienists from making diagnoses, an act reserved for dentists, has promulgated use of the term assessment for the action of diagnosis by the dental hygienists. Distinctions between dentist diagnosis and dental hygienist assessment are most apparent when the assessment is provided by an independent dental hygienist practitioner. For most dental hygienists, even in British Columbia, the continuing work is in dental offices as employees of dentists. In these circumstances, the distinction is less apparent, particularly when patients are booked with the dental hygienist for the initial visit to the dental office as reported by about half the dental hygienists in both provinces in this study. Typically the dental hygienist visually inspects the patient's mouth and records conditions which the dentist later reviews at the same appointment or a subsequent one. Regardless of the sequence in any particular practice setting, all dental

hygienists are educated in the process of care which begins with assessment, and those in British Columbia are legally required to assess patients prior to providing any treatment.

The ill-defined process of matching appropriate treatments with conditions assessed in the mouth is Abbott's stage of inference. In Abbott's usage, inference for dental hygienists may be a function of opportunity and expectation, as well as knowledge and educational preparation. If diagnosis is legally prohibited, the logic of moving from diagnosed conditions to a range of potential treatments through inference may be less well developed than when the legal accountability is required.

Dental hygiene interventions are forms of treatment which may be educative or therapeutic at primary or secondary levels of prevention (Allukian & Horowitz, 1998). The basis for making decisions about treatment is essentially related to the diagnostic work, and treatment choices should be based on the best available evidence. Selection of the best available evidence is essential in a health care environment which demands more cost-effective outcomes, accountability, and collaboration with patients and other providers. More research describing, defining, and predicting dental hygiene diagnosis, inference, and treatment may establish the credibility of the dental hygiene claim to unique knowledge.

The application of dental hygiene knowledge in everyday practice may be more difficult for some types of knowledge. The ability to apply health education and health promotion knowledge is clearly more dependent on interpretation of learning, behaviour, and social theory than the application of demonstrated psychomotor skills. Ultimately all acquired professional knowledge must be internally assessed and then applied in a way which is useful and acceptable to the patient or client. The increasing pressure on health care professionals to systematically update their knowledge actually translates to acquiring and maintaining two sets of knowledge and skills, one set for the understanding and practice of the professional service and the other for communication and transfer of scientific knowledge to the patient or client.

The determinants of politicolegal recognition in this study reflect transition and a strengthening of the legal jurisdictional claim of dental hygiene which is expressed as self-regulation and a movement towards independent practice. Some of the determinants such as philosophy and policies of the governing political party, legislative opportunities, and interest group activity by dentists and dental hygienists were evident in this study. Others such as the impact of gender and economics were not as certain. Whether the feminized nature of dental hygiene and unsatisfactory employment conditions continue to contribute to a degradation of dental hygiene work and its subordination to that of dentistry as suggested in earlier literature (Jones, 1979 McIntyre, 1989) or whether women deliberately choose this limited work and remain in it because it is well remunerated and fits the demands of their other life roles is subject material for future investigation. Low aspirations with respect to employment and career among predominantly female dental hygienists may reinforce gender stereotypes and the dominance of male dentists at the micro level of daily work practices as well as the macro levels of institutional and organizational development and power. In contrast, the success of women dental hygienists in having dental hygiene designated as a health profession with self-regulation in British Columbia may be partially attributable to the leadership skills and expectations of dental hygiene leaders.

The resources dental hygiene needs to participate in interest group activity and to influence policy regarding their legal jurisdictional claims are staggering for fledgling organizations dependent on largely voluntary human resources and limited membership fees. Sustained action over time is essential as players in stakeholder groups change and each change takes time to review the history and status of the claim before moving forward. Holding resources and having power to maintain the status quo is surely an easier struggle than striving to acquire resources and achieve power and recognition as a unique entity. The ongoing professional jurisdictional dispute in Ontario exemplifies disparities in interest group power (CDHO, 1995; Richardson, personal communication,

May 18, 1999). In addition to these obvious power differences in jurisdictional claims, ineffective interest group activity may also reflect a lack of critical support from within dental hygiene. While the professional goals of dental hygienists are expressed by their professional associations, the goals and motivations of individual members may vary considerably.

The revelations and expressions of government and public representatives tend to support dental hygiene's professional claim in the third arena, the arena of public opinion, but the area is essentially unexplored. The popular view of dental hygiene is critical in establishing social and cultural authority. Assessment of public beliefs about dental hygiene work and their access to services may be a crucial step in legitimating the legal claim.

Implications of the Study

Dental hygiene is a health profession dedicated to primary and secondary prevention with a predominant role in health education. The knowledge base which supports the practice of dental hygiene is recognized as being acceptable and appropriate, with few exceptions, for the current dental hygiene role in health care. Still, there are gaps in knowledge of oral cancer prevention and early detection for both dental hygienists and dentists which limit their effectiveness in reducing morbidity and mortality. Requirements for initial licensure in dental hygiene assume current knowledge for entry to practice which is defined in Nova Scotia and British Columbia as graduation from an accredited education program with the additional requirement of national certification in British Columbia. Dental hygiene educators and institutions are responsible for maintaining accreditation standards and the National Dental Hygiene Certification Board is responsible for maintaining the standards of the National Dental Hygiene Certification Examination. The shared responsibility of all these individuals and organizations is provision of the foundation of knowledge and practice based on the best evidence for ethical, efficacious, and efficient diagnosis and treatment. The change of

knowledge over time requires continuous evaluation and updating of curricula and standards of performance.

The assurance of ongoing competence in practitioners is a less rigorous process actualized through continuing education requirements in British Columbia and Nova Scotia. The implicit assumptions of continuing education are that practitioners will select courses to update their knowledge and practice and that appropriate courses will be available. The survey findings in this study question both of these assumptions. In the prevention and early detection of oral cancer, more undergraduate and post graduate preparation are needed. Graduates must be able to identify their professional needs and seek appropriate remediation among the many offerings for continuing education.

The capacity to choose appropriate continuing education is related to educational preparation in comprehension of scientific evidence and its relationship to practice as well as the intrinsic desire to continue to learn and to incorporate learning into daily practice. The current diploma curricula limit preparation in this area. In conjunction with the critical thinking and problem-solving skills, and the new knowledge and skills related to health promotion advocated in this study, the demands on the current diploma curricula are excessive. A more appropriate educational framework is baccalaureate preparation, as recommended by many of the interview participants in this study.

The relationship of knowledge to politicolegal recognition was not questioned by interview participants. The current knowledge base was accepted as adequate for self-regulation and even independent practice. Indeed, the self-regulation in British Columbia acknowledges the strength of the current knowledge base; the ongoing requirement for dentist gatekeeping was not related to any insufficiency of dental hygiene knowledge but rather to the demand for dentist authority to be upheld. The rationality of this demand was questioned in relation to a lack of evidence to support the 365-day rule. Distinctions between acceptable dentist and dental hygienist knowledge are assumed in the initial licensure requirements. The more important question is appropriate referral at

the limits of that knowledge. The agreement among most interview participants that dental hygienists can refer appropriately both to dentists and to other providers suggests that dental hygienists can identify their limitations and make decisions about the need for referral, those characteristics which appear to be essential in primary care.

The determinants of politicolegal recognition were revealed with clarity in some instances and ambiguity in others. Some appear to be prerequisite, such as supportive political policy and legislative framework. Equally important, perhaps, is the capacity of dental hygiene leadership and professional associations to influence politicolegal recognition. Building this capacity is an essential step for the professional association. The influences of economics and gender may positively or negatively affect the movement towards politicolegal recognition through self-regulation and independent practice. The order of determinants and the temporal sequence which would favour professional development was not revealed. For dental hygiene, the development of the knowledge base through research and theory construction and validation may co-exist, precede, or follow any of the politicolegal determinants which secure a sanctioning of a more independent practice.

The interests of the public in any professional regulation are viewed so disparately by different stakeholders that the establishment of public interest criteria are an important initial step in weighing the different perspectives. Without reference to criteria which are accepted as a standard for the maintenance of public interest, professional interest group activity may dominate the consideration of regulation and the interest group with the most sustainable resources has the clear advantage. The development of public interest criteria would be an important first step in a review of health professions in Nova Scotia as recommended by the Blueprint for Health System Reform (1994).

Recommendations for Future Research

The findings and interpretation of this study are limited and point to a need for future research. The gaps in knowledge of oral cancer prevention and early detection that

were identified in this study demonstrate a need for future education initiatives for dental hygienists and dentists in the two provinces. The gaps also point to the desirability of determining the knowledge, opinions, and practices of dental hygienists and dentists in other provinces as well as other health care providers including physicians and nurses who can have a positive impact on oral cancer morbidity and mortality. This determination with appropriate intervention is most critical for those who are involved in care for older adults who have a higher risk for oral cancer. Efforts to reduce risk and to diagnose early depend on adequate knowledge. Research to determine the most appropriate ways to incorporate oral cancer knowledge into dentistry and dental hygiene undergraduate and postgraduate programs must also be undertaken.

In addition to the direct professional role in oral cancer prevention and early detection, the public must have information and attitudes favourable to reducing risk, skills to facilitate risk reduction including self examination, and the desire to seek appropriate and regular professional examination. An important first step would be a determination of public knowledge, opinions, and practices regarding oral cancer prevention and early detection. Health education and health promotion initiatives aimed at the population beyond private dental practices are required. Acceptable and cost-effective strategies and mechanisms may be determined by population based research.

Research in health promotion in oral health is needed to explicate the philosophical underpinnings, how they may be understood by oral health practitioners, and applied in private dental offices. The opportunity for inclusion of health promotion philosophy and strategies are limited in the current diploma program for dental hygienists; educational strategies for enhancing health promotion curricula within diploma programs are needed. Development of baccalaureate curricula can extend the cognitive, affective, and experiential health promotion opportunities. Similarly, the offerings of critical thinking and problem-solving skills in current diploma programs, and

their extension in the development of baccalaureate programs, would benefit from further study.

The relative importance of politicolegal determinants identified in this study, and the ambiguity of some, suggest that additional research is needed to elaborate the findings of this study and their applicability to dental hygiene and other professions. Distinctions among essential and contributing determinants and their relative importance and sequence may be confirmed by additional research. Governing party policies, for example, may be less critical than the presence of a legislative framework and the influence of interest group activity. Identification of conditions favourable to establishment of public interest criteria are essential for any future review of professional legislation.

Research on the daily practices of dental hygienists and their compliance and satisfaction with regulatory requirements could point to the consonance or dissonance of practice with regulation. The daily professional actions of dental hygienists in diagnosis, inference, and treatment can be determined by qualitative studies of the process of care and by comparative studies of the process in different work environments. The work environments extend beyond private practice and public health distinctions to institutional care and variations from practice in general dentistry offices to dental specialist practices such as periodontics, orthodontics, and prosthodontics. A comparison of all aspects of dental hygiene services in varying employment situations is now possible in British Columbia. The advantages to consumers of dental hygiene services in terms of health outcomes and cost effectiveness are at issue.

A better understanding of the employment conditions of dental hygienists and their level of satisfaction with aspects of their employment, particularly in private dental practices is needed. This would be helpful in determining the nature of gender and economic influences and the distinctions between those which contribute to professional status and those which diminish it in dental hygiene. Studies of dental hygiene leadership and interest group activity may determine the gender and economic requirements for

effectiveness. Similarly, in-depth surveys of dental hygienists may reveal more distinctly their professional interests and level of commitment to developing and sustaining the dental hygiene profession.

Public opinion regarding dental hygiene is virtually unrecorded. Measures of demand and support for dental hygiene services as well as the preferred conditions of service delivery need to be studied. Consumer expectations may be quite different from those expressed in this study by professional and government representatives.

Conclusion

The advancement of dental hygiene in Canada as a primary care profession is confirmed by increasing politicolegal recognition and a developing knowledge base in primary oral health care. The key features of dental hygiene work are an emphasis on health education, prevention, early detection, and clinical therapy in the early treatment and maintenance of periodontal disease. In the prevention and early detection of oral cancer, dental hygienists have demonstrated patterns of knowledge similar to dentists. Although an expansion of the current educational requirement to baccalaureate for entry to practice may be an important consideration in the context of changing professional knowledge and health care environments, the current level of education is viewed as adequate for the present professional role. An adequate and appropriate knowledge level essential for effective prevention and early detection in areas such as oral cancer can only be assured through continuous updating of educational programs and knowledge at the undergraduate and post graduate levels. The most immediate potential for increasing acceptable health outcomes regarding oral cancer rests with dentists and dental hygienists.

The ability and willingness of dental hygiene to meet the needs of the public through their professional activity are demonstrated in British Columbia where the application of public interest criteria resulted in the designation of dental hygiene as a health profession with the right and responsibility to self govern. The limitations on the

scope of dental hygiene practice have permitted the establishment of independent dental hygiene practices which are functionally limited by the ongoing requirement for dentist authority in patient examination. The regulatory requirement for dentist examination even for those who only want dental hygiene services is viewed differently by dentists and dental hygienists. Removal of this requirement would provide the opportunity for increased public access to dental hygiene and would likely increase referrals for treatment by dentists. Other determinants of this politicolegal recognition in British Columbia were favourable governing party policies, the introduction of omnibus legislation, and effective interest group activity by dental hygiene.

Resistance to dental hygienists as primary oral care providers is sustained in dentist interest groups. Governing party policies may add to the resistance but the nature of gender and economics may contribute to either or both the movement and the resistance. The struggle for the dental hygiene profession to be accepted as a primary care provider is the struggle of all professions to create and maintain a niche of recognized expertise. Recognition by dental hygiene of jurisdictional conflict as a normal and inevitable reality is essential to the sustained development of dental hygiene professional interest.

Ideally, professional interests would coincide with public interest. Professions are the makers of their own destinies to the extent that they are able to control their development by defending their claims to unique qualification. Dental hygiene, like other professions, must scan the changing environment, strategize, and act to be successful as a political interest group. The difficulty of separating employment requirements from the professional interests of dental hygiene may be unique among similar health care professions.

The public interest in the benefits and accessibility of preventive services - health education and primary prevention therapies - are also a determinant of the politicolegal recognition of dental hygiene. In Canada, health is generally accepted as an entitlement

for all. Together health education and health promotion have enormous potential for increasing life and quality of life. They are widely accepted and increasingly incorporated into the health system and interdisciplinary and intersectoral health initiatives. The social trends that promote equity and justice in health also support increased access to primary care services. The public interest in assuring equitable access to dental hygiene is upheld in the professional movement towards a legally sanctioned form of dental hygiene practice which can provide oral disease prevention, early detection of oral diseases and problems, and appropriate referral to other providers.

FIGURES AND TABLES

Professional Attributes of Pavalko*	Status of the Attribute in Canadian Dental Hygiene	Evidence of the Dimension
1. Theory, intellectual technique	Early development	<ul style="list-style-type: none"> • Refereed journal • Contributions to published theory of dental hygiene practice • Research conferences
2. Relevance to social values	Relevant	<ul style="list-style-type: none"> • Conceptual congruence with quality of life philosophy • Demand for services increasing and stable
3. Training Period	<p>A. Minimum for entry, trend to longer</p> <p>B. Becoming more specialized</p> <p>C. Involving more symbols</p> <p>D. Subculture important</p>	<ul style="list-style-type: none"> • Increase in preadmission requirements • Growth of postdiploma education • Growth of specialization in practice, education, administration, regulation • Model of practice, ethical model, theory development • Formal and informal socialization of students and graduates
4. Motivation	Strong service orientation	<ul style="list-style-type: none"> • Professional associations address access problems and promote ethical practice
5. Autonomy	Recent rapid increase	<ul style="list-style-type: none"> • 90 percent self-regulating
6. Commitment	Long term	<ul style="list-style-type: none"> • Long term employment • Participation in professional associations
7. Sense of Community	Strong	<ul style="list-style-type: none"> • Role definition with standards of practice
8. Codes of Ethics	Comprehensive	<ul style="list-style-type: none"> • CDHA code, accepted and adapted by provincial associations

Figure 1. Attributes of dental hygiene in Canada compared with Pavalko's model.
 * Adapted from Pavalko, R. The Nonprofession-profession Continuum. In: Sociology of Occupations and Professions, Itasca: F.E. Peacock Publishers, Inc., 1988, p. 29

JURISDICTION

PROFESSIONAL PRACTICE LOGIC		Dental Hygiene Unique Practice*		Dental Hygiene and Dentistry Shared Practice		Dentistry Unique Practice
Practice	Diagnosis					
	Inference					
	Treatment					
Knowledge Foundation						

Figure 2. A conceptual model of the jurisdiction of dental hygiene in Canada. The model does not reflect size of jurisdiction or relative social value. There are differences in years of education and specialization. It is adapted from A. Abbott (1988). The system of professions An essay on the division of expert labour. Chicago: The University of Chicago Press.

* The elements of unique practice are essentially unarticulated.

= Prevention and Health Promotion

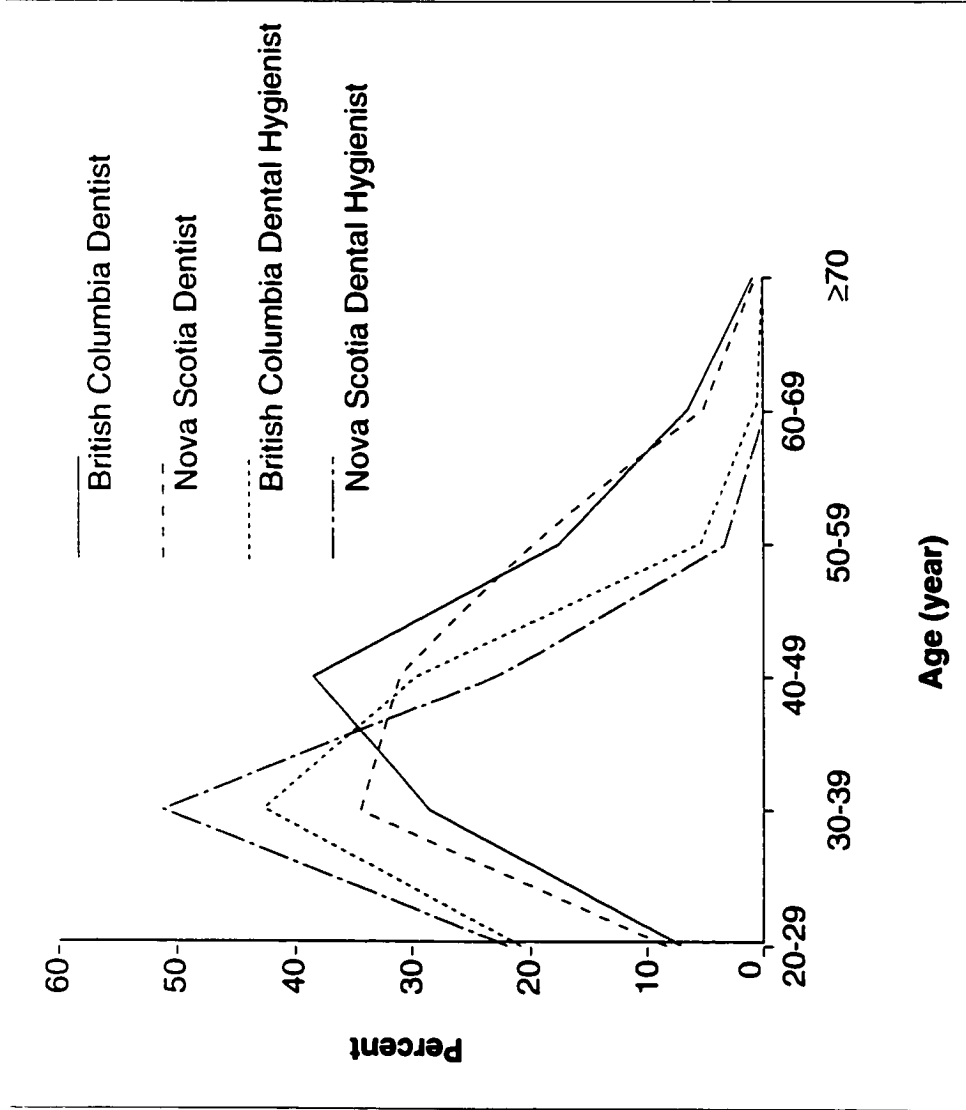


Figure 3. Age of respondents by province and professional group.

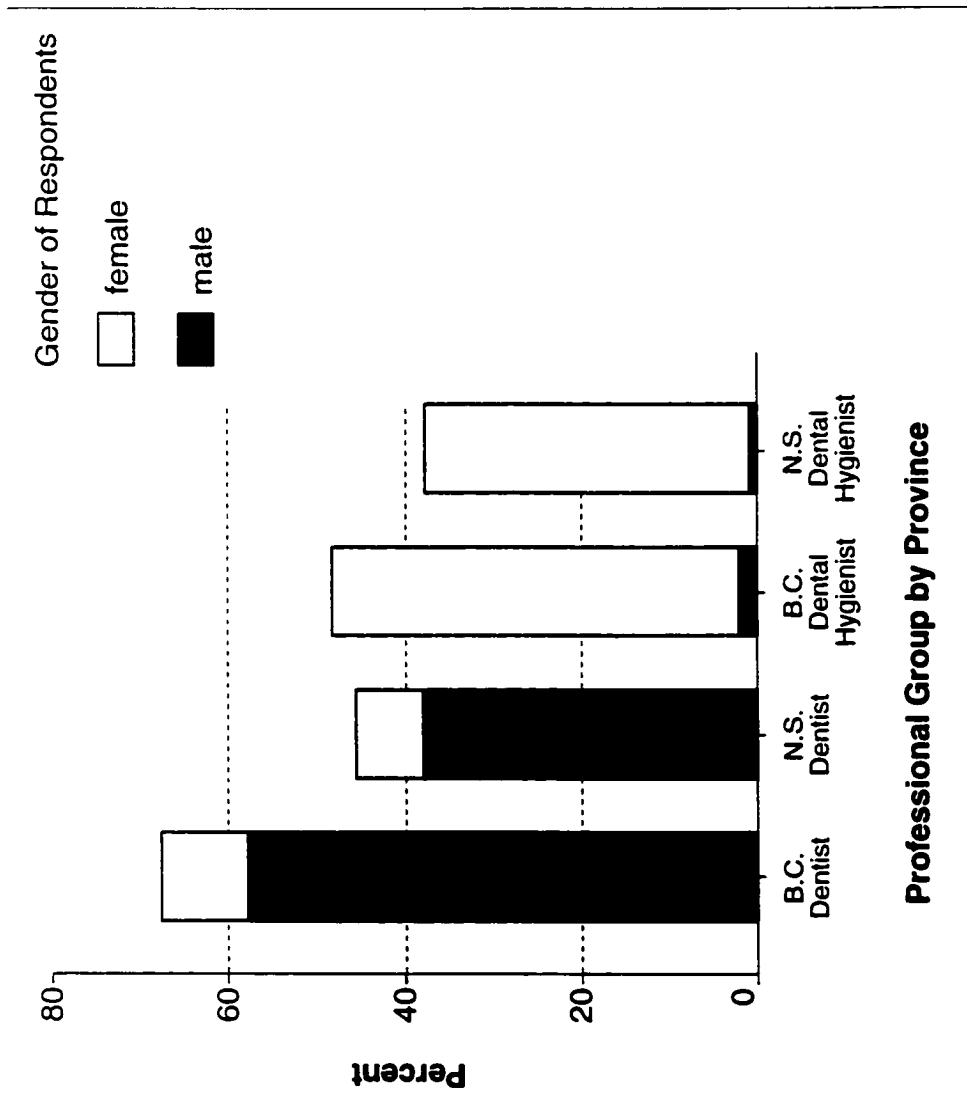


Figure 4. Gender of respondents by province and professional group.
B.C. = British Columbia, N.S. = Nova Scotia

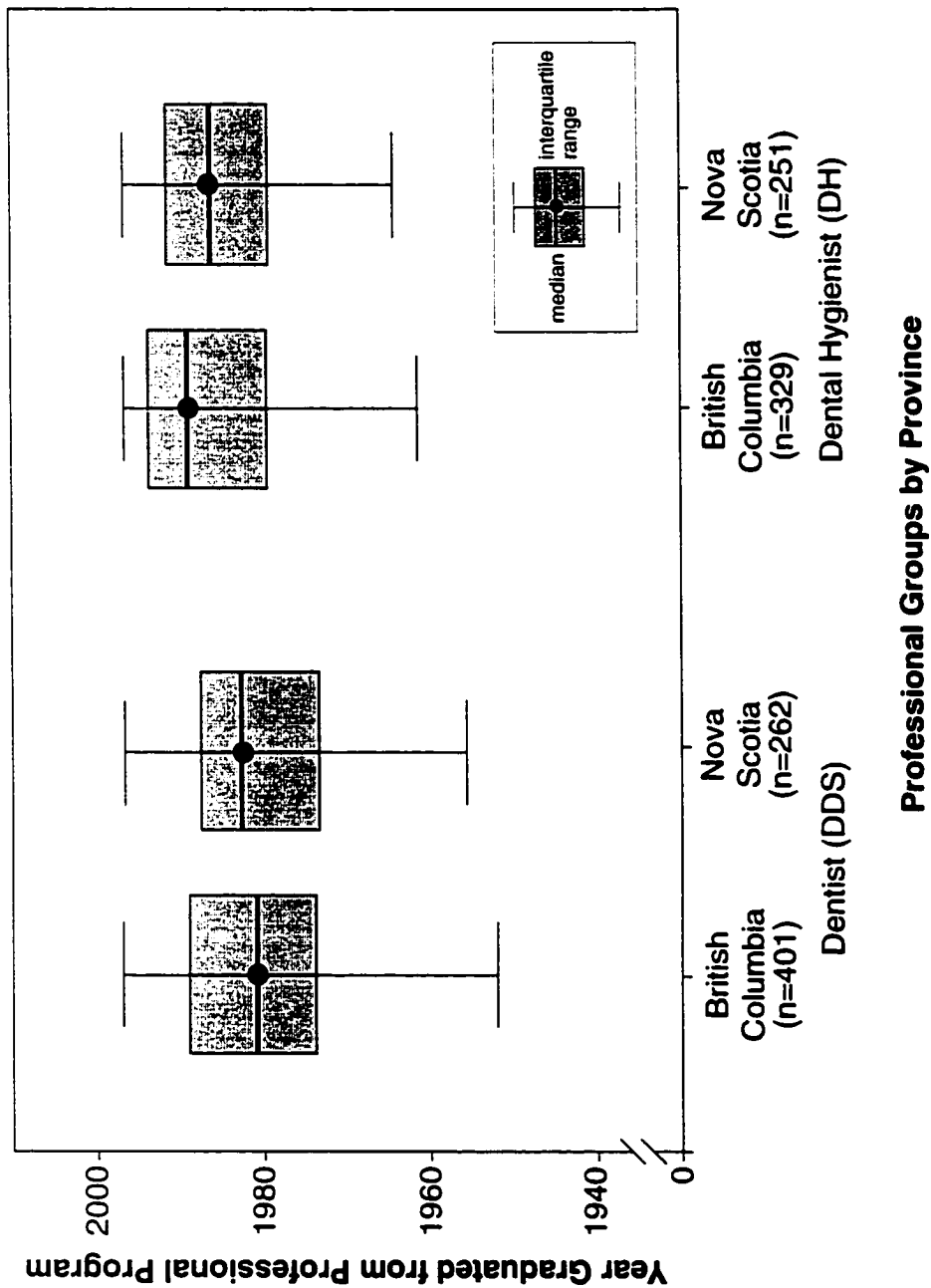


Figure 5. Year of graduation by province and professional group. 'n' for each group differs from the total because outliers were omitted.

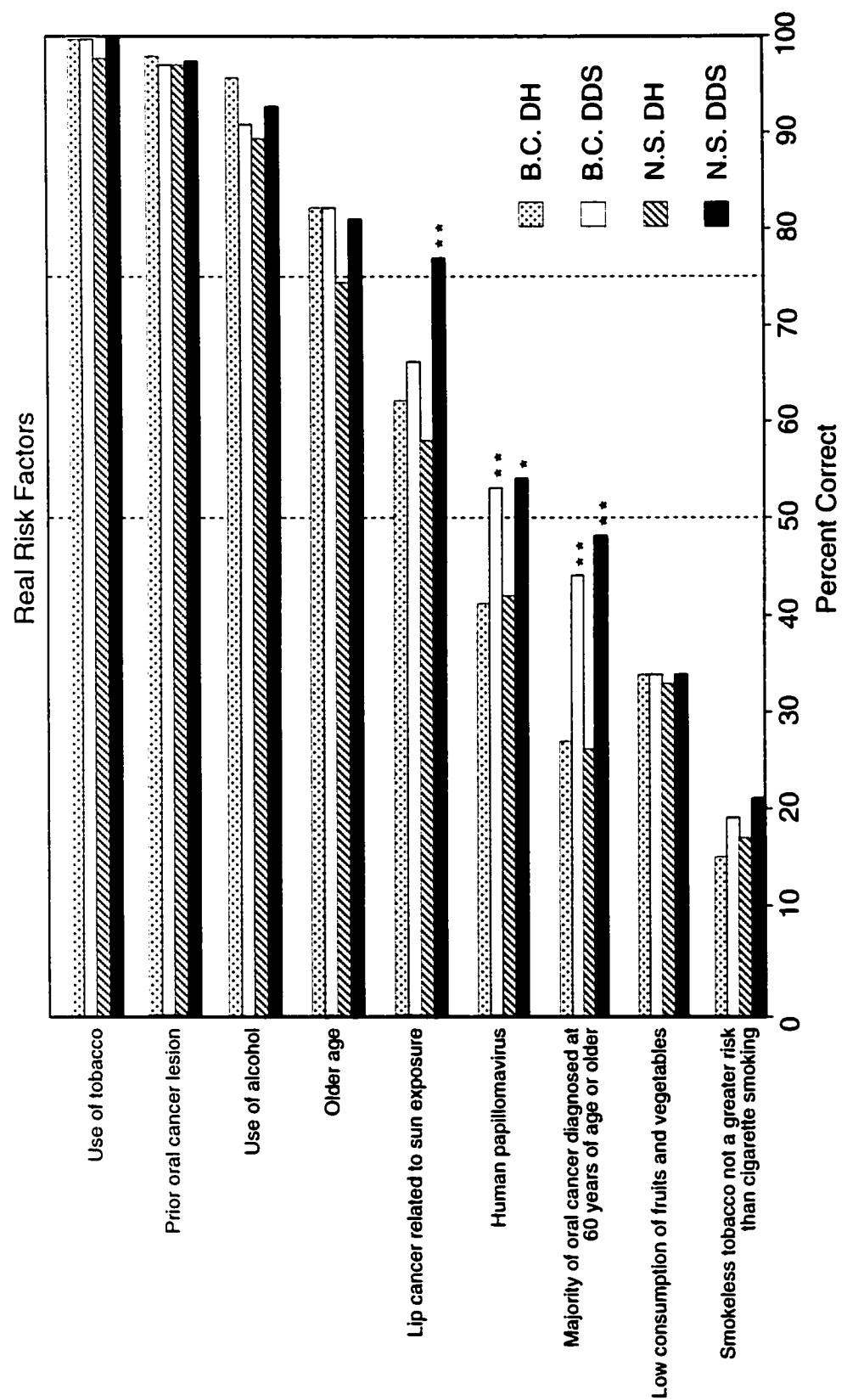


Figure 6. Knowledge of oral cancer real risk factors by province and professional group. Significant differences between dental hygienists and dentists within province where * $p \leq .01$; ** $p \leq .001$

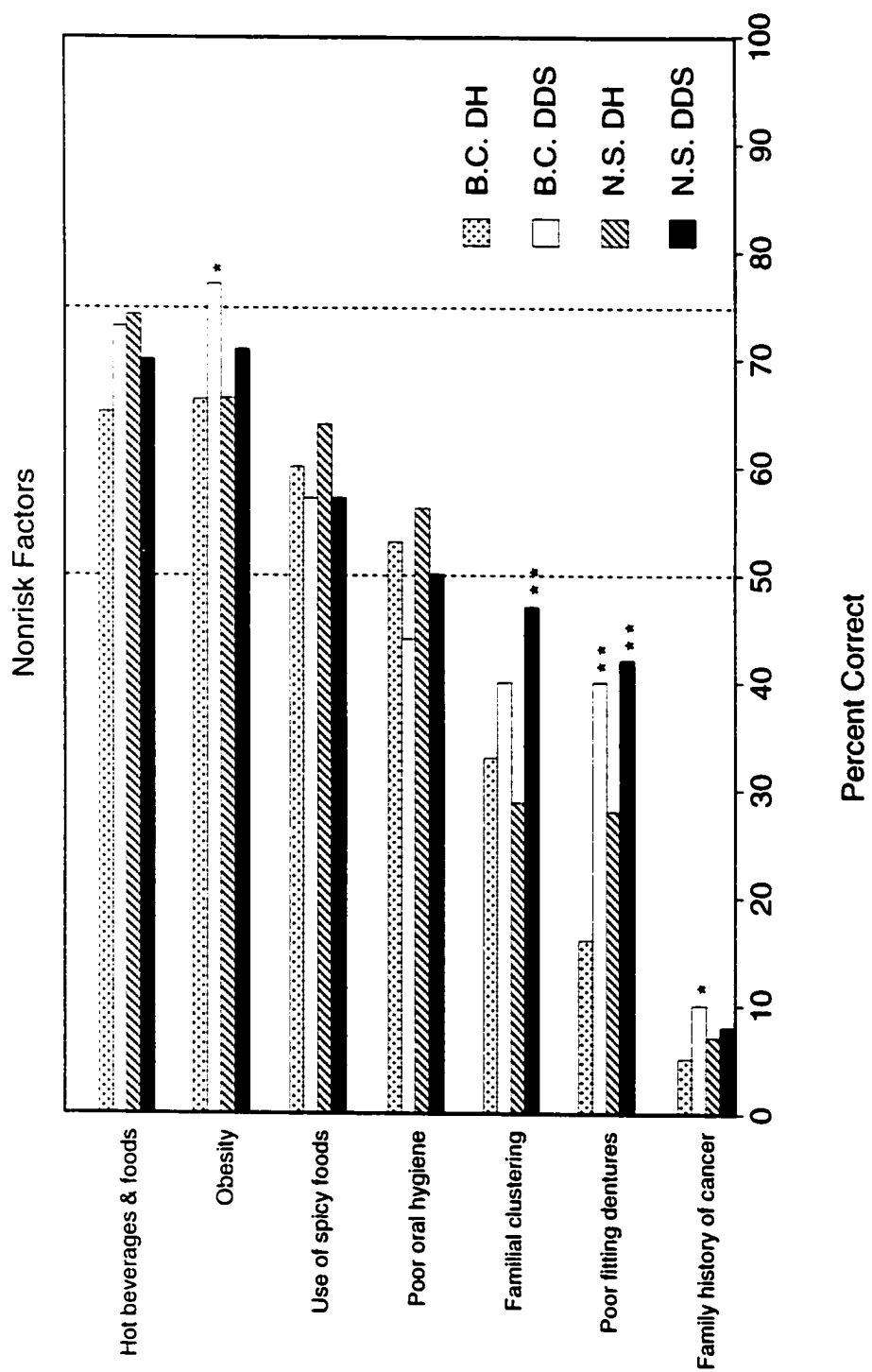


Figure 7. Knowledge of oral cancer nonrisk factors by province and professional group. Significant differences between dental hygienists and dentists within province where * $p \leq .01$; ** $p \leq .001$

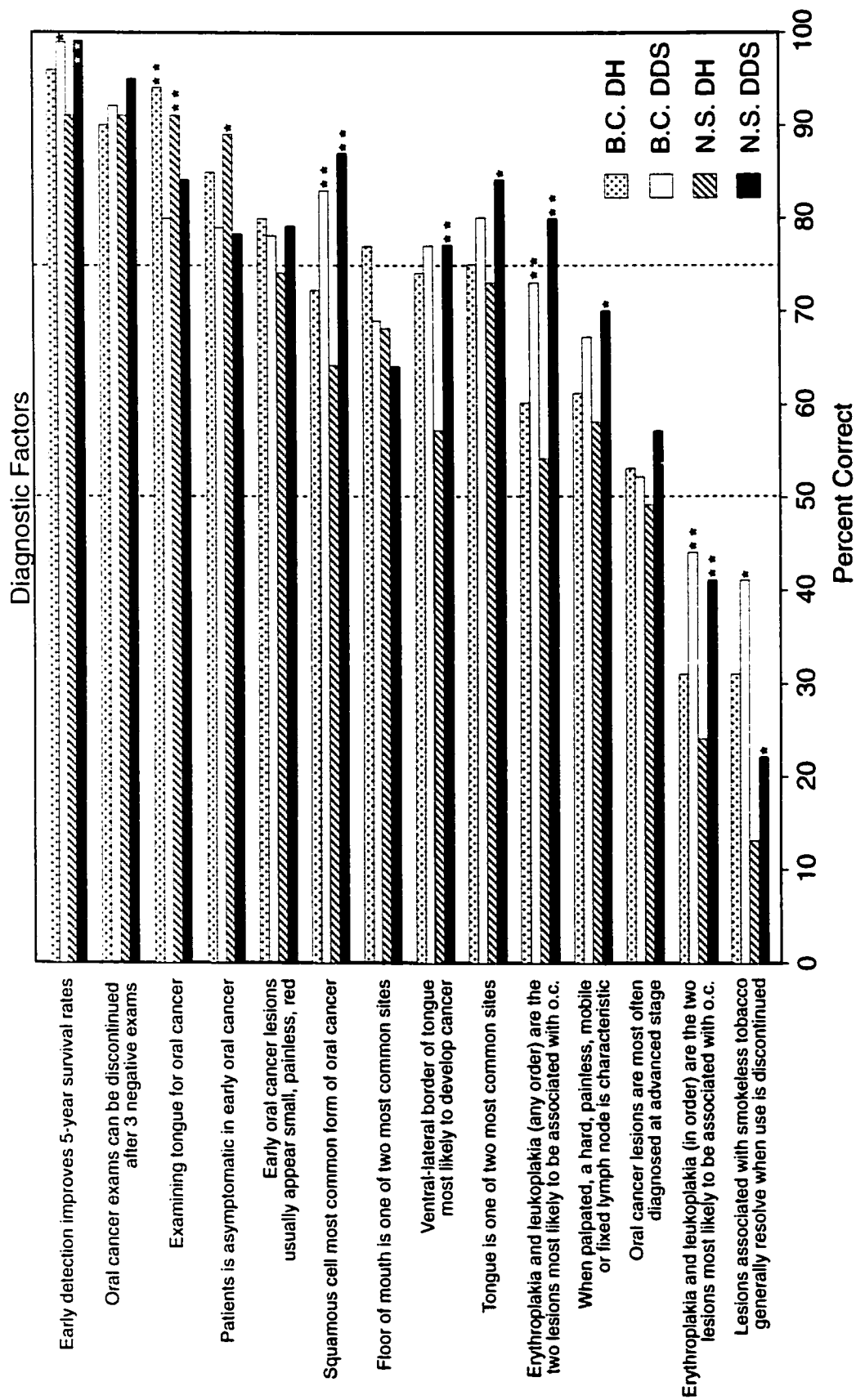


Figure 8. Knowledge of oral cancer diagnostic factors by province and professional group. Significant differences between dental hygienists and dentists within province where * $p \leq .01$; ** $p \leq .001$

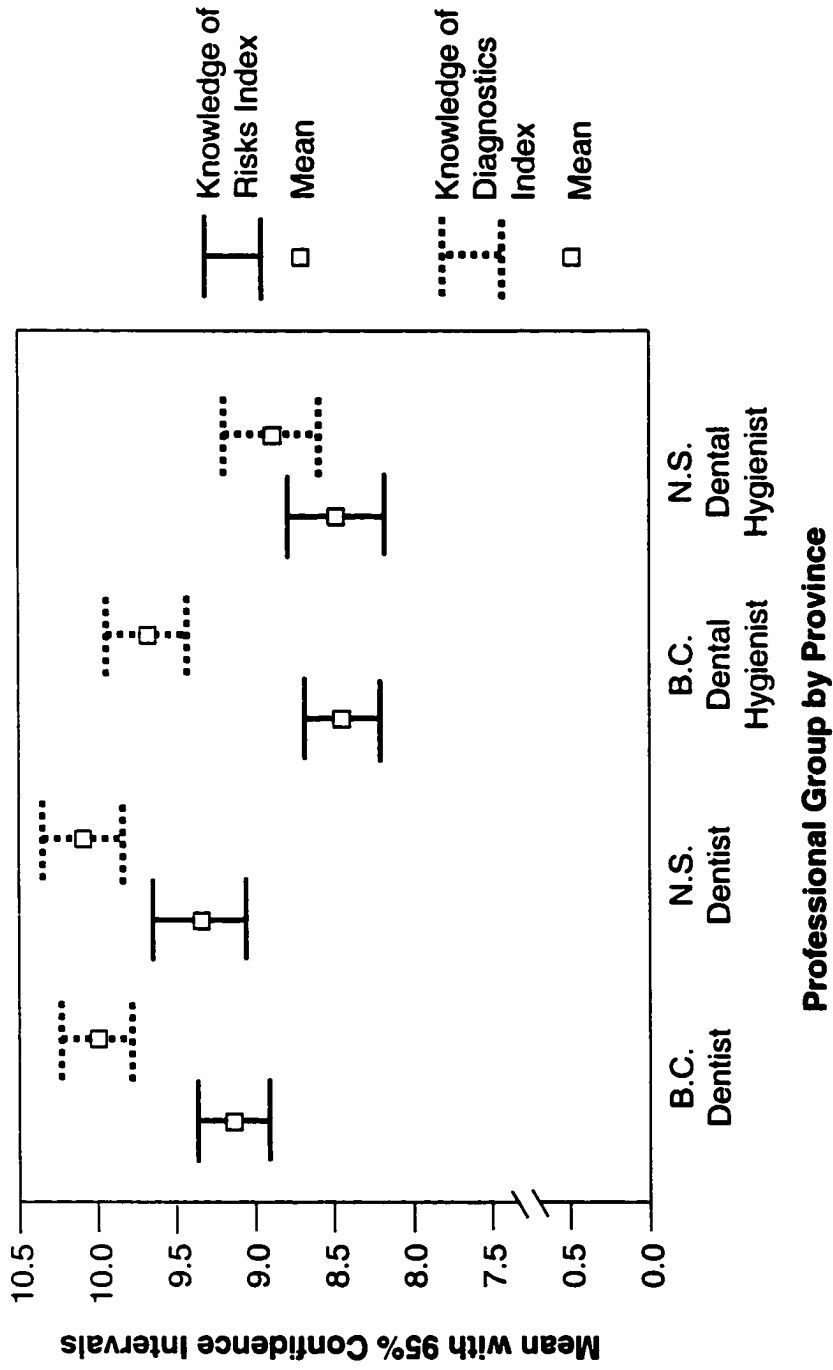


Figure 9. Means of indices of knowledge of risks and knowledge of diagnostics by province and professional group.

	British Columbia		Nova Scotia		Total
	female	male	female	male	
DH	4]	0]	4]	0]	8
DDS	0]	3]	1]	3]	7
GOV / PUB	2]	2]	0]	3]	7
Total	6]	5]	5]	6]	22

Figure 10. Matrix for Analysis of Interviews

DH = dental hygienist DDS = dentist GOV / PUB = government or public representative

Table 1.

1999 Estimated New Cases, Incidence, Deaths and Mortality Rates of Oral Cancers in
Canada, British Columbia and Nova Scotia*

	Canada	British Columbia	Nova Scotia
New Cases			
Males	2200	260	75
Females	990	150	30
Total	3190	410	105
Incidence Rates (per 100,000)			
Males	14	12	15
Females	6	6	5
Number of Deaths			
Males	730	90	25
Females	300	40	10
Total	1030	130	35
Mortality Rates (age standardized)			
Males	5	4	5
Females	1	1	2

Note:

* Canadian Cancer Statistics, 1999, National Cancer Institute of Canada

Table 2

Framework of Methodology

Methodology	Research Questions	
	Knowledge and Its Application in Practice	Politicolegal Recognition
Mail surveys of dentists and dental hygienists	✓	
Document review <ul style="list-style-type: none"> • Professional regulations in two legal jurisdictions • other pertinent documents 		✓
Field interviews with key political and professional figures		✓

Table 3

Initial Sample Estimates and Final Sample Sizes

	Initial Sample Estimates		Final Sample Sizes	
	By Population	Adjusted for Response Rate	By Population	Adjusted for Response Rate
DH in BC	316	527	310	516
DDS in BC	332	830	327	817
DH in NS	194	323 (391*)	378	378**
DDS in NS	205	512 (441*)	423	423**
Totals	1047	2189	1438	2134

Notes:

* initial population estimate

** population (no adjustment for response rate)

Table 4

Identification and characteristics of interview participants

Group	British Columbia		Nova Scotia		Total
	female	male	female	male	
DH	Ms. P. McAleese • nominee of BCDHA • ≥ 10 years experience • owns practice	Ms. J. S. MacIntosh • nominee of NSDHA • ≥ 10 years experience Ms. Terry Mitchell • nominee of NSDHA • ≥ 10 years experience Total: 4	Ms. J. S. MacIntosh • nominee of NSDHA • ≥ 10 years experience Ms. Terry Mitchell • nominee of NSDHA • ≥ 10 years experience Total: 4	• all have ≥ 10 years experience	8
DDS		Dr. R. R. Busse • nominee of BCDA • ≥ 10 years experience Dr. K. J. Orieux • nominee of BCDA • ≥ 10 years experience Total: 3	• ≥ 10 years experience	• all have ≥ 10 years experience	7
GOV / PUB	Ms. H. Morrison Mgr. Professional Regulation, Legislation, and Cabinet Coordination	Mr. Whitney Buggy Public Rep. on the Board of the College of DH of BC	Total: 1 Total: 3	Total: 3 Mr. Bill Parker Past Public Rep. on the Prov. Dental Board of NS Mr. George Moody Member of the Legislative Assembly and Opposition Health Critic Previous Minister of Health of NS Total: 3	7
Total	6	5	5	6	22

Note: The groups are dental hygienist (DH), dentist (DDS) and government or public representative (GOV/PUB). Named participants have given consent to be identified.

Table 5

Survey Response by Group and Province

	British Columbia		Nova Scotia		Total
	Dental Hygienists	Dentists	Dental Hygienists	Dentists	
Sample (BC) /					
Population (NS)	516	817	378	423	2134
Target Population	509	796	367	418	2090
Usable Responses	337	401	269	269	1276
Percentage Responses					
of Target Population	66%	50%	73%	64%	61%

Note:

The response rates are conservative calculations. Only those returned questionnaires or consents which specifically noted that the respondents were not currently engaged in clinical practice were eliminated from the target population. All others, together with undeliverable mail, were included in the target population.

Table 6

Percent of Respondents Who Believe Their Knowledge of Oral Cancer is Current

	British Columbia		Nova Scotia		Total*
	Dental Hygienists	Dentists	Dental Hygienists	Dentists	
Strongly Agree Knowledge is Current	3	4	1	2	3
Agree Knowledge is Current	49	57	28	57	49
Disagree Knowledge is Current	36	32	50	30	37
Strongly Disagree Knowledge is Current	7	3	13	6	7

Note:

*n = 1247

Table 7

Percent Correct Response to Knowledge of Oral Cancer Items

Item	Correct Response	Group Percent Correct				Total
		BC DH	BC DDS	NS DH	NS DDS	Percent Correct ^a
1. High risk factor, use of tobacco	yes	100	100	99	100	99
2. High risk factor, prior oral cancer lesion	yes	99	98	98	97	98
3. Early detection improves 5-year survival rates	agree and strongly agree	96	99**	91	99***	96+++
4. High risk factor, use of alcohol	yes	96*	91	91	93	91
5. Oral cancer exams can be discontinued after 3 negative exams	disagree and strongly disagree	90	92	91	95*	91
6. Examining tongue for oral cancer	all of above	94***,#	80	91***	84	86+++
7. Most common symptom expressed in early oral cancer	none, asymptomatic	85	79	89**	78	82+++
8. High risk factor, older age	yes	82	82	74	81	77
9. Early appearance of oral cancer lesions	small, painless, red	80	78	74	79	77
10. Most common form of oral cancer	squamous cell carcinoma	72	83***	64	87***,#	76+++
11. One of the two most common sites for oral cancer	floor of mouth	77*	69	68	64	76++

Table 7 continued

Item	Correct Response	Group Percent Correct				Total Percent Correct ^a
		BC DH	BC DDS	NS DH	NS DDS	
12. Area of tongue which is the most likely site	ventral-lateral border	74	77	57	77***	71+++
13. One of two most common sites	tongue	75	80	73	84**	69+
14. High risk factor, hot beverages & foods	no	65	73	74	70	69
15. High risk factor, obesity	no	66	77**	66	71	68++
16. Two conditions most associated with oral cancer, any order	erythroplakia and / or leukoplakia	60	73***	54	80***,#	67+++
17. Lip cancer	related to sun exposure	62	66	58	77***,#	65+++
18. Characteristic of lymph node when palpated	hard, painless, mobile or fixed	61	67	58	70**	64++
19. High risk factor, use of spicy foods	no	60	57	64	57	59
20. Stage at which most oral cancer diagnosed	advanced	53	52	49	57	53
21. High risk factor, poor oral hygiene	no	53*	44	56	50	50++
22. High risk factor, human papilloma-virus	yes	41	53***	42	54**	48+++
23. Risk factor least associated with oral cancer	familial clustering	33	40	29	47***	37+++
24. Age of majority with oral cancer	60 years of age or older	27	44***	26	48***,#	37+++

Table 7 continued

Item	Correct Response	Group Percent Correct				Total Percent Correct ^a
		BC DH	BC DDS	NS DH	NS DDS	
25. Two conditions most associated with oral cancer, correct order	erythroplakia and leukoplakia, in order	31	44 ^{***}	24	41 ^{***}	35 ⁺⁺⁺
26. High risk factor, low consumption of fruits and vegetables	yes	34	34	33	34	34
27. High risk factor, poor fitting dentures	no	16	40 ^{***,#}	28	42 ^{***}	31 ^{+++,#}
28. Lesions associated with smokeless tobacco generally resolve when use is discontinued.	agree and strongly agree	31	41 ^{**}	13	22 ^{**}	28 ⁺⁺⁺
29. The use of smokeless tobacco places person at greater risk than those who smoke cigarettes	disagree and strongly disagree	15	19	17	21	18
30. High risk factor, family history of cancer	no	5	10 ^{**}	7	8	7 ⁺

Notes:

^a All dentists (DDS) and dental hygienists (DH) (N=1276)

Significant differences between all dentists and all dental hygienists

+, $p \leq .05$; ++, $p \leq .01$; +++, $p \leq .001$

Significant difference between dentists and dental hygienists within province

*, $p \leq .05$; **, $p \leq .01$; ***, $p \leq .001$

Highest association between item and type of respondent, Cramer's $V \geq .2$ and $\leq .3$

Table 8

Comparison of Means of Knowledge of Risks and Diagnostics Indices

Knowledge Indices by Group	N	Mean	SD	95% Confidence Interval	
				Lower Bound.	Upper Bound.
Risks Index					
All					
Dental Hygienists	606	8.5	2.3	8.3	8.7
Dentists	670	9.2	2.4	9.0	9.4***
British Columbia					
Dental Hygienists	337	8.4	2.2	8.2	8.7
Dentists	401	9.1	2.3	8.9	9.4***
Nova Scotia					
Dental Hygienists	269	8.5	2.5	8.2	8.8
Dentists	269	9.4	2.5	9.1	9.6***
Diagnostics Index					
All					
Dental Hygienists	606	9.3	2.5	9.1	9.5
Dentists	670	10.0	2.2	9.9	10.2***
British Columbia					
Dental Hygienists	337	9.7	2.4	9.4	9.9
Dentists	401	10.0	2.3	9.8	10.2
Nova Scotia					
Dental Hygienists	269	8.9	2.5	8.6	9.2
Dentists	269	10.1	2.1	9.8	10.4***

*** Differences significant at $p \leq .001$

Table 9

Comparison of Means of Oral Cancer Examination Practices

Group	OCE ^a Mean Percent Age 18-39 Initial Appt.	OCE Mean Percent Age 18-39 Recall Appt.	OCE Mean Percent Age 40+ Initial Appt.	OCE Mean Percent Age 40+ Recall Appt.
All				
Dental Hygienists	45.1	35.6	48	39.7
Dentists	77.6**	62.5**	82**	68.6**
British Columbia				
Dental Hygienists	69.9	58.8	71.8	61.6
Dentists	80.5**	68.5*	85**	74.9**
Nova Scotia				
Dental Hygienists	45.1	35.6	48	39.7
Dentists	77.6**	62.5**	82**	68.6**

Notes:

^a OCE, Oral Cancer Examination

* Differences between dentists and dental hygienists significant at $p \leq .01$

** Differences between dentists and dental hygienists significant at $p \leq .001$

Table 10

Comparison of Beliefs About the Requirement for Supervision of Dental Hygienists During the Provision of Three Services

Group	Services Provided by Dental Hygienists					
	Percent Think Supervision is Required for Oral Cancer Exams	Percent Believe Supervision is Very Important for Oral Cancer Exams	Percent Think Supervision is Required for Root Planing	Percent Believe Supervision is Very Important for Root Planing	Percent Think Supervision is Required for Patient Education on Oral Cancer	Percent Believe Supervision is Very Important for Patient Education on Oral Cancer
British Columbia						
DH ^a	7*	23*	8*	6*	2*	8*
Dentists	26	40	25	17	16	21
Nova Scotia						
DH ^a	86	39*	98	26*	62*	17*
Dentists	91	76	96	61	86	51

Notes:

a DH = Dental Hygienists

* Differences between dentists and dental hygienists in that province significant at $p \leq .001$

Phase II

Final Coding Legend for Interview Themes and Categories on the Work of Dental Hygiene (Questions 2-5)

Components of DH Work	3. a) Role, Prevention Perio. Disease		3. b) Role, Prevention Dental Caries		3. c) Role, Prevention Oral Cancers		4. a) Health Promotion General		4. b) Health Promotion Oral		5. Education	
	DHPATIR	DHPATIA	DHPATIR	DHPATIA	DHPATIR	DHPATIA	PP4a	PP4b	SMOKCOUN4b	EDOKPRESS5		
PP2 private practice	dental hygienist sees patient first at recall	dental hygienist sees patient first always	dental hygienist sees patient first at recall	dental hygienist sees patient first always	dental hygienist sees patient first at recall	dental hygienist sees patient first always	private practice	private practice	smoking counselling	O.K. for present role and reg.		
PERIO2 deposit removal (scaling / rt. planning)	dental hygienist sees patient first always	dental hygienist sees patient first always	dental hygienist sees patient first always	dental hygienist sees patient first always	dental hygienist sees patient first always	public health				Not O.K. for present role and regulation		
ED2 education / patient instruction	DIAGCOLL diagnosis is collaborative	DIAGCOLL diagnosis is collaborative	DIAGCOLL diagnosis is collaborative	DIAGCOLL diagnosis is collaborative	DIAGCOLL diagnosis is collaborative							
COMM2 communication	DIAGIND diagnosis by DH is independent	DIAGIND diagnosis by DH is independent	DIAGIND diagnosis by DH is independent	DIAGIND diagnosis by DH is independent	DIAGIND diagnosis by DH is independent							

Table 11a continued

2.	3. a) Role, Prevention Perio. Disease	3. b) Role, Prevention Dental Caries	3. c) Role, Prevention Oral Cancers	4. a) Health Promotion General	4. b) Health Promotion Oral	5. Education
Components of DH Work						
COLL2 collaboration	PERIO3a periodontal therapy, management of periodontium	CARIE3b education / patient prevention and use of fluorides	EDETEC3c secondary prevention / early detection	INVCOMM4a involvement with community groups related to health concerns / issues	EMPOWER4b empower patients to care for themselves	NEDEG5 need degree / need more education
COLLFAM2 collaboration with family of client	PERIO3a1 1 ^o role is 2 ^o prev. primary role of DH is secondary prevention (main therapy) of perio	OHE3b education / patient instruction in oral hygiene	OCED3c oral cancer education / patient instruction.	INCAWAR4a increase public awareness of health concerns and preventive strategies (health education)	PHC4b primary health care / general + centres with DH	NEDEGIN5 need degree for independent practice
EXPDUTY2 expanded duties in restorative	PERIOED3a education / patient instruction in perio.	NUTED3b education / patient instruction in nutrition		PROACT4a be proactive in health concerns and issues	PH4b public health	
TX2 Provide treatment / therapy to patients	LA3a local anaesthesia	FLAPP3b apply fluoride / other anticaries and desensitizing agents / sealants		HEALCH4a help to make healthy choices (include lifestyle)	INCAWAR4b increase public awareness of ORAL health concerns and preventive strategies (health ed.)	
PREVENT2 prevention (distinct from education)				REDBAR4a reduce barriers to health	COLLINT4b collaborate in interdisciplinary mode	
REFER2 refer to other practitioners / services				EDSTRAT4a educational strategies		

Table 11a continued

2. Components of DH Work	3. a) Role, Prevention Perio. Disease	3. b) Role, Prevention Dental Caries	3. c) Role, Prevention Oral Cancers	4. a) Health Promotion General	4. b) Health Promotion Oral	5. Education
PH2 public health				POLINI4a political initiatives		
HP2 health prom. / education				POPHEAL4a population health		
FR2 fluoride rinse program				PHC4a primary health care / general + centre with DH		
ADMIN2 role of administrator				SELF CARE4a teach people to take care of themselves		
EDUC2 role of educator of dental hygienists						
RES2 role of researcher of DH						
APIE2 asses., plan, implement, eval. model of practice						
LTC2 long term care						

Table 11b

Final Coding Legend for Interview Themes and Categories on Dental Hygiene and Public Needs (Questions 6-8)

6. Best Meet Public Needs	7. Role of DH Changing	7. a) Contributors to Change	7. b) Barriers to Change	8. DH Recognized by Public	8. a) DH Recognized by Public - Why?	8. b) DH Recognized by Public - Why Not?
INACCP6 increase access for public - positive affect	YESROLCH7 Yes, role is changing	HICOSTX7a dental Tx too costly	DDGATE7b dentist is the gatekeeper - controls the cost	YESREC8 yes, DH are recognized	DIST8a DH are distinct from other oral health professionals	NOTDIST8b considered same as other dental staff - not distinguished
INCACCN6 increase access for public - negative affect	YPP7 ... in private practice	TXNESR7a treatment needs of those not currently served: seniors, minorities, unemployed, LTC	DDELITE7b dental offices perceived as elite by some pop.	NOREC8 no, DH are not recognized		DHPROB8b lack of recognition is a DH problem - don't promote their identity
PUBRESED6 public should respond to DH and other oral health messages	ENCRODA7 ... encroachment by dental assistant	EMPROBS7a employment problems with dentist - insecurity -no employment standards -dentists lack respect for DH -DH sells dentistry more than / = does DH care	REGREST7b current regulation restricts change (private practice and public health)			
DOJOBWEL6 do the job well develop good rapport with patients	ENCRODD7 encroachment by dentist in preventive areas	PUBAWAR7a increasing public awareness + awareness of other health care providers	DDLACRE7b dentists lack respect for DH			

Table 11b continued

6. Best Meet Public Needs	7. Role of DH Changing	7. a) Contributors to Change	7. b) Barriers to Change	8. DH Recognized by Public	8. a) DH Recognized by Public - Why?	8. b) DH Recognized by Public - Why Not?
INVCMM6 DH get involved in the community	YNEMOINFO7 yes, all oral health professionals need more information	CONQUES7a consumer questions / demand answers	EMPROBS7b DH employment problems with dentist employers			
GOVMON6 government money needed to support	YPH7 ... in public health	DHPROF7a dental hygiene prof. driving change	DHLACIN7b dental hygienists lack initiative to change status quo			
INNODH 6 increase the number of DH available to work	NOROLCH7 No, role is not changing	GENER7a DH female- dominated DDS male- dominated	DIFPROFAG7b different professional agendas (DH and DDS)			
CONTEAM6 continue "team" approach	NPP7 ... in private practice	MORES7a more research now than before different education now than previous time	PUBAWAR7b increasing public awareness and demands + awareness of other health care providers			
SELFDEF6 DH must define itself more clearly	NPH7 ... in public health	NATEVOLV7a natural evolution	LACMONPH7b lack of money for PH programs / services			
DIRBILL6 DH bill insurance, directly			LACMONPP7b lack of money for PP TX			
			POLICLIM7b political climate			

Table 11b continued

6. Best Meet Public Needs	7. Role of DH Changing	7. a) Contributors to Change	7. b) Barriers to Change	8. DH Recognized by Public	8. a) DH Recognized by Public - Why?	8. b) DH Recognized by Public - Why Not?
			GENDER/b DH female-dominated DDS male-dominated			
			CECOURSE7/b C.E. courses available			

Table 11c

Final Coding Legend for Interview Themes and Categories on Dental Hygiene Regulation (Questions 9,10)

9. Current Legislation Appropriate	Current Leg. Approp. Why? (9a)	Current Leg. Approp. Why Not? (9b)	10 (Nova Scotia) Circumstances which Could Change Regulation	10 (British Columbia) Circumstances which DID or COULD Change Regulation
YES9 Yes, current legislation is appropriate	YESSCOPE9a current scope of practice appropriate	SELFREG9b DH should be self regulation	POLACDH10N political action by DH needed in NS	POLACDH10B political action by DH past / future in BC
DKQUES9 don't know / need to ask certain questions about it	NDIRAC9a negative direct access (bad thing)	DIRAC9b public should have direct access to DH	POLACPU10N political action by public needed in NS	POLACPU10B political action by public needed in BC
NO9	PHNOSUP9a public health DH not required to be supervised directly	NREFPRAC9b not reflective of current practice (re: supervision)	INCAWAR10N DH should increase awareness of public re DH	SELFREG10B Self regulation made a change
	PPDSUP9a private practice direct supervision needed / appropriate	RESPCHOI9b restricts patient choice	DDSAGR10N DDS agreement to change	INCAWAR10B DH should increase awareness of public re DH
	YESSELF9a yes, self-regulation is appropriate	RESDHEMP9b restricts DH employment	POLICH10N political change in NS	RUL36510B 365-day rule allows non- supervision by DDS
	NOSUP9a no supervision required (appropriate)	NENOSUP9b DH need no supervision		PUBINT10B public interest
				POLICLI10B political climate in BC
				POLACPU10B political action by the public

Table 12

Illustrative Quotations on Dental Hygiene Work in Private Practice

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
BC	DDS	Preventive services - mainly I meant in private practice. If a hygienist is in a frontline capacity in a recall practice, they are not just dealing with the periodontal issues. They are dealing with all of the oral health issues and the preventive strategies for maintaining optimal oral health.
NS	DH	Well you have to look at both settings. . . . In the private practice setting, the components of the work, the large portion certainly, I think, the emphasis is placed on the education and general well-being of the oral health . . . of the client.
BC	DDS	There are three main roles of dental hygiene. One is in the assessment, planning, implementation and evaluation of conventional periodontal treatment, periodontal therapy. And the second would be implementation of preventive services, whether through private practice or community health.
BC	DH	But I was thinking that this referred to say the primary role that the majority of dental hygienists find themselves in. So I am thinking of the hygienist in clinical practice. When I think about what are the components of their work, I think of, and I will intentionally put it this way, therapy, prevention, and education.
NS	DDS	the traditional role has always been someone who has been employed to carry out procedures of oral hygiene and management of the periodontium, and all those related topics.
NS	DH	I guess the hygienist in private practice probably spends the vast majority of their working hours doing traditional clinical work - traditional duties, particularly in N.S., traditional duties that would have been prescribed to the hygienist.

Table 13

Illustrative Quotations on Education as a Component of Dental Hygiene Work

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
BC	GOV	When I first walked into my first Board meeting, they said, "Why are you here?" And I said, "Partly because I believe in medical prevention rather than treatment. And everything I have ever learned about dental health, I learned from my dental hygienist.
BC	DH	I think the most important work they do is the work as educator.
NS	DH	The components of the hygienist's work involves, I would say, education. That would be my main focus.
NS	DDS	And there are a lot of hygienists, and I truly believe that they are, as I say, probably more successful than the average dentist is in their role as sort of a provider of education as to how patients can and should look after their teeth.
BC	DH	On top of all, I believe that they are an educator. And I believe education is part of all of the components.
NS	DDS	In question 2, thinking about the role of the dental hygienist, I think it's more in terms of education.
NS	DH	Of course I think of dental hygiene in the broadest sense . . . and in sort of their overall mission as prevention and education.
NS	DDS	You can't just supply a service without the education. I think education is kind of 50/50. It's equal in terms of what they are doing.
BC	DH	I will intentionally put it this way, therapy, prevention and education.

Table 14

Illustrative Quotations on Prevention as a Component of Dental Hygiene Work

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
NS	GOV	Obviously they have a big role to play in prevention. I'd say that is probably their biggest role.
BC	DH	As somebody said to me the other day, a lay person, basically, the public needs a dentist when a hygienist has failed. . . . So I definitely see dental hygiene having a role to play in the prevention of oral diseases, period.
BC	GOV	From my point of view, I think of it as prevention. I see that as a very big part of the hygienist's job.
NS	DH	Of course I think of dental hygiene in the broadest sense . . . and in sort of their overall mission as prevention and education.
BC	DH	I will intentionally put it this way, therapy, prevention and education.

Table 15

Illustrative Quotations on Therapy or Periotherapy as a Component of Dental Hygiene Work

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
Therapy		
BC	DH	I will intentionally put it this way, therapy, prevention and education.
BC	DH	So I see our role as being oral care people, but with two big areas of prevention and therapy.
BC	DDS	Supplying their skills and training to provide the treatment that the patients require.
NS	DDS	I mean the actual therapy that they are giving. I mean their prophylaxis and their scalings.
Periotherapy		
NS	DDS	Someone who has been employed to carry out procedures of oral hygiene and management of the periodontium, and all those related topics.
NS	DDS	And the perio part of things, they provide me a stabilized base to do my dentistry. . . . I encourage the hygienists that work with me to build that perio section of my practice.
BC	DDS	There are 3 main roles of dental hygiene. One is in the assessment, planning, implementation and evaluation of conventional periodontal treatment, periodontal therapy.
BC	GOV	Scaling and root planing and maintenance, and prevention of disease in oral health.

Table 16

Illustrative Quotations on Communication as a Component of Dental Hygiene Work

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
BC	DDS	But we have to have the communication skills to help the patient understand why they are getting this level of education. . . . In order to educate, you have to be able to communicate. . . . The hygienist usually has the most exposure to the patient. And the great thing about hygiene is they have an opportunity to talk to the patient for the entire hour. And there is opportunity for the patient to respond.
NS	DDS	And I truly and strongly believe that hygienists probably are as influential or if not more influential in convincing patients/people that they can keep their teeth. . . . And quite frankly, it's nice to see the successes that the hygienists really do have. . . . There are a lot of hygienists . . . probably more successful than the average dentist is in their role as sort of a provider of education as to how patients can and should look after their teeth.
NS	DH	I think hygienists have a key role. They spend a lot of time with patients. They talk with patients about their general well-being.
NS	DH	That kind of talking is going on that actually does educate the patient but it's not necessarily named.
BC	DH	I think dental hygienists are usually approachable. People find it relatively easy to be with a hygienist and ask their questions.
NS	GOV	To me the dental hygienist is, in my opinion, should be, the PR person in a dentist's office. . . . I think the patients will feel more comfortable with the hygienist the first time out. . . . And I just don't think dentists can do that. I just think the hygienist is the person who does that.
BC	DDS	If you look at this from a sociological point of view, I believe that our role is to encourage them but certainly not to lecture them.
BC	DH	When I listen to members of the public, even personal friends, they often still feel they are being lectured to by dental hygienists.

Table 17

Illustrative Quotations on the Collaborative Assessment of Patients by Dentists and Dental Hygienists

Prov.	Group	
NS	DDS	If you read the regulations . . . it says that dental hygienists and dental assistants and anybody else other than a dentist does not diagnose. But I find quite frankly that it's collaborative, I'm sure. That there is collaboration. And certainly they are the ones that the patient sees often.
BC	DDS	Basically if we are seeing a new patient, she is involved in the assessment of the patient's periodontal health, specifically. And so although I oversee the general presentation of the patient, my hygienist is involved in pocketing, charting, recession - all the things that the hygienists are delegated to do in terms of their role. . . . Dental caries, oral cancer, no question having another set of eyes during the examination is of help for the doctor. And I find now that with my hygienist here, she is spending more time than I am with the patient on each and every root surface. And so now I find that when I am doing the examination, after she is finished or before she begins, I don't have the time to spend so I am relying more on her to assess the patient. And if she has a question or a concern, she will bring me back or she will make a list and I will go over it. So it really is a team effort that way which we enjoy.
NS	DH	So she would look at the hard and soft tissues and then determine what the patient needs in terms of dental hygiene needs. Quite often what then happens is the dentist will come over to see the patient, and the hygienist will point out to him the things that she may have found in the assessment that she feels he or she should look at. They look at those things and confer about whether or not treatment would be necessary for those items. And then the hygienist finishes her hygiene treatment. Usually in those situations, the hygienist will have taken any radiographs that they deemed necessary from their assessment. And those will be available for the dentist to look at in conjunction with the findings from the hygienist's assessment.

Table 17 continued

Prov.	Group	
BC	DH	And, in fact, many dentists depend on the dental hygienist to flag these things for them. Often the dental hygienist will do the initial examination and then report the findings to the dentist. And they really deal with this as colleagues, co-workers. And that is appropriate. It's always good to have two pairs of eyes.
BC	GOV	So we go in and we see the hygienist, and the dentist looks at our teeth and warns us if we are probably heading for filling replacements that are getting a bit ancient and things like that. So that is prevention because you are catching . . . two people are catching any disease process before it really gets a hold.
BC	DH	I'm not a dentist, and I'm not trying to get into that field. But I'm just seeing that we as hygienists became really good at being able to point out the tooth that has the potential for a crown.
NS	GOV	And usually the dentist and dental hygienist have a brief chat when the dental hygienist is done the preliminary work. And they may work together if there needs to be some work done on the cavities or that sort of thing.

Table 18

Illustrative Quotations on the Independent Assessment of Patients by Dental Hygienists

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
British Columbia		
BC	DH	My clients are informed that I do not diagnose caries. I assess their mouth, and I tell them what I conclude in my assessment. And I only do what is within my scope of practice. And it says in the informed consent that they can see the scope of practice if they wish to see it. I don't put the whole handbook in there but I am very clear. And when they ask me what that means, I say, "I don't come up to you and say you have a cavity that you need fixing, and we're going to do an amalgam in there and a crown later on." I say, "I have assessed a problem, and you should see your dentist." And that is the end of it. So it's different for me. I don't get into treatment at all Because if you do a comprehensive exam right now . . . the patients are actually getting that between me and the dentist, but the dentist is being paid for that. So I think that maybe it should be the dentist has a certain part of the exam, and the hygienist does the other part. and they are billed separately.
BC	DDS	If they are not in a preventive role by the simple fact that they are able to identify variations from norms as far as caries and cancer goes. . . . If they are not doing that something is wrong
BC	GOV	The clinical is when they mess around inside your mouth, and chip away, and do all that kind of stuff. I would include in that the assessment of what they perceive needs to be done.

Table 18 continued

Prov.	Group	Nova Scotia
NS	DDS	I rely on hygiene to help me ascertain whether there are problems. As you well know, there are times when you are working so gingerly and doing the kind of detail that a hygienist would do that you could presumably become more aware of a problem than a dentist given no matter how comprehensive the check might be. . . . I'll be the first to say that. I mean that certainly can happen. It doesn't happen often. So I rely on them certainly to help me and assist with detection of caries.
NS	DDS	They are not perhaps as versed in actually making a definitive diagnosis perhaps as a general dentist can but they are in the mouth before I get in there for a good 40 minutes. They have a good look around, and they always point out to me, "Well, maybe you could have a look at this area." So if there is something that they think is out of the ordinary, they will point it out to me.
NS	GOV	And they must be in a position to tell the patient, "Well, this is what I see and what I don't see." Or should feel free to say, "Well, I'm going to tell the dentist, and the dentist will probably take an x-ray of that particular problem."
NS	GOV	And then the dentist will come in, and a lot of the time, it's exactly what the hygienist has said in passing.

Table 19

Illustrative Quotations on Patient Contact by Dental Hygienist at Initial and RecallAppointments

Initial Appointment		
NS	GOV	I personally regard the dental hygienist as the first person you meet.... .And therefore if I go to the dentist for the first time, the hygienist is the first person I should see. And that person is going to examine my mouth and then subsequently will advise the dentist, and the dentist will then meet the patient. That is the thing with me but it could be different in everybody's office. . . . And in many instances, they are the first person that you see.
NS	GOV	They get the dentist to come in and look in your mouth and he tells you whatever it is. But she has made notes. He has read the chart after she has cleaned my teeth or whatever.
BC	DH	We have the 3 parts of our treatment: the assessment, the therapy, and the maintenance phase. Now that I'm working on my own. . . . it's becoming easier to do all 3 components with every patient.
BC	DDS	Now every single dental office has a hygienist, and they are expected to do all of the preventive services and all of the screenings for patients. And the dentists are doing less and less of that.
Recall Appointment		
NS	DDS	And certainly they are the ones that the patient sees often. The first when they come in for their recall.
BC	DDS	Now the norm is you spend an hour with the dental hygienist, and the dentist just drops in. So the primary caregiver at a recall appointment in a dental office or at a continuing care appointment is a dental hygienist.
NS	DH	I think quite often the hygienist may see the patient first or the dentist might see the patient first. It happens either way.
BC	DDS	It just depends. I like to see them [the patients] first but not always.

Table 20

Illustrative Quotations on Periodontal Therapy (Secondary Prevention) in Dental Hygiene Practice

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
BC	DDS	And of course all the phase I type therapies - root planing, scaling, curettage, that kind of thing. So there is that. So instituting treatment. And then, monitoring of results - the follow-up. . . . My view is that is their reason for being. It's a critical role to dental hygiene. I think they can be very proud of the improvement we have seen in disease pattern over the years.
NS	DH	That is undoubtedly the primary role of dental hygienists in N.S.
NS	DDS	I encourage the hygienists that work with me to build that perio section of my practice. I'm in a position to compare my practice from the days that I didn't have a hygienist and it was just me to the days that I have hygiene right now. I mean there is a drastic difference in the perio that we have in our practice and the perio awareness that we have in our practice.
BC	DH	So I think we play a valuable role in the prevention of periodontal diseases. I think also there are some clinical things that contribute to the prevention of periodontal disease. . . . I guess I'm making a difference here when I see prevention of periodontal diseases as opposed to treatment of periodontal diseases. If we are truly talking about prevention here than I guess as prevention, I don't include scaling and root planing procedures necessarily, because I see those more as therapeutic or treatment rather than prevention. . . . So the impression I get is that this whole area is left to dental hygiene in general practice. And dental hygiene has become a 'kind of expert' in that area.
NS	DDS	It's hands-on therapy, outside of surgery.
NS	GOV	I would say yes. I'm not technically qualified to pinpoint what that should or shouldn't be. Isn't the hygienist the one who can pinpoint that before anybody else?
BC	GOV	Also in the scaling and root planing functions.

Table 21

Illustrative Quotations on the Dental Hygiene Role in Early Detection of Oral Cancers

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
BC	DH	I think personally, when it comes to detection, we are probably first and foremost of any profession. . . . It's not that the other dental care professionals wouldn't be capable of it, or aren't educated for it. They certainly are. It's the fact that we actually do. We see the early signs of change. I personally have had a number of patients where I've detected oral cancers and sent them to their physician. In two cases the physicians basically told the patient that I should stick to teeth, and they've gone back and changed physicians, and ended up having surgery and chemotherapy and the whole thing. It would have been not only undetected by their physician, but denied by their physician. So with my input, they pursued it because it was obvious to me that there was some kind of change that was inappropriate.
BC	DH	I think it's a very big role. I mean I think that every time you come in there, you should be doing a head and neck assessment.
BC	DH	I think dental hygienists have a huge opportunity to play a role in the prevention of oral cancer because it's very clear to me that the dental hygienist is the one who sees the bigger picture, who actually looks at the oral tissues that surround the teeth themselves. My experience has been . . . that dentists are very, very focused on the teeth themselves.
BC	GOV	I think there is also another role. When the hygienist is examining your gums, she is also looking at the inside of the mouth. So if there were any ulcers that could become cancerous, or any other chronic problem, I think the hygienist would pick it up.
NS	DH	In a private dental setting, to me the dental hygienist offers a second set of eyes to observe and note any oral lesions that might not be perceived as normal. And I don't think any one person should be excluded from preventing oral cancer. I think we all play that role...and the more people who look and palpate and examine, the more value the patient gets.

Table 21 continued

Prov. Group		
BC	DH	<p>When a client walks in the door, the first thing they look for is indications of overall health and then for symmetry of the client's face. And they investigate anything that looks asymmetrical. . . and they examine the tissue from the outside in. They look first at the skin for pigmentations in head and neck area, and they examine the border of the lips and the lips, and the border between the lips and the buccal mucosa. Working their way in and looking at the attached gingiva, the free gingival margin and papilla. And then under the tongue, the floor of the mouth. And they palpate the structure just to see if there are any abnormalities in there. They examine the tongue, all sides of the tongue - under the tongue, the sides of the tongue, and the dorsal surface of the tongue, looking as far back as to see the fungiform papilla, and the base of the tongue, examining the lingual tonsil. And they look at the back of the throat, and the soft palate and the hard palate and alveolar ridges.</p> <p>And they draw all of the tissues out so they get a clear view of both arches. And make sure that they are noting any changes in colour, size, shape, any lesions of any sort. And they describe them with detailed descriptive terminology. In addition to that, the extra oral examination checks all of the lymph node chains.</p>
NS	GOV	<p>I'm just assuming that the hygienist is fully knowledgeable about detecting these things, and should be well versed in what the treatments are and so forth. But I assume, like in any other cancerous things that you do have specialists. And your dentist will either be in that position or there will be somebody. . . . As we say, we send everybody to Halifax.</p>
BC	DDS	<p>If a hygienist saw something that he or she felt was of significance then I expect that to be pointed out to me.</p>
NS	DDS	<p>And there is no question that again hygienists, because they usually see the patient on a recall before I do, they'll often remark to me. And sometimes I'll find it at the same time, or I will find it. Other times they will say, "Dr. X, would you please check. There is a lesion."</p>

Table 22

Illustrative Quotations on Dental Hygiene Role in Oral Cancer Risk Reduction Through Education

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
BC	DH	Whether it's tobacco use, or any other behaviours or lifestyle factors that we learn about in the future. I think right now tobacco is one of the big ones that we're aware of, whether it's smoking, or snuff, chewing tobacco in the school. All those other things that are so dangerous to people. So definitely prevention in the simplest form of the word at that point. And education, counselling.
NS	DH	We can speak to our clients about bad habits that might contribute to oral cancer such as smoking. Lately the idea of bleaching teeth is coming to this, in my mind at least, because some of the products that produce the whitening of the teeth can be a carcinogen. And if the person is smoking and having their teeth bleached at the same time, you've got a double whammy there. And we can teach them about other life style changes that they can make to reduce their risk. . . . There is alcohol consumption. There is smoking. There is the teeth whitening, in particular that come to mind off the top of my head here.
NS	DDS	[paraphrase of untaped interview comment] For oral cancer it is important to look at the causes -- smoking and alcohol -- and to provide patient education and counselling. Dental hygienist employed in that practice mentions it to his patients. Dental hygienist also looks at the patient's lips which are at high risk in fishermen.
BC	DH	Certainly we talk a lot about smoking cessation.
BC	GOV	But I also think they could also point out to people that when you clean your teeth, you should always make sure that in addition to making sure that they are not bleeding, etc., that you make sure that you don't have any sores in your mouth. And if you do, then you better come back and see us.

Table 23

Illustrative Quotations on the Role of the Dental Hygienist in Health Promotion

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
NS	GOV	And I think if we are going to have a well rounded health promotion program for primary health care, you can't leave the dental hygienists out because oral health is very important. I mean they are just one component that you have to have.
NS	GOV	Going back to what I said earlier, I think the patients will feel more comfortable with the hygienist the first time out. And that individual should be responsible for promoting good oral health. Whatever means they use.
BC	DDS	How do you see dental hygienists being involved in health promotion? Just little points - they have to have the knowledge of the current health strategies. You know, don't go advocating high protein diets if that isn't a current health strategy. So they have to be up on what is the accepted now.
NS	DH	Certainly, yes, in the community health role, there is definitely a difference between that and private practice. Because you do have more of an opportunity to work interdisciplinary with the public health nurses and with other factions of communities - be it day care centres, community services that you might be involved with, other groups within the community that you interrelate with. Yes, its certainly has much more potential to be broader in the community setting than in private practice.
NS	DDS	But when it comes to health promotion and me the dentist in the dental office, I probably would tend to concentrate too much on general dental health promotion as opposed to just general health promotion. . . . Since we are relating it to hygiene, I wouldn't doubt that our hygienists are probably as active in that or more active than I am.
NS	DDS	More as a partnership, trying to achieve the same goal. If you are talking about private practice, I think the hygienist that is working in that has to be able to promote the same type of ideas. So it's a partnership, I would think.

Table 24

Illustrative Quotations on Advocacy in the Role of the Dental Hygienist in HealthPromotion

Reducing Barriers		
BC	DDS	And it also means for a hygienist to be able to create an environment that eliminates barriers for clients so that they are able to improve their health. . . . You know, helping people in poor situations, advocating fluoride in the water supplies. Or even broader still. It doesn't just have to be restricted to oral health - any health.
BC	DH	What we haven't really done is all we can do in the role of advocacy because there are many under-serviced groups that are still in need. I think that we could be making a much bigger noise about that, and perhaps helping these people to ask for what they need. . . . And we have grown rather complacent with the idea that perhaps 60 percent of the people access dental care. We don't even know what the real percentages are because we don't know who gets surveyed to find out these numbers. There seems to be very little epidemiological data in Canada. We don't even know what the dental health status of the general public is in Canada. At least I can't find any studies that are recent. So we seem not to be looking at the people who can't come to the dental office, and not worrying about them too much. I call that complacency. It means that we are not taking our role of advocates seriously enough, not to mention the commitment to serve the public.
Enable / Empower		
BC	DH	But I just had enabling individuals and/or communities . . . and as I say, to me community can be a family, a group of people, a professional community, a population community, to increase control, and to improve their health. So to empower a group or an individual to improve their own health.

Table 25

Illustrative Quotations on Acceptability of Current Education for Dental Hygiene Work

Prov.	Group	No reservations
BC	DDS	In a word, yes, absolutely. I think that they are well trained to carry on this role. Yes, I don't have a problem with their education level. . . . The requirements to get into a hygiene school are very high, and the quality of applicant is right up there. So I don't think that is a problem.
BC	GOV	And I have some kind of rough knowledge of what goes on, and I also have a lot of experience in the public education sector. So I have a pretty high level of confidence that the diploma programs they go through prepare them for what the profession tells them that they need to be prepared for. . . . So as near as I am aware, I think that they are quite well prepared.
NS	DDS	My impressions from the dental hygienists I've met and worked with is that they are very competent and proficient. I guess I assume from that their education is preparing them quite well.
NS	GOV	I'm speaking as a member of the general public, and I am assuming that we all feel that way - that we rely on the experts to teach the hygienists. And when they graduate that they are fully informed as to what their responsibilities are and how to carry them out. . . . Even speaking with the hygienists who were on the Board, I found them very knowledgeable.
NS	DH	I guess the education presently in place requires hygienists to have some sort of prerequisites. And also the diploma program at Dalhousie, for example, would, I say, generally prepare the students relatively well.

Table 25 continued

Prov.	Group	Some Reservations
NS	DH	Even though dental hygienists are probably quite well prepared to be out there, I think a confidence level has to be increased. And certainly some more education would do the trick for most people.
BC	DDS	So even though my answer is yes, they are being educated as well as they could be, I don't think after two years when they leave a dental hygiene program, I wouldn't say they are good health promoters.
BC	DH	Yes. But I think dental hygienists could be prepared for roles in oral health promotion and health promotion if our educational programs were different.
BC	DH	I can't comment on the formal education and the undergrad programs because I really haven't seen what is being taught. I certainly know that what we were taught was a baseline, and then we have to continue to add to our education. . . . All I know is from myself, it was just a base and I've added and added and added to it.
BC	DH	So how well does the current education prepare dental hygienists for the work, in small populations and individuals, as a clinician, I think they're well prepared. I think for larger populations dental hygiene education. . . I should say for larger populations with all those things we talked about, and individuals in sort of the advanced tissue diagnosis and recognition, I don't think we're that well prepared. I think we know a little bit about a lot of stuff. But as soon as you don't have depth, you don't really have quality.

Table 26

Illustrative Quotations on Meeting Public Needs by Increasing Access to Dental Hygiene Care

Prov.	Group	
BC	GOV	Well, the regulatory framework in BC now allows hygienists to work outside of the dental office. I'm not sure how many hygienists are taking advantage of that and establishing their own offices. But I know that is one way that they can meet the needs of those people who are reluctant to go to a dentist, but they might be very interested in seeing a dental hygienist. And I think now we have . . . just this last week, we did get Cabinet approval for the registration of dental hygienists to provide residential care. So that is a whole group of people who found it very difficult to access dental offices, who will now be able to have hygienists coming to their facilities to provide oral care there.
BC	DH	I think that we could best meet the needs by being able to reach more population groups. And by population I don't just mean the population of BC or Vancouver, but populations identified by the barriers that prevent them from obtaining traditional dental care. . . . On a political side we could say we need to step out of the thumb of the dentist so that we can be free to provide information and care to the public in a broader variety of ways.
BC	GOV	First of all, I think improved accessibility. For example, direct access.
NS	DH	The large majority of dental hygienists in NS are based in private practices. And we know that there is a certain segment of the population that are not accessing dental care through a dental office. . . . There is no way that dental hygienists, let's say who are restricted to a private practice setting, that they can access these public and be as supportive as they could and should be to their needs.
BC	GOV	I guess if I had to pick one, it would be improving access for that 60 percent that isn't served.

Table 27

Illustrative Quotations on Current Role Change for Dental Hygienists

Prov.	Group	Private Practice Setting
NS	GOV	But certainly from my own perspective, they are playing a larger role, both in terms of provision of hands-on dental service - cleaning or topical fluoride as two examples. And also assisting with other procedures - fillings, whether it's replacing a filling or putting in a new one.
BC	DDS	Now every single dental office has a hygienist, and they are expected to do all of the preventive services and all of the screenings for patients. And the dentists are doing less and less of that. So that is the change of the role of hygienists.
BC	DDS	So your question was what is the role of dental hygiene? Sure, it's going to get more complicated. And that is one of the reasons we're going to see treatment cases we've never seen before or we haven't seen very often, or maybe things that we would typically refer to a periodontist. If we start seeing a whole bunch of those then we had better become more adept at treating those types of cases. And diagnostically, the dentists are going to have to become more adept, and the hygienists, in their continuing education of course, recognize trends. So demographically, dental hygiene community education is going to have to be focused in this direction so the dental hygienists can recognize things better, consult with the dentist and say, "we've got a case like this. We're starting to see more of these. What are we going to do? I think at some point in time, as the needs of the patients change the direction of our practice treatment will change.
NS	GOV	Oh, I think it has changed since I've been going to the dentist. And when you ask me how, I'm not sure how to explain how. Maybe because the hygienist down here is more comfortable with me now, and is able to carry on a conversation. We talk about this, that and everything else. And she seems to be very knowledgeable about my teeth problems.

Table 27 continued

Prov.	Group	
BC	DH	In this province it definitely is in the area of long term care and residential care. . . . Our role is changing in the fact that we're now able to go in there and provide care to these people, do assessments and provide care. . . . I think it's changing in the fact that we are feeling perhaps more confident about talking about what we see and dealing directly with the patient, rather than through the dentist. . . . So we see dental hygienists taking roles in interdisciplinary settings in health care that we haven't traditionally.
BC	GOV	I think it is in BC since, for example, there is now residential care license.
NS	DDS	But in the private office, I don't know whether the role is changing. I would expect it would be. With the general decline in the old fashioned dental caries and traditional dental treatment in the dental office, there is probably a bit more emphasis on prevention. And I guess the role for the dental hygienist becomes a little more prominent in the dental office. Perhaps I could say that.
NS	DH	I think it is. Perhaps 'evolving' might be a better than 'changing'. Maybe they are the same word. I think the horizons for dental hygienists are widening.
BC	DH	I see the change as going from being care providers to more dental salespeople. I mean I see that as being the trend. . . . They are getting away from hygiene to selling dentistry, is the simple way of saying it. I can't finesse it. And through all of that, they are expected to produce x number of dollars in a very short time. And it's the biggest frustration I'm hearing out there. So I think that the role has changed in that direction. But I think now that the awareness of that change is there by hygienists, it's going to change back. . . . The dental incomes have stagnated a little bit so that there is more of an effort out there to promote more dentistry. And because we have become quite skilled at it, and we are the nurturing person in the office, it's kind of come on to our shoulders a little bit.

Table 28

Illustrative Quotations on the Dental Hygiene Profession Organizing the Role Change

Prov.	Group	
BC	GOV	I mean it was the B.C. Dental Hygienists Association that submitted the application to the Health Professions council and saw it through to the establishment of a College of Dental Hygienists which is separate from the College of Dental Surgeons. So I think it is the leadership in the profession, and the vision that they have.
BC	DH	I think that dental hygienists have decided that they really don't want decisions about dental hygiene made by non-dental hygienists. That in today's world. . . more than a bit oppressive and inappropriate.
NS	DH	Somewhat the needs of the public or the demands. . . . I guess the hygienists themselves have often prompted it.
BC	DH	Dental hygienists are starting to look at themselves as professionals, and really to feel quite confident in their abilities to make assessments and provide care....They want to be able to provide care the way that they think it should be done.
BC	DDS	Simply, it's independent practice. I gather that is the motivating factor here, is the ability to have greater access to the public in terms of independent practice. [THAT IS AN INTERESTING TERM THAT YOU HAVE JUST USED - GREATER ACCESS TO THE PUBLIC. BECAUSE WHAT I SOMETIMES HEAR IS THE PUBLIC ACCESS TO THE PROFESSION]....Yes. You can look at it both ways. And I know certainly the government is looking at this as well. And I think they are looking at it the other way around - greater access for the public to getting care. And that is not only happening in our profession, it's happening in. . . . You can look at midwifery, for example, in the province.
BC	DDS	So my point is if hygiene went over here, outside of the box, and said, "We want to be recognized for who we are and what we do and what our role is independently", if that wasn't done very carefully . . . it still could lead to, I would suggest, some degree of animosity between dentists and assistants, and even non-certified people in the office. Like why are you going out there to self-grandiose yourself? It flies in the face of this whole team thing.

Table 29

Illustrative Quotations on the Gatekeeping of the Dentist as a Barrier to Change in Dental Hygiene Role

Prov.	Group	
NS	GOV	Everybody doesn't want anybody getting in their turf, so to speak. And I think that the dentists want to make sure that the dental hygienists don't in any way move into some of their territory. And I don't think that is really what would happen. I mean I don't see that. I see the role changing but I don't see it as being that the dentists have anything to worry about them getting into their turf. When I say that, the dentists want to make sure that the dental hygienists, the work that they do and then they report to them, that they work sort of under them. And I think that, as I remember, the legislation back when I was Minister and the restrictions and the people that kept the Bill from probably going as far as the dental hygienists want were the concerns of dentists. And I'm not saying they didn't have legitimate concerns but I think that dental hygienists could be given a little more authority.
BC	DH	I think I might have been a bit narrow in number 6 - how do I think that hygienists can best meet the needs of the public. I think as long as the majority of us are tucked away in clinical practice, it's hard to be seen and to be distinct. And as long as the entry to dental hygiene is through dentists, that makes it difficult.
NS	DH	Having to go through the 'gatekeeper' dentist adds to the cost before reaching the dental hygienist. . . . Dental offices are perceived by many as very elite settings.
BC	GOV	The dental profession. I think especially some of the old school dental professions still see a hygienist as a hot and cold running hand maiden.
NS	GOV	I could see that the dentists were being very protective of their territory, and perhaps were aware of what went on in B.C. and were probably afraid of hygienists going out on their and doing their own clinics. Does this take away income form the dentist? I don't know.
BC	DDS	So if you are working with me, you are number 2 and I'm number 4, and I'm the boss. I sign your paycheque, and who cares. But you are number 2 and I'm number 4. But the patient is number 1.

Prov. Group

NS DDS And this is the way I view my hygienists. I don't view them as paid employee type of thing. They are also on commission. They determine, from a financial point of view, how they do. And I do this with the associate dentist too, primarily because it's my practice, my business. It's my business that is on the line. Not just because it's a hygienist. Their work is watched and monitored, and the same with the associate dentist. . . . So there has to be a leader. When you have a group like that, there has to be a leader establishing the criteria.

BC GOV I mean you don't go very far until you get into an economic argument. There is 60 percent of the population out there that isn't getting any routine care. Give them some. Do you know how bad the dental health of the 60 percent of the population is? [NO, WE DON'T.] Do you know what an enormous amount of business that is for dentists? [YES] I mean they are out of their minds. They should promote dental hygienists like crazy for the referral business.

NS DH I think the biggest barrier is the organized dental profession. I think they see the changes as a threat to them. And unfortunately, I think they are all wet in that. I think if dental hygienists were more available, they would be busier because it is my belief that dental hygiene is seen as a less threatening procedure. And so people might go to have a dental hygiene appointment, and the hygienist could therefore say, Gee, did you know you had this problem. Maybe you should see a dentist." And they would be quite busy.

Table 30

Illustrative Quotations on Differences in the Professional Agendas of Dentists and Dental Hygienists as a Barrier to Change in Dental Hygiene Role

Prov.	Group	
BC	GOV	Yes, I think principally it was the attitudes in the dentists' community, particularly the College of Dental Surgeons. They were opposed to the establishment of a separate college of dental hygienists, and preferred that the delivery of oral health care services be coordinated by the College of Dental Surgeons.
BC	DDS	I think currently our Dental Act may be a barrier there in that we have statutes in place that are very clear in terms of scope of practice and delegation of duties to auxiliaries. So that may be seen as a barrier. . . . Yes, the regulation - what is legal and what is not legal currently. And to be honest with you too, I think dentists see this. . . . And I've got to tell you , they are very upset about the mechanics issue. . . . If you look at the disease pattern, less and less people are requiring full dentures. So they are beginning to look elsewhere at viability in their business, and so they are expanding their scope of practice. It's as simple as that. And dentists are getting a little sensitive about the whole issue. They look at the number of years that they have had to train at university to obtain their dental degrees. And they see an encroachment, and they are concerned. And here I am representing them. So I've got to tell you, that is the feeling out there, the sentiment. We feel that, and especially in light of the salary ranges being paid to hygienists currently in the province - it's very good. . . . And frankly, I think this is the reason hygienists haven't ran out and set up their clinics. Why would they? I mean they know the sort of headaches there are in running a practice. . . . So we are kind of upset that this is even being proposed.
BC	DDS	So if the hygiene profession collectively does not want to go on this route, but some people do for whatever reasons, and they are not following the majority, or worse yet, they are not asking the majority. But this is their agenda; and this is where they want to go. That is going to create a wedge in the profession unfortunately.

Table 30 continued

Prov.	Group	
NS	DDS	Because I don't know about the animosity between . . . just getting the feel from going to the dental meetings, the annual dental meeting . . . I know I haven't been to a hygienist annual meeting but I think there is an internal struggle between changing this legislation and keeping it the way it is.
NS	DH	I think the biggest barrier is the organized dental profession. I think they see the changes as a threat to them. . . . To me it means the dental associations - provincial and national dental associations. I think one-on-one, there are a lot of dentists who appreciate what we can do and what we can offer, and are not threatened. But in a group, they don't stand up for us. People who might see changes in legislation as not being a problem would not stand up in a group of their peers and say, "But I don't think that is a problem" It happens when you get them together in a group.

Table 31

Illustrative Quotations on Professional Legislation, Political Climate and Policy as a Barrier to Change in Dental Hygiene Role

Prov.	Group	
NS	GOV	And I think that, as I remember, the legislation back when I was Minister and the restrictions and the people that kept the Bill from probably going as far as the dental hygienists want were the concerns of dentists. And I'm not saying they didn't have legitimate concerns but I think that dental hygienists could be given a little more authority. I think they would obviously refer without hesitation to the dentist. And that is why I don't think the dentists have anything to worry about if they worked a little more independently than they presently work. I think if they had any doubt, they would send the person off to a dentist.
NS	DH	A barrier for people to access the dental hygienist directly is the legislation in Nova Scotia . . . at the moment, we are only allowed to work in a setting where we have direct supervision of the dentist. Therefore that denies the public direct access to dental hygienists.
BC	DDS	And whether it's the regulations that are the barriers or the dollars, that is hard to say. I seem to think that if the dollars are available, the regulation is going to be modified to deliver those services. But regulations and dollars.
NS	DH	I think another barrier is the lack of . . . right now in NS, the restrictive legislation we have.
NS	DH	Regulations restrict the use of hygienists at the moment.
NS	DH	Dental hygienists in NS are not doing that right now because of our legislation prohibiting us from being active in that area. And neither is Public Health doing it because they have been narrowed into the area of elementary school children. Although the potential is there for Public Health through present legislation. Public health hygienists do not get in those doors to help seniors, they are not able to do it because of their mandated work. So yes, there is a need and there is potential, and it could happen if there was change in legislation.

Table 32

Illustrative Quotations on the Need for Dental Hygienists to Promote Identification Personally and Collectively

Prov.	Group	Descending Order from Most Expressive/Emphatic to Least
BC	GOV	The dental hygienist is the girl in the office who cleans my teeth as opposed to the girl in the office that hands the stuff to the dentist, or the girl who phones me to remind me. So I think first of all you have, in terms of any promotion of dental hygiene, you've got a big, big, identity problem. You've got to identify it as a separate set of skills somehow, or a separate set of treatment somehow. And it won't happen instantly. You've got to fight, I think, to get it separated in the public's mind from the dentist. I mean nobody knows unless you happen to take the time to know. I think promotion of dental hygiene is pretty intimately tied up in the emergence of a professional identity. And I don't think health promotion related to dental hygiene is going to be taken seriously by the public until that emergence occurs.
BC	GOV	You have to do education, whether it's through pamphlets in shopping malls. Not about saying, "Come to Joe Blow", but about hygiene in general and the goals. . . . I think it's clarification of the role of the hygienist versus the role of the dentist.
NS	GOV	I don't think the public really know a lot about dental hygienists. I think that is the dental hygienists' fault. You have to promote yourself. You have to make the public aware.
NS	DH	A big fault lies with the dental hygienists themselves, who are not as forthcoming with speaking up for themselves and blowing their own horn, and letting the public be more aware of who they are, giving their name as they enter the dental office, their role and their responsibilities, and their education level, having their certificate on the wall and being proud of who they are, that certainly. . . We are at fault as a profession for not. . . for leaving ourselves in this predicament to a large extent.
BC	DH	But as I say, we aren't seen as players in the big health care picture . . . we don't promote ourselves. We're starting to with CDHA, the things in the Homemaker magazines and things like that I think are tremendous initiatives. But we haven't been good at that in the past.

Table 33

Illustrative Quotations on Supervision Requirements in British Columbia and in Both
Public Health and Private Practice in Nova Scotia

British Columbia Supervision Requirements		
BC	DH	Yes, we haven't had direct supervision except for the administration of local anaesthetic which still requires supervision as per CDHBC. We were the one jurisdiction, as we understood it, that has been working on prescription for a very long time. . . . [SO HOW IS THAT [CURRENT REGULATION] DIFFERENT FROM THE WAY IT WAS BEFORE?]. . . . We had to have a dentist go first and do an examination, and now we don't. The dental hygienist can go first . . . we can work without supervision.
BC	GOV	I think the current supervision requirements that are reflected in the Dental Hygienists Regulation were somewhat of a compromise that was achieved at that meeting that was referred to earlier.
Nova Scotia Supervision Requirements in Public Health		
NS	DDS	The case in point . . . being the Public Health dental hygienists. They don't strictly . . . as you probably know, they have an arrangement wherein the dental hygienist is not directly supervised by the dentist but there is a dentist who is available for consultation to the dental hygienist. And so that is essentially working without supervision in this case. . . . I assume a large part of the rationale behind that is that Public Health dental hygienists are not generally doing intraoral clinical procedures in Public Health as a general rule. . . . We're stretching the idea of supervision, I think, in this circumstance, in this special regulation that has been made for Public Health whereby the dentist is available for consultation.
Nova Scotia Supervision Requirements in Private Practice		
NS	DDS	So I guess in the sense that the dentist is responsible for the procedures delivered, then I guess he has to direct and has to supervise. I'm not comfortable with that word supervision, to tell you the truth, because it indicates more of a hierarchy which I don't think is necessarily what I would see. I don't think I see so much the dentist being higher up the totem pole as being perhaps more broadly involved in the overall dental care.

Table 34

Illustrative Quotations on Patient Choice Being Restricted by the Legislation in British Columbia and Nova Scotia

Prov.	Group	British Columbia
BC	GOV	I just hate any restriction to my freedom of choice. So it's a freedom of choice issue as a consumer I think there is a health care issue in that I should be able to go to a dental hygienist in any way I want. . . . If it's O.K. for old folks or mentally challenged folks then I think it's certainly good enough for me.
BC	DH	[IF THIS DIDN'T EXIST, WHAT WOULD HAPPEN?] I think then the public would have a choice. They could go directly to a dental hygienist for preventive, educational service and periodontal care. And they could go to a dentist when they need to go to a dentist. It just seems that it's the right of the public to be able to make the decision.
BC	DH	These people are having nothing because we have put this restriction in the way of them having something, and then being able to be sent off for further treatment. So they are getting nothing. They won't spend the \$20 for the exam, or \$25 or whatever it is. So they get no care. . . . This is not fair to the client. They should be able to choose.
BC	DDS	There are certain instances where it is better to give only dental hygiene services than no services at all. And I know the regulations say right now that the dentist has to be involved with the continuing care treatment of all clients.

Table 34 continued

Prov.	Group	Nova Scotia
NS	GOV	But the other part of it, youngsters who are going to the dentist for the first time or me for my 6 month appointment to get my teeth cleaned, I should be able to go whether the dentist is there or not. I want to put faith in the hygienist to be the person in charge while the dentist is away. But knowing full well that he or she is not going to be able to carry out the functions of a dentist, but be in a position to handle an emergency and refer the patient directly to a prearranged . . . a situation where the dentist says so and so will take my calls. The hygienist should be in a position to assess.
NS	DH	It's far too restrictive. Far too restrictive. . . . If I had a client that I was seeing regularly in private practice who suddenly ended up in a hospital or a long term care facility, and therefore couldn't come to my private practice, I'm now restricted to go see this person and provide the same oral care. And that distresses me.
NS	DH	So it restricts the patient's choice of who they will receive services from. I have been in a situation where I moved from one employer to another, and many of the patients who had been receiving care from me for a number of years wanted to continue to receive care from me. And this has happened with all kinds of hygienists. But unless they are willing to change dentists as well, they cannot any longer choose to receive care from the hygienists. So it restricts people's choices.

Table 35

Illustrative Quotations on the Level of Supervision in Nova Scotia Being Unnecessary and Inconsistent with Current Practice

Level of Supervision Not Necessary		
Prov.	Group	
NS	GOV	And I think that, as I remember, the legislation back when I was Minister and the restrictions and the people that kept the Bill from probably going as far as the dental hygienists want were the concerns of dentists. And I'm not saying they didn't have some legitimate concerns but I think that dental hygienists could be given a little more authority. I think they would obviously refer without hesitation to the dentist. And that is why I don't think the dentists have anything to worry about if they worked a little more independently than they presently work. I think if they had any doubt, they would send the person off to a dentist.
NS	GOV	I should be able to go whether the dentist is there or not. I want to put faith in the hygienist to be the person in charge while the dentist is away.
NS	DDS	I agree with the legislation. Not from the standpoint of them needing constant supervision, but I believe in the legislation because even though I am a dentist, and the next person is a hygienist, we are guiding towards the same goal. And that is why I think the hygienists and the dentist should function together - for the good of the patient.
NS	DH	We can't easily get into long term care facilities. We can get there but it's a little bit of a convoluted procedure If the dentist has seen the client, and the long term care facility has received permission from the Board for this hygienist to go in, she can then provide services without the dentist right there on the spot. But those other requirements have to be met first.
Level of Supervision Not Consistent With Common Practice		
NS	DH	Legislation . . . and the issue of supervision and what the hygienist does has been a question of interpretation many times. And I think that the example that I gave about the current registrar's interpretation of it was actually printed in a newsletter - the N.S. Dentist - at one point, where he did expand upon what he felt was the interpretation that we should be following. And that was very restrictive and didn't reflect practice.

Table 36

Illustrative Quotations on the Desirability of the Public Having Direct Access to DentalHygiene Care

Prov.	Group	British Columbia
BC	GOV	I think that we need to look at progression towards more independent practice. But we want to ensure quality and consistency. It must be consistent and is assured.
BC	DH	If we're just going to deal with the seniors for a minute, the ones that are coming in to see me from my opening ads and stuff wanted to come in to avoid dental care. And that was their main reason for coming. That could have been for financial reasons or fear or whatever. Pressure for treatment that they didn't want. So I just found that to be kind of interesting because they understood they needed their preventive care, and they were willing to have the preventive care. But in the beginning when they would have to go for an exam, they would have nothing. And that is an issue I wrote to the Minister of Health about. These people are having nothing because we have put this restriction in the way of them having something, and then being able to be sent off for further treatment. So they are getting nothing. . . . Because I think it would be a lot more effective if we could eliminate the words 'must see a dentist for an examination' to 'the hygienists must advise the client to see a dentist.' It would be more fair to the public because the public is saying to me "No one is telling me when I see a dentist and when I don't see a dentist."
BC	DDS	Which is a good intention [the 365 day rule], but if it is preventing people from receiving any treatment at all, that is a bad rule. And if it is preventing hygienists from working independently . . . I don't think that is really important. I think the question should be what is best for the client? So I think the intent of that rule is good. I think the application is restricting the delivery of basic dental hygiene services which I think is bad. So it's an issue.

Table 36 continued

Prov.	Group	Nova Scotia
NS	DH	I think it's time that the government takes a look at that, and respects the needs of the public, and helps to change the legislation so that dental hygienists . . . the public can get direct access to dental hygienists.
NS	DH	For example, hygienists can't work in institutions unless with special written permission. And those institutions must also employ or retain the services of a dentist. And that makes it financially prohibitive as well as the mechanics of it are difficult. And the fact that there is an implication that the hygienists need that supervision to do the things that they can do well.
NS	DH	I think they [dental hygienists] are unhappy under direct supervision of the dentist. In the long term, I think the public would receive better care if dental hygienists were able to provide their services differently. . . . Better might not have been the right word to use. They could provide quality care perhaps at a lower fee than they are presently being charged.
NS	DH	I think of my own personal accessibility. Somewhere down the road I may be institutionalized. So what is my access? I think it is restricted by virtue of the present regulation.
NS	GOV	Part of that thought was in terms of providing a dental service for someone, ideally you do need to have a dentist for some part of that. Are there parts that can be done by the dental hygienist, no question. But if they do, and it's not coordinated with the efforts of a dentist, does that create difficulties or challenges?. . . . But would I want to be able to access a dental hygienist independently without the dentist as well? I can't foresee that I would as an individual consumer. Now maybe there are some who would.

Table 37

Illustrative Quotations on Need for Political Action on the Part of Dental Hygiene to
Change Regulation in Nova Scotia

Prov.	Group	
NS	GOV	You have to make the public more aware. I think more and more professional groups are finding that for the public to understand what it is they do, they have to be a little more proactive. Groups have found they have to be proactive to get legislation changed. They have to be proactive with legislators. They have to educate them. And it's a process. Whether you are a physiotherapist . . . occupational therapist, they got legislation changes. They spent a great deal of time and effort educating, sort of lobbying, but really education. I think dental hygienists have not been as high profile in that area as they could be.
NS	GOV	It gets down to lobbying on the part of the hygienists to put that through legislation in a Private Members Bill. But as I recall, when I was on the board, there was a lot of discussion concerning the role of the hygienists. I could see that the dentists were being very protective of their territory, and perhaps were aware of what went on in BC. and were probably afraid of the hygienist going out on their own and doing their own clinics. Does this take away income from the dentist? I don't know.
NS	DH	And to show and convince our politicians that the danger is that the costs of health care could in fact be very much impacted by poor oral health. And that is a very politically good argument to make on behalf of hygienists generally. That the role is one that allows better general economic and well-being of the country if the population is healthy.
NS	DH	It's a service that's not accessible to all members of the population right now. And if we can help them [the legislators] understand that it is a service that is not accessible and should be. . . . We have to show them that can be done (it is possible). . . . The hygienists have to agitate and teach them that, and then they will understand the merits.
NS	DDS	One circumstance would be dental hygienists lobbying for change. Get the public behind you.

Table 38

Illustrative Quotations on Different Perspectives About the 365-day Regulatory Restriction on Dental Hygiene Practice in British Columbia

Prov.	Group	Legal Perspective
BC	GOV	As I recall, the dentists came into the meeting with a number of positions kind of laid out . . . they couldn't seem to be struggling too hard but wanted at the same time to try and maintain a sense of balance. And so proposed some further continuing conditions on practice. That was one of them. . . . It's not quite the same, no [as the limitation of mandatory referral for acupuncture and midwifery]. I think this was really an innovation that the dentists came up with.
BC	GOV	Well, it's a different kind of supervision requirement. I guess if we can characterize them all as supervision requirements, they do exist in the practice of other professions as well. It's all supervision in the loose sense of the work. They are referral requirements really.
BC	GOV	So when I look at it, there is very much a role that is being defined for the dentist in the provision of dental hygiene care. But that doesn't apply where the hygienist is providing non-clinical services or practising in a facility.
Public Representative		
BC	GOV	I just think it's dumb rule. It would be just as dumb if we said, 'Well, dental care is an important component of total health care, therefore before anyone can see dentist, they must have had a physical examination by a physician within the previous 365 days, or coincident with the visit'. . . . I just don't know of any other profession where I have to see one before I can see another. Like I don't have to go to a chiropractor before I go to a massage therapist. I know I have to go to a general practitioner sometimes before I can be referred to a specialist, but that is going the other way. Like you can't see the dentist before you see the dental hygienist first.

Table 38 continued

Prov.	Group	Dentist Perspective
BC	DDS	Are they able to practice without the supervision of a dentist? I guess yes, in limited ways. We have this 365-day rule. . . . General supervision [previous legislation] meant that the dentist didn't have to be in the office. The dental hygienist could perform certain aspects of their care without you being there. And so it means that a practising dental hygienist does not even have to have a dentist associated with the office. You just have to follow that 365-day rule.
Dental Hygienist Perspectives		
BC	DH	The client must be advised to seek dental care. And you can't tell them it has to be once a year. . . . Like I have to keep a record of that last exam it it's not done in our office. And then I don't treat them until they tell me they've had their examination again. . . . But apparently we brought this forward and included it as hygienists when we were making our presentation to government. [SO YOU THINK IT'S NOT NECESSARILY IN THE INTEREST OF THE PUBLIC TO HAVE THIS 365-DAY RULE?] I don't believe that anymore, but I think I did originally. I see a big barrier for them. And it's a big barrier for people where \$20 means a lot of food for that week.
BC	DH	They [dental hygienists] are able to be self-employed or independent as long as the client has seen a dentist within 365 days, they are able to provide care for that client. They can do everything that they are educated to do except administer local anaesthesia. For that, there needs to be either a dentist or a physician on the premises. . . . With the Residential care designation, a dental hygienist is permitted to practice without a client having been examined by a dentist. . . . I think it was a compromise position really. And it's a lot freer than the way the Act used to read. I don't know why this number because 365 days isn't magic or anything. And it doesn't mean that it's going to prevent any kind of problem from happening. Some people could go many years without a dentist's examination. I would be willing to wager that the majority of dentists themselves are not examined on a yearly basis by another dentist. I'm not sure why it is there. It doesn't actually make any sense to me.

Table 39

Illustrative Quotations on Different Perspectives of Safeguarding the Public Interest in the Practice of Dental Hygiene and Dentistry

Prov.	Group	Public Interest in Professional Legislation in Dental Hygiene
BC	GOV	Going into that meeting, the Ministry's perspective was optimal patient care. And we have all kinds of evidence suggesting that many long term care residents are not getting adequate dental care, particularly dental hygiene but dental care generally, because of the difficulty in attracting dentists into these facilities, and certainly on a regular continuing basis. And I think that ultimately was the basis for having a decision prevail that would really go against what the dentist felt was appropriate. Because while in a perfect world, they might have been able to persuade us that the ongoing involvement of a dentist was quite desirable, if in practice, they weren't able to get someone in the front door or the facility on a regular basis then that ought not to prevent dental hygienists from legitimately carrying out activities for which they were properly trained and competent to do and that were clearly needed by virtually every patient in the facility.
BC	GOV	It [the Act] has the description of what the services are. And then in the regulation are set aside some reserved Acts which are the areas where there is a significant risk of harm to the public if those services were done incompetently. So scaling and root planing are identified, as well as administering the oral local anaesthetic. And no person other than a registered member of the College of Dental Hygienists can perform those functions.
BC	DDS	They can in B.C. work independently right now, however they can't do examinations and give patients comprehensive diagnoses. So they need to go to a dentist for that. For that to change, the hygienists are going to have to look at significantly more education. Because if we go back to the Health Professions Act, the very first thing that the dental profession would say, or would according to me, is that it's not in the public's best interest unless they've got all this education. Well then, they might as well go to dental school, for as much as they are going to have to take to only be able to provide hygiene services.

Table 39 continued

Prov. Group Advocacy of Public Service

BC DH What we haven't really done is all we can do in the role of advocacy because there are many underserved groups that are still in need. I think that we could be making a much bigger noise about that, and perhaps helping these people to ask for what they need. . . . So public expectations are changing and perhaps there will be demand for better dental care once more people are unwilling to part with their natural dentition.

BC DH And they [the public who have dental care] also can't judge whether they've had a good job done or not. They can only tell if somebody has hurt them. The public really isn't in a position to make a judgment about the quality of care they are receiving. They only know if it was on time and if it didn't take too long, and if it hurt or if it didn't. So I think there is a big job to be done there on the education of the public.

Merits of Independent Dental Hygiene Practice

BC DH [SO YOU DON'T THINK THAT THE PUBLIC WOULD NECESSARILY BE INCONVENIENCED BY HYGIENISTS BEING SEPARATED FROM DENTISTS?] I think they would probably be inconvenienced. [HOW WOULD THAT BE?] Because then they could go just for preventive care if that is what they need. They wouldn't have to pay for that extra examination that the dentist must do when the dental hygienist is working now. The dental hygienist could refer them to a dentist if necessary.

BC DDS I don't think that is feasible but let's just say that 100 percent of dental hygienists decided that, "Yes, we want to work independently." I think again it boils down to communication. The dental hygiene organizations are going to have to do in-depth studies for the economics of it. Because as a practising dentist, I know how much it costs to run a practice. And I think once all the numbers have been crunched that hygienists would be more satisfied in their role and their income levels if they realized what the expenses were.

Table 40

Determinants of the current politicolegal status of dental hygiene in British Columbia and Nova Scotia

Characteristics	British Columbia	Nova Scotia
Political	<ul style="list-style-type: none"> • New Democratic Party government • citizens in longterm care with minimal or no access to dental and dental hygiene services 	<ul style="list-style-type: none"> • Progressive Conservative government • citizens in longterm care with minimal or no access to dental and dental hygiene services
Legal	<ul style="list-style-type: none"> • omnibus legislation permitting designation and self regulation • public interest criteria explicit • previous general supervision changed to 365-day rule • new residential care license • diploma entry to practice with additional preparation for residential care license • dentist gatekeeping reduced • requirement for one third public representation on governance board 	<ul style="list-style-type: none"> • revised act for dentists with provision for dental hygienists • public interest criteria not explicit • previous direct supervision maintained • new residential care provision • diploma entry to practice for all forms of direct and indirect supervision • dentist gatekeeping maintained • requirement for one seventh public representation on governance board
Economic	<ul style="list-style-type: none"> • control by dentists reduced • gatekeeping provides some economic control 	<ul style="list-style-type: none"> • control by dentists maintained • gatekeeping maintains economic control
Organizational	<ul style="list-style-type: none"> • effective DH leadership and organizational initiative 	<ul style="list-style-type: none"> • ineffective DH leadership and organizational initiative

APPENDIX A

SURVEY INSTRUMENTS

FOR DENTAL HYGIENISTS AND DENTISTS

APPENDIX A1

**SURVEY OF DENTAL HYGIENIST
PRACTICES AND OPINIONS ABOUT
ORAL CANCER**

Your response is important!

Thank you for taking time to complete this extremely important survey and for providing your comments.

If you do not currently provide clinical, educational or referral services, please return the survey in the enclosed preaddressed, postage paid envelope. This action will help account for all surveys mailed and prevent sending follow-up notices to you.

Please read each question carefully and provide your most appropriate response.

**Oral Health in Canada Project
Interdisciplinary Doctoral Program
Faculty of Graduate Studies
Dalhousie University
Halifax, Nova Scotia**

NOVA SCOTIA

Practice Setting

A. Which of the following best describes the *type* of practice setting in which you work the **greatest number of hours**?
(CHECK ONLY ONE)

- 1. General dental practice
- 2. Specialty dental practice: Please specify _____
- 3. Public Health/Government
- 4. Hospital Practice: _____
- 5. Dental Hygiene Education _____
- 6. Other (please specify): _____

B. If in a General or Specialty practice, please indicate if it is a *solo or group* practice.

- 1. Solo
- 2. Group

C. With whom is a new patient (non-emergency) generally scheduled for the initial visit?

- 1. Dentist
- 2. Dental Hygienist

D. Please provide your **best estimate** of the percentage of your **adult** patients (18 years and older) who have some *type* of dental insurance including both private and government coverage.

_____ % who have insurance

E. Please provide your **best estimate** of the percentage of your patients in each of the following age groups.

<u>Age Group</u>	<u>% of Patients</u>
18 - 39 years	_____
40 - 64 years	_____
65 years or older	_____

F. Please provide your **best estimate** of the percentage of patients in each age group for whom you provide an oral cancer examination at their **INITIAL** (emergency or scheduled) and **RECALL** appointments. If you do not provide oral cancer exams write "0".

<u>Age</u>	<u>Initial Appt</u>	<u>Recall Appt</u>
18 - 39 years	_____ %	_____ %
40 and over	_____ %	_____ %

G. If you do not provide oral cancer exams for your patients in each age group, what is the **single** most important reason for not doing so? (CHECK ONLY ONE FOR EACH AGE GROUP).

	Age	
	18-39 yrs	40+ yrs
1. Not reimbursed by 3rd party payers	<input type="checkbox"/>	<input type="checkbox"/>
2. Not necessary/not needed	<input type="checkbox"/>	<input type="checkbox"/>
3. Unsubstantiated by research	<input type="checkbox"/>	<input type="checkbox"/>
4. Takes too much time	<input type="checkbox"/>	<input type="checkbox"/>
5. Not adequately trained in examination technique	<input type="checkbox"/>	<input type="checkbox"/>
6. Not cost-effective	<input type="checkbox"/>	<input type="checkbox"/>
7. Patients unwilling to pay for the procedure	<input type="checkbox"/>	<input type="checkbox"/>
8. Other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>

H. Please provide your **best estimate** of the percentage of your adult patients (18 years and older) for whom you routinely feel their necks to palpate their lymph nodes. If none write "0".

_____ % of adult patients

I. In the past 12 months, in how many patients did you identify a suspicious oral lesion?

_____ # of patients, if none write "0"

J. In the past 12 months, how many patients did you refer for biopsy/diagnosis of a suspicious oral lesion?

_____ # of patients, if none write "0"

Signs, Symptoms and Risk Factors

- K. Excluding the lip, which of the following are the two most common sites of oral cancer? (CHECK TWO)
1. Soft palate
 2. Tongue
 3. Gingiva
 4. Buccal mucosa
 5. Floor of mouth
 6. Don't know
- L. The most common form of oral cancer is: (CHECK ONLY ONE)
1. Lymphoma
 2. Squamous cell carcinoma
 3. Basal cell carcinoma
 4. Adenocarcinoma
 5. Kaposi's sarcoma
 6. Don't know
- M. Which ONE of the following factors is **LEAST** likely to be associated with oral cancer: (CHECK ONLY ONE)
1. Increasing age
 2. Familial clustering
 3. Human papillomavirus (HPV)
 4. Alcohol consumption
 5. Tobacco use
 6. Don't know
- N. The symptom most commonly expressed by a patient with an **EARLY** oral cancer is: (CHECK ONLY ONE)
1. Pain
 2. Ulceration
 3. Swelling
 4. None, patient is asymptomatic
 5. Don't know
- O. The majority of oral cancers are diagnosed in people who are: (CHECK ONLY ONE)
1. Less than 18 years of age
 2. 18 - 39 years of age
 3. 40 - 59 years of age
 4. 60 years of age or older
 5. Don't know
- P. A lymph node most characteristic of oral cancer metastasis, **when palpated**, is: (CHECK ONLY ONE)
1. Hard, painful, mobile
 2. Hard, painless, mobile or fixed
 3. Soft, painful, mobile
 4. Soft, painless, fixed or mobile
 5. Don't know
- Q. Which area of the tongue is most likely to develop oral cancer? (CHECK ONLY ONE)
1. All of the tongue
 2. Dorsal surface
 3. Ventral-lateral border
 4. Anterior-lateral border
 5. Base of tongue
 6. None of the above
 7. Don't know
- R. Oral cancer lesions are most often diagnosed in which stage: (CHECK ONLY ONE)
1. Premalignant
 2. Early
 3. Advanced
 4. Don't know

S. Lip cancers: (CHECK ONLY ONE)

1. Are related to sun exposure
2. Are increasing each year
3. Have a worse prognosis than most oral cancers
4. Affect the upper lip more frequently than the lower lip
5. Have not been related to any form of tobacco use
6. Don't know

T. Early oral cancer lesions usually appear as a (CHECK ONLY ONE)

1. Small painless, red area
2. Small painful, red area
3. Small painful, white area
4. Small bleeding area
5. Don't know

U. When examining the tongue for oral cancer, the clinician should: (CHECK ONLY ONE)

1. Have patient stick out tongue as far as possible for inspection
2. Examine posterior dorsum of the tongue with a tongue blade or mirror
3. Pull the patient's tongue out and inspect both sides of it
4. Inspect the underside of the tongue by having the patient raise tongue
5. All of the above
6. Don't know

V. Of the following conditions, which TWO are most likely to be associated with oral cancer? (RANK IN ORDER OF IMPORTANCE)

1. Leukoplakia
2. Erythroplakia
3. Pemphigus vulgaris
4. Migratory glossitis
5. Denture stomatitis
6. Don't know

First	_____
Second	_____
	↑
	Write in number

Health Histories

W. When taking a health history, which of the following do you assess? (CHECK ONE RESPONSE ON EACH LINE)

	(1) Yes	(2) No
1. Patient's past alcohol use	<input type="checkbox"/>	<input type="checkbox"/>
2. Patient's present alcohol use	<input type="checkbox"/>	<input type="checkbox"/>
3. Type & amount of alcohol used	<input type="checkbox"/>	<input type="checkbox"/>
4. Patient's previous tobacco use	<input type="checkbox"/>	<input type="checkbox"/>
5. Patient's present tobacco use	<input type="checkbox"/>	<input type="checkbox"/>
6. Type & amount of tobacco	<input type="checkbox"/>	<input type="checkbox"/>
7. Patient's history of cancer	<input type="checkbox"/>	<input type="checkbox"/>
8. Family history of cancer	<input type="checkbox"/>	<input type="checkbox"/>

X. Which of the following factors places an individual at high risk for oral cancers? (CHECK ONE RESPONSE ON EACH LINE)

	(1) Yes	(2) No	(3) Don't Know
Older age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of alcohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of tobacco products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Family history of cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low consumption of fruits and vegetables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prior oral cancer lesion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor fitting dentures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor oral hygiene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of spicy foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human papillomavirus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot beverages & foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Obesity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Opinions

Y. Please indicate the extent to which you agree or disagree with each of the following statements:
(CIRCLE ONE RESPONSE ON EACH LINE)

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
1. My knowledge of oral cancer is current.	SA	A	D	SD	DK
2. Oral cancer examinations for adults 40 years of age and older should be provided annually.	SA	A	D	SD	DK
3. Oral cancer examinations for adults 18-39 years of age should be provided annually.	SA	A	D	SD	DK
4. I am comfortable referring patients with suspicious oral lesions to specialists.	SA	A	D	SD	DK
5. Oral cancer exams can be discontinued after 3 negative exams.	SA	A	D	SD	DK
6. My patients are sufficiently knowledgeable about oral cancer risks factors.	SA	A	D	SD	DK
7. My patients are sufficiently knowledgeable about oral cancer signs and symptoms.	SA	A	D	SD	DK
8. Oral cancer examinations should be a separate reimbursable procedure.	SA	A	D	SD	DK
.....	DK				
9. I am comfortable palpating lymph nodes in necks of patients.	SA	A	D	SD	DK
10. The use of smokeless tobacco places a person at greater risk for oral cancer than those who smoke cigarettes.	SA	A	D	SD	DK
11. Dentists are qualified to perform oral cancer exams.	SA	A	D	SD	DK
12. Dental hygienists are qualified to perform oral cancer exams.	SA	A	D	SD	DK
13. Physicians are qualified to perform oral cancer exams.	SA	A	D	SD	DK
14. Early detection improves 5-year survival rates from oral cancers.	SA	A	D	SD	DK
15. Lesions associated with smokeless tobacco generally resolve when use is discontinued.	SA	A	D	SD	DK

Z. Please indicate the extent to which you personally agree or disagree with each of the following statements:(CIRCLE ONE RESPONSE ON EACH LINE)

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
1. I am adequately trained to provide tobacco cessation education.	SA	A	D	SD	DK
2. I am adequately trained to provide alcohol cessation education.	SA	A	D	SD	DK
3. Dental hygienists should be trained to provide tobacco cessation education.	SA	A	D	SD	DK
4. Dental hygienists should be trained to provide alcohol cessation education.	SA	A	D	SD	DK
5. I am adequately trained to examine patients for oral cancer.	SA	A	D	SD	DK
6. Most dental hygienists are adequately trained to perform oral cancer exams.	SA	A	D	SD	DK
7. Most dentists are adequately trained to perform oral cancer exams. ...	SA	A	D	SD	DK
8. Most physicians are adequately trained to perform oral cancer exams. ...	SA	A	D	SD	DK
9. I am adequately trained to palpate lymph nodes in a patient's neck.	SA	A	D	SD	DK

Dental Hygiene Education

AA. In your opinion, did your dental hygiene program address oral cancer exams similar to other procedures in terms of numerical requirements and the receipt of credit? (CHECK ONLY ONE)

- 1. Yes
- 2. No
- 3. Not sure/Don't recall

BB. How would you rate your dental hygiene education regarding oral cancer examinations? (CHECK ONLY ONE)

- 1. Very good
- 2. Good
- 3. Poor
- 4. Very poor
- 5. Not sure

Continuing Education

CC. When was the last time you attended a continuing education course on oral cancer? (CHECK ONLY ONE)

- 1. Within the past year
- 2. During the past 2 - 5 years
- 3. More than 5 years ago
- 4. Never
- 5. Have yet to attend; graduated from a dental hygiene program within the last year
- 6. Don't know

DD. Are you interested in attending continuing educational courses on oral cancer in the future? (CHECK ONLY ONE)

- 1. Yes
- 2. Not sure/undecided
- 3. No [SKIP TO QUESTION FF]

EE. What types of educational approaches do you prefer? (Rank TWO Approaches in order of importance - Write in the number under RANK IMPORTANCE).

APPROACHES

- 1. Handout/booklet with self-test
- 2. Continuing education journals
- 3. Audiovisual slide or videotape
- 4. Satellite telecommunications program viewed at medical centers or taped for future viewing
- 5. Lectures
- 6. Clinical demonstration course
- 7. Study clubs
- 8. Computer-based programs, e.g. CD-rom
- 9. Conference call with expert in the field
- 10. Other (Specify) _____

RANK IMPORTANCE

First	_____
Second	_____
	↑
	Write in number

Regulatory Requirements

FF. In your province, is the dentist required by regulation or policy to report any diagnoses of oral cancers to any authority or organization?

- 1. Yes
- 2. No
- 3. Don't know

If the answer is yes, the name of the organization to which the dentist would report oral cancer is _____

GG. Is a dentist required to be on site (in the office or clinic or building premises) when you provide the following services?

	yes	no	don't know
1. oral cancer examinations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. scaling and root planing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. patient education on risk factors, signs and symptoms of oral cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

HH. In general, how important for the health and safety of patients is the presence of the dentist when you provide the following services?

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| | very
important | somewhat
important | not very
important |
| 1. oral cancer examinations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. scaling and root planing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. patient education on risk factors, signs & symptoms of oral cancer | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Personal Data

JJ. Your age: (CHECK ONE)

- 1. 20 - 29
- 3. 30 - 39
- 4. 40 - 49
- 5. 50 - 59
- 6. 60 - 69
- 7. 70 years and older

KK. Gender:

- 1. Male
- 2. Female

LL. Year of graduation from dental hygiene entry level program:

19_____

MM Diploma or degree awarded upon graduation from your entry level dental hygiene program.

- 1. Diploma in Dental Hygiene
- 2. Associate Degree in Dental Hygiene
- 3. Baccalaureate Degree in Dental Hygiene

NN. Highest diploma or degree earned and year received.

- Year
- 1. 19_____ Diploma in Dental Hygiene/ Associate Degree
 - 2. 19_____ BS/BA in _____
 - 3. 19_____ Masters in _____
 - 4. 19_____ Doctorate in _____
 - 5. 19_____ Other _____

OO. Are you currently a member in any of the following professional organizations? (CHECK ALL TO WHICH YOU BELONG)

- 1. Canadian Dental Hygienists Association
- 2. Provincial Dental Hygienists Association
- 3. Canadian Public Health Association
- 4. Can. Assoc. of Public Health Dentistry
- 5. Amer. Assoc. of Public Health Dentistry
- 6. American Association of Dental Schools
- 7. International Association for Dental Research
- 8. Other: _____

Approximately how long did it take you to complete this survey? ___ minutes

Thank you for completing this questionnaire.

We appreciate your cooperation and support with this project!

Please return the completed survey by **March 17** in the preaddressed postage paid envelope.

Late returns are accepted (and still appreciated). The draw from consent cards for a journal subscription of the participant's choice will be held in the month following our target date for the return of questionnaires. If you have any questions, please call Joanne Clovis at (902) 494-8887 or (902) 477-4726 (home) or send an e-mail to J.Clovis@Dal.Ca

Is there anything else you would like to tell us about your practice experience with oral cancers or your thoughts about this survey?

Please provide any comments on the back of this page.

Oral Health in Canada: Practice and Profession

APPENDIX A2

SURVEY OF DENTIST

PRACTICES AND OPINIONS ABOUT

ORAL CANCER

Your response is important!

Thank you for taking time to complete this extremely important survey and for providing your comments.

If you do not currently provide clinical, educational or referral services, please return the survey in the enclosed preaddressed, postage paid envelope. This action will help account for all surveys mailed and prevent sending follow-up notices to you.

Please read each question carefully and provide your most appropriate response.

Oral Health in Canada Project
Interdisciplinary Doctoral Program
Faculty of Graduate Studies
Dalhousie University
Halifax, Nova Scotia

NOVA SCOTIA

Dental Practice

A. Which of the following best describes your PRIMARY PRACTICE setting? (CHECK ONLY ONE)

1. Solo practice
2. A partner (one or two or more owners)
3. An employee (salary, commission, percentage or associate)
4. An independent contractor
5. Other (Specify): _____

B. Approximately how many patients do you see each week?

_____ Number of patients/week

C. Please provide your best estimate of the percentage of your adult patients (18 years and older) who have some type of dental insurance including both private and government coverage.

_____ % who have insurance

D. Please provide your best estimate of the percentage of your patients in each of the following age groups.

<u>Age Group</u>	<u>% of Patients</u>
18 - 39 years	_____
40 - 64 years	_____
65 years or older	_____

E. Please provide your best estimate of the percentage of patients in each age group for whom you provide an oral cancer examination at their INITIAL (emergency or scheduled) and RECALL appointments. If you do not provide oral cancer exams write "0".

<u>Age</u>	<u>Initial Appt</u>	<u>Recall Appt</u>
18 - 39 years	_____ %	_____ %
40 and over	_____ %	_____ %

F. If you do not provide oral cancer exams for your patients in each age group, what is the single most important reason for not doing so? (CHECK ONLY ONE FOR AGE GROUP).

	Age 18-39 yrs	40+ yrs
1. Not reimbursed by 3rd party payers	<input type="checkbox"/>	<input type="checkbox"/>
2. Not necessary/not needed	<input type="checkbox"/>	<input type="checkbox"/>
3. Unsubstantiated by research	<input type="checkbox"/>	<input type="checkbox"/>
4. Takes too much time	<input type="checkbox"/>	<input type="checkbox"/>
5. Not adequately trained in examination technique	<input type="checkbox"/>	<input type="checkbox"/>
6. Not cost-effective	<input type="checkbox"/>	<input type="checkbox"/>
7. Patients unwilling to pay for the procedure	<input type="checkbox"/>	<input type="checkbox"/>
8. Other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>

G. Please provide your best estimate of the percentage of your edentulous patients for whom you provide an oral cancer examination. If you do not provide your edentulous patients with oral cancer examinations, write "0".

_____ % of edentulous patients

H. Please provide your best estimate of the percentage of your adult patients (18 years and older) for whom you routinely feel their necks to palpate their lymph nodes. If none write "0".

_____ % of adult patients

I. In the past 12 months, in how many patients did you biopsy for suspicious oral lesions?

_____ # of patients, if none write "0".

J. In the past 12 months, how many patients did you refer for biopsy/diagnosis of a suspicious oral lesion?

_____ # of patients, if none write "0".

Signs, Symptoms and Risk Factors

- K. Excluding the lip, which of the following are the two most common sites of oral cancer? (CHECK TWO)
- Soft palate
 - Tongue
 - Gingiva
 - Buccal mucosa
 - Floor of mouth
 - Don't know
- L. The most common form of oral cancer is: (CHECK ONLY ONE)
- Lymphoma
 - Squamous cell carcinoma
 - Basal cell carcinoma
 - Adenocarcinoma
 - Kaposi's sarcoma
 - Don't know
- M. Which ONE of the following factors is LEAST likely to be associated with oral cancer: (CHECK ONLY ONE)
- Increasing age
 - Familial clustering
 - Human papillomavirus (HPV)
 - Alcohol consumption
 - Tobacco use
 - Don't know
- N. The symptom most commonly expressed by a patient with an EARLY oral cancer is: (CHECK ONLY ONE)
- Pain
 - Ulceration
 - Swelling
 - None, patient is asymptomatic
 - Don't know
- O. The majority of oral cancers are diagnosed in people who are: (CHECK ONLY ONE)
- Less than 18 years of age
 - 18 - 39 years of age
 - 40 - 59 years of age
 - 60 years of age or older
 - Don't know
- P. A lymph node most characteristic of oral cancer metastasis, when palpated, is: (CHECK ONLY ONE)
- Hard, painful, mobile
 - Hard, painless, mobile or fixed
 - Soft, painful, mobile
 - Soft, painless, fixed or mobile
 - Don't know
- Q. Which area of the tongue is most likely to develop oral cancer? (CHECK ONLY ONE)
- All of the tongue
 - Dorsal surface
 - Ventral-lateral border
 - Anterior-lateral border
 - Base of tongue
 - None of the above
 - Don't know
- R. Oral cancer lesions are most often diagnosed in which stage: (CHECK ONLY ONE)
- Premalignant
 - Early
 - Advanced
 - Don't know

- S. Lip cancers: (CHECK ONLY ONE)
1. Are related to sun exposure
 2. Are increasing each year
 3. Have a worse prognosis than most oral cancers
 4. Affect the upper lip more frequently than the lower lip
 5. Have not been related to any form of tobacco use
 6. Don't know

- T. Early oral cancer lesions **usually** appear as a (CHECK ONLY ONE)
1. Small painless, red area
 2. Small painful, red area
 3. Small painful, white area
 4. Small bleeding area
 5. Don't know

- U. When examining the tongue for oral cancer, the clinician should: (CHECK ONLY ONE)
1. Have patient stick out tongue as far as possible for inspection
 2. Examine posterior dorsum of the tongue with a tongue blade or mirror
 3. Pull the patient's tongue out and inspect both sides of it
 4. Inspect the underside of the tongue by having the patient raise tongue
 5. All of the above
 6. Don't know
- V. Of the following conditions, which **TWO** are most likely to be associated with oral cancer? (RANK IN ORDER OF IMPORTANCE)
1. Leukoplakia
 2. Erythroplakia
 3. Pemphigus vulgaris
 4. Migratory glossitis
 5. Denture stomatitis
 6. Don't know

First	_____
Second	_____
	↑
	Write in number

Health Histories

W. When taking a health history, which of the following do you assess? (CHECK ONE RESPONSE ON EACH LINE)

- | | (1)
Yes | (2)
No |
|---|--------------------------|--------------------------|
| 1. Patient's past alcohol use | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Patient's present alcohol use | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Type & amount of alcohol used .. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Patient's previous tobacco use | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Patient's present tobacco use..... | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Type & amount of tobacco | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Patient's history of cancer | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Family history of cancer | <input type="checkbox"/> | <input type="checkbox"/> |

X. Which of the following factors places an individual at high risk for oral cancers? (CHECK ONE RESPONSE ON EACH LINE)

- | | (1)
Yes | (2)
No | (3)
Don't Know |
|--|--------------------------|--------------------------|--------------------------|
| Older age | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Use of alcohol..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Use of tobacco products | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Family history of cancer..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Low consumption of fruits and vegetables | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Prior oral cancer lesion..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Poor fitting dentures | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Poor oral hygiene | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Use of spicy foods..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Human papillomavirus | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Hot beverages & foods | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Obesity | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Opinions

Y. Please indicate the extent to which you agree or disagree with each of the following statements:
(CIRCLE ONE RESPONSE ON EACH LINE)

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
1. My knowledge of oral cancer is current	SA	A	D	SD	DK
2. Oral cancer examinations for adults 40 years of age and older should be provided annually.	SA	A	D	SD	DK
3. Oral cancer examinations for adults 18-39 years of age should be provided annually.	SA	A	D	SD	DK
4. I am comfortable referring patients with suspicious oral lesions to specialists.	SA	A	D	SD	DK
5. Oral cancer exams can be discontinued after 3 negative exams.	SA	A	D	SD	DK
6. My patients are sufficiently knowledgeable about oral cancer risks factors.	SA	A	D	SD	DK
7. My patients are sufficiently knowledgeable about oral cancer signs and symptoms.	SA	A	D	SD	DK
8. Oral cancer examinations should be a separate reimbursable procedure.	SA	A	D	SD	DK
9. I am comfortable palpating lymph nodes in necks of patients.	SA	A	D	SD	DK
10. The use of smokeless tobacco places a person at greater risk for oral cancer than those who smoke cigarettes.	SA	A	D	SD	DK
11. Dentists are qualified to perform oral cancer exams.	SA	A	D	SD	DK
12. Dental hygienists are qualified to perform oral cancer exams.	SA	A	D	SD	DK
13. Physicians are qualified to perform oral cancer exams.	SA	A	D	SD	DK
14. Early detection improves 5-year survival rates from oral cancers.	SA	A	D	SD	DK
15. Lesions associated with smokeless tobacco generally resolve when use is discontinued.	SA	A	D	SD	DK

Z. Please indicate the extent to which you personally agree or disagree with each of the following statements:(CIRCLE ONE RESPONSE ON EACH LINE)

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
1. I am adequately trained to provide tobacco cessation education.	SA	A	D	SD	DK
2. I am adequately trained to provide alcohol cessation education.	SA	A	D	SD	DK
3. Dentists should be trained to provide tobacco cessation education.	SA	A	D	SD	DK
4. Dentists should be trained to provide alcohol cessation education.	SA	A	D	SD	DK
5. I am adequately trained to examine patients for oral cancer.	SA	A	D	SD	DK
6. Most dentists are adequately trained to perform oral cancer exams.	SA	A	D	SD	DK
7. Most dental hygienists are adequately trained to perform oral cancer exams.	SA	A	D	SD	DK
8. Most physicians are adequately trained to perform oral cancer exams. .	SA	A	D	SD	DK
9. I am adequately trained to palpate lymph nodes in a patient's neck.	SA	A	D	SD	DK

Dental Education

AA. In your opinion, did your dental school treat oral cancer exams similar to other procedures in terms of numerical requirements and the receipt of credit? (CHECK ONLY ONE)

- 1. Yes
- 2. No
- 3. Not sure/Don't recall

BB. How would you rate your undergraduate training regarding oral cancer examinations? (CHECK ONLY ONE)

- 1. Very good
- 2. Good
- 3. Poor
- 4. Very poor
- 5. Not sure

Continuing Dental Education

CC. When was the last time you attended a continuing education course on oral cancer? (CHECK ONLY ONE)

- 1. Within the past year
- 2. During the past 2 - 5 years
- 3. More than 5 years ago
- 4. Never
- 5. Have yet to attend; graduated dental school within the last year
- 6. Don't know

EE. What types of educational approaches do you prefer? (Rank TWO Approaches in order of importance - Write in the number under RANK IMPORTANCE).

APPROACHES

- 1. Handout/booklet with self-test
- 2. Continuing education journals
- 3. Audiovisual slide or videotape
- 4. Satellite telecommunications program viewed at medical centers or taped for future viewing
- 5. Lectures
- 6. Clinical demonstration course
- 7. Study clubs
- 8. Computer-based programs, e.g. CD-rom
- 9. Conference call with expert in the field
- 10. Other (Specify) _____

RANK IMPORTANCE

First	_____
Second	_____
	↑
	Write in number

DD. Are you interested in attending continuing educational courses on oral cancer in the future? (CHECK ONLY ONE)

- 1. Yes
- 2. Not sure/undecided
- 3. No [SKIP TO QUESTION FF]

Regulatory Requirements

FF. In your province, are you required by regulation or policy to report any diagnoses of oral cancers to any authority or organization?

- 1. Yes
- 2. No
- 3. Don't know

If the answer is yes, the name of the organization to which you would report oral cancer is _____.

GG. Does the dental hygienist employed by your office provide oral cancer examinations for patients?

- 1. yes
- 2. no
- 3. don't know

HH. Are you required to be on site (in the office or clinic or building premises) when the dental hygienist provides the following services?

- | | yes | no | don't know |
|---|--------------------------|--------------------------|--------------------------|
| 1. oral cancer examinations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. scaling and root planing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. patient education on risk factors, signs and symptoms of oral cancer | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

II. In general, how important for the health and safety of patients is your presence when the dental hygienist provides the following services?

- | | very important | somewhat important | not very important |
|---|--------------------------|--------------------------|--------------------------|
| 1. oral cancer examinations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. scaling and root planing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. patient education on risk factors, signs & symptoms of oral cancer | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Personal Data

JJ. Your age: (CHECK ONE)

1. 20 - 29
2. 30 - 39
3. 40 - 49
4. 50 - 59
5. 60 - 69
6. 70 years and older

KK. Gender:

1. Male
2. Female

MM. Are you currently a member in any of the following professional organizations? (CHECK ALL TO WHICH YOU BELONG).

1. Canadian Dental Association
2. Provincial Dental Association
3. Canadian Public Health Association
4. Can. Assoc. of Public Health Dentistry
5. Amer. Assoc. of Public Health Dentistry
6. American Association of Dental Schools
7. International Association of Dental Research
8. Other _____

LL. Year of graduation from dental school:

19_____

Please write in any certified specialization.

Approximately how long did it take you to complete this survey?

_____ minutes

Thank you for completing this questionnaire.

We appreciate your cooperation and support with this project!

Please return the completed survey by **March 17** in the preaddressed postage paid envelope. Late returns are accepted (and still appreciated). The draw from consent cards for a journal subscription of the participant's choice will be held in the month following our target date for the return of questionnaires.

If you have any questions, please call Joanne Clovis at (902) 494-8887 or (902) 477-4726 (home) or send an e-mail to J.Clovis@Dal.Ca

Is there anything else you would like to tell us about your practice experience with oral cancers or your thoughts about this survey?

Please provide any comments on the back of this page.

APPENDIX B



Dalhousie University

Oral Health in Canada: Practice and Profession

A research project of Dalhousie University's
Interdisciplinary Doctoral Programme

Personalized Address

January 30, 1998 (actual date of mailing)

Dear Dr / Dental Hygienist:

This is a study of current ideas, opinions and practices of dentists and dental hygienists concerning **oral cancers**. Canadian statistics show that **oral cancers** will account for 1,000 of all cancer deaths in 1997, more deaths than malignant melanoma, uterine and cervical cancers, and Hodgkin's Disease. We would like to have information from all oral health care providers across Canada but for practical reasons we have selected two provinces which demonstrate differences in oral cancer incidence and mortality as well as differences in social, economic, and political climates. The estimated deaths from oral cancers in 1997 are 35 men and 15 women in Nova Scotia and 95 men and 50 women in British Columbia.

Your reply is very important. because not all dentists and dental hygienists in Canada have been asked to participate. **By completing the enclosed survey about oral cancers you will be contributing to our understanding of this significant public health problem.** Results from this survey will be used by educators, researchers, and other health practitioners, and will be compared with similar studies from other countries including the National Institute of Dental Research in United States. This study is funded in part by Dentistry Canada and The Canadian Dental Hygienists Association.

Rather than calling you by telephone we have chosen to provide you with a mail survey which you can complete at a convenient time. Our survey pretest showed that it can be completed in 10 to 15 minutes. The enclosed questionnaire includes the following topics.

- Your practice setting and current practices regarding oral cancers
- Signs, symptoms, and risk factors for oral cancers
- Your opinions regarding oral cancers
- Your personal information such as level of education.

Please take the time to complete the *questionnaire* anonymously and return it in the enclosed preaddressed, postage paid envelope. It would be very helpful to have your complete questionnaire returned to us by **February 16, 1998**. Also enclosed is a separate *consent card*. Please print your name and date on the separate consent card and return it by mail at the time of mailing your completed questionnaire.

On April 1 two prizes of journal subscriptions of choice (maximum of \$200 each) will be drawn from returned consents: one for dentists and one for dental hygienists.

The separate consent card ensures that your responses are confidential, and anonymous. No names or individual information will be used in any report or publication. Only the researcher, research advisor, and data entry assistant will have access to the questionnaires. If you have any questions or concerns, please feel free to contact Joanne Clovis (researcher) at (902) 494-8887 during the day, (902) 422-1941 at night, or E-mail at J.Clovis@dal.ca, or Dr. D. Poel (research advisor) at (902) 494-3764 or E-mail Dale.Poel@Dal.Ca.

Sincerely,

Joanne Clovis, PhD Candidate

APPENDIX C

Oral Health in Canada: Practice and Profession**Oral Cancers in Canada**

- ◆ More than 1,000 of all cancer deaths in 1997
- ◆ More deaths than melanoma, uterine and cervical cancers, and Hodgkin's disease
- ◆ Estimated deaths in 1997

Nova Scotia	35 men and 15 women
British Columbia	95 men and 50 women

Why You?

- Dentists and dental hygienists are key oral care providers.
- Results of Nova Scotia and British Columbia will be compared with similar studies done in other countries such as the United States, by researchers at the National Institute of Dental Research.
- Results will be published in professional journals.
- This study is funded in part by Dentistry Canada and The Canadian Dental Hygienists Association.

**You Can Help**

You can complete this survey at a **convenient** time. Our pretest showed that it can be completed in **10 to 15 minutes**.

The survey topics are:

- Your practice setting and current practices regarding oral cancers
- Signs, symptoms, and risk factors for oral cancers
- Your opinions regarding oral cancers
- Your personal information such as level of education.

Returning the Questionnaire by March 17, 1998

Please complete the **questionnaire** and return it in the enclosed preaddressed, postage paid envelope by **March 17, 1998**. Please print your name and date on the separate **consent card** and return it by mail at the time of mailing your completed questionnaire.

The separate consent card ensures that your responses are confidential and anonymous.

No names or individual information will be used in any report or publication. Only the researcher, research advisor, and data entry assistant will have access to the questionnaires.

Your consent card will be included in the draw for a journal subscription prize up to \$200.

Questions or Concerns?

Feel free to contact Joanne Clovis (researcher) (902) 494-8887 (day) (902) 477-4726 (night) E-mail J.Clovis@Dal.Ca **OR** Dr. D. Poel (research advisor) (902) 494-3764 or E-mail Dale.Poel@Dal.Ca.

APPENDIX D**INFORMED CONSENT CARD**

I agree to participate in your study and I have returned my questionnaire separately.

I understand that my participation is voluntary in nature, that my responses are confidential and anonymous, and that my name will not be used in any report or publication.

(Please **Print Full**
Name) _____

(Please **Date:** MM / DD /
YY) _____

Thanks again for your help in this important study.

Please mail this pre-addressed, postage paid card separately at the time of mailing your completed questionnaire.

APPENDIX E**Follow-up Postcard****Oral Health in Canada: Practice and Profession**

Two weeks ago a questionnaire seeking your ideas, opinions, and practices on *oral cancers* was mailed to you. Your name was among dentists and dental hygienists selected in Nova Scotia and British Columbia.

If you have already completed and returned it **please accept our sincere thanks.**
If not, please take the time to do it today. Since not all dentists and dental hygienists in Canada could be included, **it is very important that your completed questionnaire be included** in the study.

If by some chance you did not receive the questionnaire, or it was misplaced, please call me right now, collect (902) 477-4726 or E-mail me at J. Clovis@dal.ca and I will get another one in the mail to you today.

Sincerely,

Joanne Clovis, Dip. D.H., B. Ed., M. Sc.
PhD Candidate, Dalhousie University

APPENDIX F



Dalhousie University

Oral Health in Canada: Practice and Profession

A research project of Dalhousie University's
Interdisciplinary Doctoral Programme

February 20, 1998

Personalized Address

Dear Dr / Dental Hygienist:

This is a study of current ideas, opinions and practices of dentists and dental hygienists concerning **oral cancers**. This work is being undertaken as part of an interdisciplinary doctoral program in Dalhousie's Faculty of Graduate Studies.

Your reply is very important because not all dentists and dental hygienists in Canada have been asked to participate. Rather than calling you by telephone we have chosen to provide you with a mail survey which you can complete at a convenient time in **10 to 15 minutes**.

Please take the time to complete the **questionnaire** anonymously and return it in the enclosed preaddressed, postage paid envelope. It would be very helpful to have your completed questionnaire returned to us by **March 17, 1998**. Also enclosed is a separate **consent card** to be returned by separate mail at the time of mailing your completed questionnaire.

Two prizes of journal subscriptions of choice (maximum of \$200 each) will be drawn from the returned consent cards: one for dentists and one for dental hygienists.

For more information, please see the next page.

Sincerely,

Joanne Clovis, Dip. D.H., B.Ed., M.Sc.
PhD Candidate

APPENDIX G
Documents Reviewed

British Columbia

Health Professions Act, 1990

Schedule A, Health Professions Act, 1990

Recommendations on the Designation of Dental Hygiene, 1993

Dental Hygienists Regulation, 1994

College of Dental Hygienists of British Columbia, Bylaws, 1999

College of Dental Hygienists of British Columbia, Practice Standards, 1999

College of Dental Hygienists of British Columbia, Registrant's Handbook, 1999

Nova Scotia

Dental Act, 1992

Dental Hygienists Regulation, 1994

APPENDIX H

Dalhousie University

Oral Health in Canada: Practice and Profession

A research project within Dalhousie University's
Interdisciplinary Doctoral Programme

October 30, 1998

Professional Associations and
Regulatory Bodies for Dentists and Dental Hygienists
in Nova Scotia and British Columbia

Dear President / Registrar

I would be grateful for your assistance in nominating individuals to be included in an investigation which is part of my PhD research. This investigation is an exploration and description of the factors shaping the profession of dental hygiene. I plan to interview representatives of three groups: dentists, dental hygienists, and government, and I have set the intended target number at three people in each group.

I am seeking your recommendations for three nominees who represent your profession (dentistry or dental hygiene) / the regulation of dental hygiene in (province) AND an appointed or elected government official or representative. My intention is to contact the nominees and to request an interview with them regarding their views about the profession of dental hygiene. Interviews are voluntary and confidential, and may be anonymous if the interviewee chooses not to be identified. **Please check with potential participants to ensure their willingness to be nominated.**

It would be most helpful if nominees were knowledgeable about dental hygiene, particularly the practice role of dental hygienists and their regulation. Any individuals who have been involved in regulatory bodies or initiatives would likely have the best background for these interviews.

If I could have your nominations by **November 27**, it would be helpful in organizing a schedule for interviews. If you have any questions, please contact me at my office at (902) 494-8887, home (902) 477-4726, or by E-mail J.Clovis@Dal.Ca. **I have enclosed a preaddressed and stamped envelope for your reply.**

To verify this information you may contact my supervisor, Dr. Dale Poel, at (902) 494-3764 or E-mail Dale.Poel@Dal.Ca.

Yours sincerely,

Joanne Clovis, Dip. D.H., B.Ed., M.Sc.
PhD Candidate
Interdisciplinary PhD Programme
Dalhousie University

enclosure

APPENDIX I



Dalhousie University

Oral Health in Canada: Practice and Profession

A research project within Dalhousie University's
Interdisciplinary Doctoral Programme

Nominee
of Professional Associations and Regulatory Bodies
for Dentists and Dental Hygienists
in Nova Scotia and British Columbia

Dear Nominee:

Your name has been given to me by (name of organization) as someone who has direct knowledge of the role and regulation of dental hygiene in (province). I would like to include you in my PhD investigation which is an exploration and description of the factors shaping the profession of dental hygiene. I would be grateful for your consent to be interviewed with regard to dental hygiene in (province). Your **identification is optional** - you could choose to be identified either by name or simply by a code letter or number.

I anticipate that the interview would take about an hour. It would be semi-structured with some questions on my part and time for your thoughts and ideas. For purposes of analysis, the interview would be recorded by audiotape. Results of the investigation will be published in the PhD dissertation thesis and professional journals.

If you are in agreement, please complete the **enclosed consent form** and return it to me in the **stamped and preaddressed envelope**, or fax it to Dr. D. Poel, my research supervisor, at the number given. We can then establish a date and time convenient for you. I will send you a copy of the interview questions in advance. If you have any questions, please contact me at my office (902) 494-8887, home (902) 477-4726, or by E-mail J.Clovis@Dal.Ca.

To verify this information you may contact my supervisor, Dr. Dale Poel, at (902) 494-3764 or E-mail Dale.Poel@Dal.Ca. All tapes and transcripts will be stored in my home office, and will be accessible only to Dr. Poel, a transcriber, and myself.

Yours sincerely,

Joanne Clovis, Dip. D.H., B.Ed., M.Sc.
PhD Candidate
Interdisciplinary PhD Programme
Dalhousie University

enclosures

APPENDIX J

INFORMED CONSENT FORM

If you are willing to participate in this study, please fill out this form, and return it in the stamped, preaddressed envelope, or fax to Dr. D. H. Poel, Professor, School of Public Administration (902) 494-7023.

I have read the information in the cover letter and have had an opportunity to have my questions answered to my satisfaction. I understand that my participation is voluntary in nature, that my responses are confidential, and that I may choose to remain anonymous or to be named in reports of the research. I may refuse to answer individual questions and I am free to withdraw from the study at any time.

- I choose to have my identity protected and my anonymity preserved.
- I consent to have my identity revealed in reports of the interview.

(Please **Print** Full Name) _____

(Please **Sign** Name) _____

(Please **Date**: DD / MM / YY) _____

APPENDIX K

INTERVIEW GUIDES

FOR DENTAL HYGIENISTS AND DENTISTS

APPENDIX K1

INTERVIEW GUIDE FOR BRITISH COLUMBIA

Introductory Statement

In my advance letter and communication with you I explained the purpose of this research and the reasons why you have been selected for this interview. We will be exploring your knowledge and beliefs about the role of the dental hygienist and the regulatory framework of that role within three broad areas: the work of dental hygienists, dental hygiene and public needs, and the regulation of dental hygiene.

Questions

<p><i>1. Could you clarify, please, your role in relation to dental hygiene in British Columbia? That is, how are you or have you been involved in dental hygiene here?</i></p> <p>The Work of Dental Hygiene</p> <p>2. In thinking about the role of the dental hygienist, what would you say are the components of their work?</p> <p>3. Do you think dental hygienists have a role to play in the prevention of</p> <p>a) periodontal diseases? (gum disease) b) dental caries? (cavities) c) oral cancer?</p> <p>4. I'm also interested your ideas about health promotion.</p> <ul style="list-style-type: none"> • How would you describe health promotion? • How do you see dental hygienists being involved in health promotion? <p>5. How well does their current education prepare dental hygienists for the work you just described?</p>	<p>Dental Hygiene and Public Needs</p> <p>6. How do you think dental hygienists can best meet the needs of the public?</p> <p>7. Do you think that the role of dental hygienists is changing in any particular way?</p> <ul style="list-style-type: none"> • If so, what things may be contributing to that change? • What things may be barriers to change? <p>8. Do you think dental hygienists are generally recognized by the public? Why? Why not?</p> <p>Regulation of Dental Hygiene</p> <p>9. Do you think the current legislation regarding dental hygienists is appropriate? Why? Why not?</p> <p>10. What things happened to change the regulation for dental hygienists to permit them to practice without the supervision of a dentist?</p> <p><i>11. Do you have any other comments or suggestions you would like to make about this interview or dental hygiene?</i></p>
---	---

APPENDIX K2

INTERVIEW GUIDE FOR NOVA SCOTIA

Introductory Statement

In my advance letter and communication with you I explained the purpose of this research and the reasons why you have been selected for this interview. We will be exploring your knowledge and beliefs about the role of the dental hygienist and the regulatory framework of that role within three broad areas: the work of dental hygienists, dental hygiene and public needs, and the regulation of dental hygiene.

Questions

<p>1. <i>Could you clarify, please, your role in relation to dental hygiene in Nova Scotia? That is, how are you or have you been involved with dental hygiene?</i></p> <p>The Work of Dental Hygiene</p> <p>2. In thinking about the role of the dental hygienist, what would you say are the components of their work?</p> <p>3. Do you think dental hygienists have a role to play in the prevention of</p> <p>a) periodontal diseases? (gum disease)</p> <p>b) dental caries? (cavities)</p> <p>c) oral cancer?</p> <p>4. I'm also interested your ideas about health promotion.</p> <ul style="list-style-type: none"> • How would you describe health promotion? • How do you see dental hygienists being involved in health promotion? <p>5. How well does their current education prepare dental hygienists for the work you just described?</p>	<p>Dental Hygiene and Public Needs</p> <p>6. How do you think dental hygienists can best meet the needs of the public?</p> <p>7. Do you think that the role of dental hygienists is changing in any particular way?</p> <ul style="list-style-type: none"> • If so, what things may be contributing to that change? • What things may be barriers to change? <p>8. Do you think dental hygienists are generally recognized by the public? Why? Why not?</p> <p>Regulation of Dental Hygiene</p> <p>9. Do you think the current legislation regarding dental hygienists is appropriate? Why? Why not?</p> <p>10. Are there any circumstances which might cause the regulation to change to permit dental hygienists to practice without the supervision of a dentist?</p> <p>11. <i>Do you have any other comments or suggestions you would like to make about this interview or dental hygiene?</i></p>
---	---

APPENDIX L



Dalhousie University

Oral Health in Canada: Practice and Profession

A research project within Dalhousie University's
Interdisciplinary Doctoral Programme

Name
Address

in Nova Scotia and British Columbia

Dear :

Enclosed is a transcript of our interview. I would appreciate your review of this transcript to ensure that it is accurate. Corrections can be made directly on the transcript and the transcript can be returned to me in the preaddressed and stamped envelope. **There is no need to edit in detail, but you may wish to revise particular phrases or add to comments made at the time of the interview.**

Please note that if you have requested anonymity and confidentiality regarding your identity, I will take precautions to use no demographic information or quotations which might possibly identify you. Gender, years of experience, and particular experiences will not be used in any way to make individuals recognizable. Specific information you revealed in the first question about your role in relation to dental hygiene will be not be used in reports. This question was intended to identify for me your relevant experience with dental hygiene.

Yours sincerely,

Joanne Clovis, Dip. D.H., B.Ed., M.Sc.
PhD Candidate
Interdisciplinary PhD Programme
Dalhousie University

Interdisciplinary Doctoral Programme

Dalhousie University, Halifax, Nova Scotis B3H 3J5 (902) 494-8887 e-mail: J.Clovis@Dal.Ca

REFERENCES

- Abbott, A. D. (1988). The system of professions: An essay on the division of expert labor. Chicago: The University of Chicago Press.
- Aday, L. A. (1996). Designing and conducting health surveys (2nd ed.). San Francisco: Jossey-Bass Publishers.
- Ahluwalia, K. P., Yellowitz, J. A., Goodman, H. S., & Horowitz, A. M. (1998). An assessment of oral cancer prevention curricula in U.S. medical schools. Journal of Cancer Education, 13, 90-95.
- Alberta Dental Hygienists Association (1996). Request for amendment to the dental disciplines act and the ADHA video "Open Wide" A memorandum to members of the ADHA. Edmonton, Alberta: Author.
- Alberta Dental Hygienists Association (1999). ATRA - Alberta Tobacco Reduction Alliance. ADHA Probe, December, 12.
- Alberta Dental Hygienists Association (2000). The battle is over Dental hygienists to have B.Sc. program at University of Alberta. In Touch, March, 1.
- Alberta Workforce Rebalancing Committee (1994). New directions for legislation regulating the professions in Alberta. Edmonton: Government of Alberta.
- Allison, P., Franco, E., Black, M., & Feine, J. (1998). The role of professional diagnostic delays in the prognosis of upper aerodigestive tract carcinoma. Oral Oncology, 34(2), 147-153.
- Allukian, M., Jr., & Horowitz, A. M. (1998). Effective community prevention programs for oral diseases. In G. M. Gluck & W. M. Morganstein (Eds.), Jong's community dental health (pp. 144-176). St. Louis: The C. V. Mosby Company.
- American Association of Dental Schools (1989). Compendium of curriculum guidelines. Washington, D.C.: Author.
- American Association of Dental Schools (1992). Curriculum guidelines for predoctoral oral pathology. Journal of Dental Education, 56(10), 710-716.
- American Dental Association, Centers for Disease Control and Prevention, & National Institute of Dental Research (1996). Proceedings: National Strategic Planning Conference for the Prevention and Control of Oral and Pharyngeal Cancer. Chicago: Author.
- American Dental Education Association (2000a). Competencies for the new dentist. In American Dental Education Association, [on-line]. ADEA. Available: <http://www.aads.jhu.edu/DEPR/Competencies.htm> [2000, May 1]
- American Dental Education Association (2000b). Competencies for entry into the profession of dental hygiene. In American Dental Education Association, [on-line]. ADEA. Available: <http://www.aads.jhu.edu/News/competencies.htm> [2000, May 1]

American Dental Hygienists Association (1982). Quality assurance: A model for dental hygiene. Dental Hygiene, 56(4), 16.

American Dental Hygienists Association (1985). Standards of applied dental hygiene practice. Chicago: Author.

American Dental Hygienists Association (1993). Proceedings of the 69th annual session, House of Delegates No. American Dental Hygienists Association.

Amsel, Z., Engstrom, P. F., & Strawitz, J. G. (1983). The dentist as a referral source of first episode head and neck cancer patients. Journal of the American Dental Association, 106, 195-197.

Angus, D. (1990). Review of significant health care commissions and task forces in Canada since 1983-84. Kingston, Ontario: Queen's University.

Angus, D. E. (1994). Health care reform Revisiting the review of significant health care commissions and task forces. Ottawa: Canadian Nurses Association.

Asch, D. S., Jedrzejewski, M. K., & Christakis, N. A. (1997). Response rates in mail surveys published in medical journals. Journal of Clinical Epidemiology, 50(10), 1129-1136.

Astroth, D. B., & Cross-Poline, G. N. (1998). Pilot study of six Colorado dental hygiene independent practices. Journal of Dental Hygiene, 72(1), 13-22.

Axell, T. (1993). The professional role of the dentist under the aspects of precancer and cancer diagnosis and management. International Dental Journal, 43, 609-611.

Axell, T., Pindborg, J. J., Smith, C. J., & van der Waal, I. (1996). Oral white lesions with special reference to precancerous and tobacco-related lesions: Conclusions of an international symposium held in Uppsala, Sweden, May 18-21, 1994. Journal of Oral Pathology & Medicine, 25, 49-54.

Baden, E. (1987). Prevention of cancer of the oral cavity and pharynx. CA-A Cancer Journal for Clinicians, 37(1), 49-62.

Bhatti, N. S., Downer, M. C., & Bulman, J. S. (1995). Public knowledge and attitudes on oral cancer: A pilot investigation. Journal of Institutional Health Education, 32(4), 112-116.

Bhutani, M. S., & Pacheco, J. (1992). Metastatic colon carcinoma to oral soft tissues. Special care in Dentistry, 12, 172-173.

Blalock, H. M., Jr. (1960). Social statistics. New York: McGraw-Hill.

Blinkhorn, A. S. (2000). Qualitative research - Does it have a place in dental public health? Journal of Public Health Dentistry, 60(1).

Blishen, B. (1991). Doctors in Canada: The changing world of medical practice. Toronto: University of Toronto Press.

Blomquist, G., Hirsch, J. M., & Alberius, P. (1991). Association between development of lower lip cancer and tobacco habits. Journal of Oral and Maxillofacial Surgery, 49, 1044-1047.

Blot, W. J., McLaughlin, J. K., Winn, D. M., Austin, D. F., Greenberg, R. S., Preston-Martin, S., Bernstein, L., Schoenberg, J. B., Stemhagen, A., & Fraumeni, J. J. (1988). Smoking and drinking in relation to oral and pharyngeal cancer. Cancer Research, 48, 3282-3287.

Blueprint Committee (1994). Nova Scotia's blueprint for health system reform. Halifax: Government of Nova Scotia.

Boffetta, P., Mashberg, A., Winkelmann, R., & Garfinkel, L. (1992). Carcinogenic effect of tobacco smoking and alcohol drinking on anatomic sites of the oral cavity and oropharynx. International Journal of Cancer, 52, 530-533.

Bohnen, L. (1977). The sociology of the professions in Canada. In Consumer Research Council Canada Four aspects of professionalism (pp. 1-36). Ottawa: Consumer Research Council Canada.

Bolaria, B. S. (1994). Sociology, medicine, health, and illness: An overview. In B. S. Bolaria & H. Dickinson (Eds.), Health, illness, and health care in Canada (pp. 1-18). Toronto: Harcourt Brace & Company, Canada.

Bray, K., Gadbury-Amyot, C., & Williams, K. (1997, March). Oral health related quality of life: A model for dental hygiene practice, education and research. Paper presented at the meeting of the American Association of Dental Schools. Orlando, Florida:

Brown, L. F. (1994). Research in dental health education and health promotion: A review of the literature. Health Education Quarterly, 21(1), 83-102.

Brownstone, E. G. (1999) A qualitative study of the occupational status and culture of dental hygiene in Canada. Unpublished doctoral dissertation, The University of Manitoba, Winnipeg.

Campbell, H. S., & MacDonald, J. M. (1994). Tobacco counselling among Alberta dentists. Journal of the Canadian Dental Association, 60(3), 218-226.

Campbell, H. S., Sletten, M., & Perry, T. (1999). How do patients feel about tobacco counselling in dental offices? Journal of the American Dental Association, 130, 219-226.

Campbell, M. L. (1992). Nurses' professionalism in Canada: A labor process analysis. International Journal of Health Services, 22(4), 751-765.

Canadian College of Health Service Executives (1995). Special report External environmental analysis and health reform update. Ottawa: Canadian College of Health Service Executives.

Canadian Dental Association (1996). Mission statement. Canadian Dental Association Journal, 62(10), 755.

Canadian Dental Hygienists Association (1992a). Management of dental hygiene care. The Canadian Dental Hygienists' Association Journal Probe, 26(3), 100.

Canadian Dental Hygienists Association (1992b). Code of Ethics. Ottawa: Canadian Dental Hygienists Association.

Canadian Dental Hygienists Association (1993). An exploration into the future A North American research conference. Ottawa, Canada: CDHA.

Canadian Dental Hygienists Association (1994). Canadian dental hygienist researcher appointed to a US research advisory panel. Canadian Dental Hygienists Association Journal Probe, 28(4), 129.

Canadian Dental Hygienists Association (1995a). Dental Hygiene: Definition and scope Part I. Ottawa: Canadian Dental Hygienists Association.

Canadian Dental Hygienists Association (1995b). Dental Hygiene: Definition and scope Part II: Practice standards for dental hygienists in Canada. Ottawa: Author.

Canadian Dental Hygienists Association (1996a). College of Dental Hygienists of British Columbia appoints Deputy Registrar. The Canadian Dental Hygienists Association Journal Probe, 30(3), 90.

Canadian Dental Hygienists Association (1996b). Federation of dental hygiene registrars. The Canadian Dental Hygienists Association Journal Probe, 30(6), 209.

Canadian Dental Hygienists Association (1997, March). Recommendations to the Ontario Minister of Health for dental hygiene practice. CDHA Explorer, p. 1.

Canadian Dental Hygienists Association (1997a). Cline introduces self regulation for dental hygienists working in Saskatchewan. The Canadian Dental Hygienists' Association Journal Probe, 31(5), 162.

Canadian Dental Hygienists Association (1997b). A new forum for dental hygiene educators. The Canadian Dental Hygienists Association Journal Probe, 31(6), 203,221.

Canadian Dental Hygienists Association (1998a). Policy framework for dental hygiene education in Canada. The Canadian Dental Hygienists Association Journal Probe, 32(3), 105-107.

Canadian Dental Hygienists Association (1998b). New Probe "scientific issue" advisory group. The Canadian Dental Hygienists' Association Journal Probe, 32(6), 226-227.

Canadian Dental Hygienists Association (1999). Membership statistics (July, 1999). Ottawa: Canadian Dental Hygienists Association.

Canadian Dental Hygienists Association (2000). Breakthrough quit-smoking program launched by the Canadian Cancer Society. Canadian Dental Hygienists Association Probe, 34(2), 74.

Canadian Press Newswire (1997). Canadian cancer survival rate better than American [Study comparing poor patients in Toronto and Detroit]. In CBCA Fulltext Reference 1997, [August 1,1997].

Canadian Task Force on the Periodic Health Examination (1994). The Canadian guide to clinical preventive health care. Ottawa: Minister of Supply and Services Canada.

Canto, M. T., Kawaguchi, Y., & Horowitz, A. M. (1998). Coverage and quality of oral cancer information in the popular press. Journal of Public Health Dentistry, *58*(3), 241-247.

Carmines, E. G., & Zeller, R. A. (1979). Reliability and validity assessment. Beverly Hills: SAGE Publications, Inc.

CDHA Council on Access and Advocacy (1998). Provincial dental hygiene regulations. Ottawa: Canadian Dental Hygienists Association.

Centers for Disease Control and Prevention (1996). Oral cancer background papers. In Centers for Disease Control and Prevention, Oral Health,. [On-line]. CDCP. Available: <http://www.cdc.gov/nccdphp/oh/pdfs/full.pdf> [2000, January 19]

Chiodo, G. T., Eigner, T., & Rosenstein, D. I. (1986). Oral cancer detection The importance of routine screening for prolongation of survival. Postgraduate Medicine, *80*(2), 231-236.

Clovis, J. (1999). The professional status of dental hygiene in Canada Part One: Progress and challenges. The Canadian Dental Hygienists Association Journal Probe, *33*(6), 186-195.

Coburn, D. (1990). Canadian medicine: Dominance or proletarianization? The Milbank-Quarterly, *66*(supplement 2), 92-116.

Coburn, D. (1993). Professional powers in decline: Medicine in a changing Canada. In F. Hafferty & J. McKinlay (Eds.), The changing medical profession An international perspective (pp. 92-103). New York: Oxford University Press, Inc.

Coburn, D., Torrance, G., & Kaufert, J. (1983). Medical dominance in Canada in historical perspective: The rise and fall of medicine? International Journal of Health Services, *13*(3), 407-432.

Coffin, F. (1964). Cancer and the dental surgeon. British Dental Journal, *161*, 191-202.

College of Dental Hygienists of British Columbia (1999a). Bylaws (Draft). Victoria: Author.

College of Dental Hygienists of British Columbia (1999b). Practice Standards (Draft). Victoria: Author.

College of Dental Hygienists of British Columbia (1999c). Registrant's Handbook (2nd ed.). Victoria: Author.

College of Dental Hygienists of Ontario (1995). Consolidated submission to health professions regulatory advisory council on dental hygiene. Toronto: Author.

Commission on Dental Accreditation of Canada (1992). Dental hygiene The education process and education requirements. Ottawa: Author.

Contreras, B. (1995). Practice profile. Canadian Dental Hygienists Association Journal Probe, 29(2), 59-60.

Cooke, B. D., & Tapper-Jones, L. (1977). Recognition of oral cancer Causes of Delay. British Dental Journal, 142, 96-97.

Cormier, L., & Lavelle, C. L. (1995). The dental hygienist's role in screening for oral cancer. Canadian Dental Hygienists Association Journal Probe, 29(2), 53-56, 58-59.

Crabtree, B. F., & Miller, W. L. (Eds.). (1992). Doing qualitative research. Newbury Park: SAGE Publications, Inc.

Crissman, J. D., Gluckman, J., Whiteley, J., & Quenelle, D. (1980). Squamous-cell carcinoma of the floor of the mouth. Head and Neck Surgery, 3, 2-7.

Crompton, R. (1987). Gender, status and professionalism. Sociology, 21, 413-428.

Crosson, K. E. (1979). A first line of defense against oral cancer Oral-facial self-examination. Journal of the New Jersey Dental Association, Spring, 27-28.

Croucher, R. (1988). Professions, ideology, and change: The response of dentists to a provincial dental plan. In B. Bolaria & H. Dickinson (Eds.), Sociology of health care in Canada (pp. 346-359). Toronto: Harcourt Brace Jovanovich Canada Inc.

Darby, M., & Walsh, M. (Eds.). (1994a). Dental hygiene theory and practice. Philadelphia: W. B. Saunders Company.

Darby, M., & Walsh, M. (1994b). The evolving profession of dental hygiene. In Dental hygiene theory and practice (pp. 3-23). Philadelphia: W. B. Saunders Company.

Darby, M. L. (1982). Toward a clearer understanding of dental hygiene research, theory, and practice. In Proceedings of the Conference on Dental Hygiene Research. Ottawa: Minister of Supply and Services.

Davies, J. (1999, June 1). Dentists begin novel program to help patients cut smoking. Edmonton Journal.

Day, G. L., Blot, W. J., Austin, D. F., Bernstein, L., Greenberg, R. S., Preston-Martin, S., Schoenberg, J. B., Winn, D., McLaughlin, J. K., & Fraumeni, J. F. (1993). Racial differences in risk of oral and pharyngeal cancer: Alcohol, tobacco, and other determinants. Journal of the National Cancer Institute, 85(6), 465-473.

Denzin, N. (1978). The research act: A theoretical introduction to sociological methods. New York: McGraw-Hill.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (1994). Handbook of qualitative research. Thousand Oaks, California: SAGE Publications, Inc.

DePoy, E., & Gitlin, L. N. (1994). Introduction to research Multiple strategies for health and human services. St. Louis: Mosby.

Dignan, M. B. (1995). Measurement and evaluation of health education (3rd ed.). Springfield, Illinois: Charles C. Thomas.

Dillman, D. A. (1978). Mail and telephone surveys. The total design method. New York: John Wiley & Sons.

Dillman, D. A. (1983). Mail and other self-administered questionnaires. In P. H. Rossi, J. D. Wright, & A. B. Anderson (Eds.), Handbook of survey research New York: Academic Press, Inc.

Dolan, T. A., McGorray, S., Grinstead-Skigen, C., & Mecklenburg, R. (1997). Tobacco control activities in U.S. dental practices. Journal of the American Dental Association, 128, 1669-1679.

Donabedian, A. (1966). Evaluating the quality of medical care. Millbank Memorial Fund Quarterly, 44 (Part Two) (July), 166-266.

Downer, M. C., Julien, J. A., & Speight, P. M. (1998). An interim determination of health gain from oral cancer and precancer screening: 3. Preselecting high risk individuals. Community Dental Health, 15, 72-76.

Drury, T. F., Horowitz, A. M., Goodman, H. S., & Yellowitz, J. P. (1999). Evaluating dentists' reports of oral cancer examination (OCE) practices [Abstract]. Journal of Public Health Dentistry, 59(2), 106.

Dunning, J. (1976). Dental care for everyone: Problems and proposals. Cambridge, Massachusetts: Harvard University Press.

Elliott-Wellwood, J. (1989). Guidelines for dental professionals: Early detection and prevention of child abuse. Canadian Dental Hygienists Association Probe, 23(2), 85-86.

Elmore, J. G., & Horwitz, R. I. (1995). Oral cancer and mouthwash use: Evaluation of epidemiologic evidence. Otolaryngology and Head and Neck Surgery, 113, 253-261.

Enwonwe, C. O., & Meeks, V. I. (1995). Bionutrition and oral cancer in humans. Critical Review of Oral Biological Medicine, 6(1), 5-17.

Epp, J. (1986). Achieving health for all: A framework for health promotion. Ottawa: Minister of Supply and Services.

Esberoy, J., & Skogstad, G. (1991). Organized interests. In R. Krause & R. Wagenberg (Eds.), Introductory readings in Canadian government & politics (pp. 248-267). Mississauga, Ontario: Copp Clark Pitman Ltd.

Evans, R., Barer, M., & Marmor, T. (1994). Why are some people healthy and others not? The determinants of health of populations. New York: Aldone De Gruyter.

FDI Working Group (1994). Nutrition, diet and oral health. International Dental Journal, 44, 599-612.

Fedele, D. J., Jones, J. A., & Niessen, L. C. (1991). Oral cancer screening in the elderly. Journal of the American Geriatrics Society, 39, 920-925.

- Ferry, L. H., Grissino, L. M., & Runfola, P. S. (1999). Tobacco dependence curricula in US undergraduate medical education. Journal of the American Medical Association, 282(9), 825-829.
- Fink, A. (1995). The survey kit (Vols. 1-9). Thousand Oaks: SAGE Publications, Inc.
- First International Conference on Health Promotion (1986). Ottawa Charter for Health Promotion. Health Promotion, 1(1986), iii-v.
- Fontana, A., & Frey, J. (1994). Interviewing The art of science. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research. (pp. 361-376). Thousand Oaks: SAGE Publications, Inc.
- Forrest, J., & Horowitz, A. M. (1999). Dental hygienists knowledge and practice related to oral cancer risk assessment [Abstract]. Journal of Public Health Dentistry, 59(2), 106-107.
- Forrest, J., Horowitz, A. M., & Bross, T. (1997). Caries prevention knowledge, opinions and practices of dental hygienists: A pilot study. [Abstract]. Journal of Dental Research, 76, 215.
- Forrest, J. L., Horowitz, A. M., Drury, T. F., & Shmuely, Y. (1999). Dental hygienists knowledge and opinions related to providing oral cancer examinations [Abstract]. Journal of Dental Research, 78, 135.
- Forrest, J. L., Horowitz, A. M., & Shmuely, Y. (1998). Dental hygienists knowledge, opinions and practices related to oral cancer [Abstract]. Journal of Dental Research, 77, 826.
- Frazier, P. J., & Horowitz, A. M. (1995). Prevention: A public health perspective. In L. C. Cohen & H. C. Gift (Eds.), Disease prevention and oral health promotion (pp. 109-152). Copenhagen, Denmark: Munksgaard.
- Freed, J. R., Perry, D. A., & Kushman, J. E. (1997). Aspects of quality of dental hygiene care in supervised and unsupervised practices. Journal of Public Health Dentistry, 57, 68-75.
- Freidson, E. (1970). Profession of medicine: A study of the sociology of applied knowledge. New York: Dodd, Mead & Company.
- Freidson, E. (1971). General issues. In E. Freidson (Eds.), The professions and their prospects (pp. 17-57). Beverly Hills, California: Sage Publications, Inc.
- Freidson, E. (1983). The theory of the professions: State of the art. In R. Dingwall & P. Lewis (Eds.), The sociology of the professions (pp. 19-37). New York: St. Martin's Press.
- Freidson, E. (1984). The changing nature of professional control. Annual Review of Sociology, 10, 1-20.
- Freidson, E. (1994). Professionalism reborn Theory, prophecy and policy. Chicago: The University of Chicago Press.

Fulton, J. (1993). Canada's health system Bordering on the possible. Washington: Faulkner & Gray, Inc.

Garvin, C., & Sledge, S. H. (1992). Sexual harassment within dental offices in Washington State. Dental Hygiene, 66(4), 178-184.

Gaudette, L. A., Altmayer, C. A., Wysocki, M., & Gao, R. (1998). Cancer incidence and mortality across Canada. Health Reports, 10(1), 51-66..

Gaumer, G. L. (1984). Regulating health professionals: a review of the empirical literature. Milbank Memorial Fund Quarterly/ Health and Society, 62(3), 380-416.

Glaser, B., & Strauss, A. (1967). The discovery of grounded theory. Chicago: Aldine Publishing Company.

Glass, H., & Hicks, S. (1995). Healthy public policy, political structure, and health care organization. In M. Stewart (Eds.), Community nursing Promoting Canadians' health (pp. 200-219). Toronto: Harcourt Brace & Company Canada, Ltd.

Glass, R. T., Abla, M., & Wheatley, J. (1975). Teaching self-examination of the head and neck: Another aspect of preventive dentistry. Journal of the American Dental Association, 90(June), 1265-1268.

Goldstein, A. M., Blot, W. J., Greenberg, R. S., Schoenberg, J. B., Austin, D. F., Preston-Martin, S., Winn, D. M., Bernstein, L., McLaughlin, J. K., & Fraumeni, J. J. (1994). Familial risk in oral and pharyngeal cancer. European Journal of Cancer Part B, Oral Oncology, 30B, 319-322.

Goode, W. (1960). Community within a community: The professions. American Sociological Review, 22, 194-200.

Goodman, H. S., Horowitz, A. M., Yellowitz, J. A., & Drury, T. F. (1999). A survey of Maryland dentists' knowledge of oral cancer [Abstract]. Journal of Public Health Dentistry, 59(2), 106.

Gorsky, M., & Silverman, S. J. (1984). Denture wearing and oral cancer. Journal of Prosthetic Dentistry, 52, 164-170.

Goulding, M. (1993, October). Microdiagnostics in the dental hygiene practice. An exploration into the future. Research Conference of the Canadian Dental Hygienists Association, Niagara Falls.

Government of Alberta (1990). Principles and policies governing professional legislation in Alberta. Edmonton: Government of Alberta.

Government of British Columbia (1990). Health Professions Act. Victoria: Queen's Printer.

Government of British Columbia (1994). Dental Hygienists Regulation. Victoria: Queen's Printer.

Gower, A., & Kelly, K. (1988). How big should the sample be? Ottawa: Statistics Canada.

Graddy, E. (1991). Toward a general theory of occupational regulation. Social Science Quarterly, 72(4), 666-695.

Green, I. W., & Kreuter, M. W. (1991). Health promotion planning: An educational and environmental approach (2nd ed.). Mountain View, CA: Mayfield Publishing Company.

Green, I. W., & Kreuter, M. W. (1999). Health promotion planning: An educational and ecological approach (3rd ed.). Mountain View, CA: Mayfield Publishing Company.

Greenwood, E. (1957). Attributes of a profession. Social Work, 2 July, 45-55.

Guba, E., & Lincoln, Y. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research. (pp. 106-117). Thousand Oaks, California: Thousand Oaks, California.

Guggenheimer, J., Verbin, R. S., Johnson, J. T., Horkowitz, C. A., & Myers, E. N. (1989). Factors delaying the diagnosis of oral and oropharyngeal carcinomas. Cancer, 64, 932-935.

Guinn, J. (1990). Hiding in plain sight: Detection of oral cancer. Today's OR Nurse, 12(7), 124-126.

Gurenlian, J. (1994). Recording the dental hygiene diagnosis. Access (November), 16-18.

Gurenlian, J. R., McFall, D. B., Mounts, C., & Williams, C. (1996). Documenting oral cancer risk factors on health history forms [Abstract]. Journal of Dental Research, 75, 306.

Hancock, T. (1994). Health promotion in Canada: Did we win the battle but lose the war? In A. Pederson, M. O'Neill, & I. Rootman (Eds.), Health promotion in Canada Provincial, national & international perspectives (pp. 350-373). Toronto: W.B. Saunders Canada.

Havighurst, C. (1986). The changing locus of decision-making in the health care sector. Journal of Health Politics, Policy and Law, 11(4), 697-735.

Hawkins, R. J., McCabe, H., & Leake, J. L. (1998). Oral cancer screening: An evidence-based report. Canadian Journal of Community Dentistry, 13(2), 5-13.

Hazelkorn, H. M., & Christoffel, T. (1984). Denturism's challenge to the licensure system. Journal of Public Health Policy, 5(1), 104-117.

Health and Welfare Canada (1988a). The practice of dental hygiene in Canada: Descriptions, guidelines and recommendations: Report of the working group on the practice of dental hygiene in Canada. Ottawa, Canada: Minister of Supply and Services Canada.

Health and Welfare Canada (1988b). Clinical practice standards for dental hygienists in Canada Report of the working group on the practice of dental hygiene - Part two. Ottawa: Minister of Supply and Services Canada.

Health and Welfare Canada (1991). Oral health in Canada: Facing the future. Unpublished report. Ottawa: Health and Welfare Canada.

Health and Welfare Canada (1992). OECD health care reform project National paper Canada. Ottawa: Health and Welfare Canada.

Health Canada (1995). Health personnel in Canada 1992. Ottawa: Minister of Supply and Services Canada.

Health Professions Council (1993). Recommendations on the designation of dental hygiene. Victoria, B.C.: British Columbia Ministry of Health.

Health Professions Legislation Review (1989). Striking a new balance: a blueprint for the regulation of Ontario's health professions. Toronto: Government of Ontario.

Health Professions Regulatory Advisory Council (1996). Report and recommendations. Toronto: Government of Ontario.

Hebert, J. R., Landon, J., & Miller, D. R. (1993). Consumption of meat and fruit in relation to oral and esophageal cancer: A cross-national study. Nutrition and Cancer, 19(2), 169-179.

Horowitz, A. M. (1995). The public's oral health: The gaps between what we know and what we practice. Advanced Dental Research, 2(2), 91-95.

Horowitz, A. M., Drury, T. F., Goodman, H. S., & Yellowitz, J. A. (1999). Practices of Maryland dentists: Oral cancer prevention & early detection [Abstract]. Journal of Public Health Dentistry, 59(2), 106.

Horowitz, A. M., Drury, T. F., Goodman, H. S., & Yellowitz, J. A. (2000). Oral pharyngeal cancer Prevention and early detection. Journal of the American Dental Association, 131(April), 453-462.

Horowitz, A. M., Goodman, H. S., Yellowitz, J., & Drury, T. F. (1998a). Dentists' practices regarding oral cancer prevention and early detection [Abstract]. Journal of Dental Research, 77, 826.

Horowitz, A. M., Goodman, H. S., Yellowitz, J. A., & Nourjah, P. A. (1996). The need for health promotion in oral cancer prevention and early detection. Journal of Public Health Dentistry, 56(6), 319-330.

Horowitz, A. M., Moon, H., Goodman, H. S., & Yellowitz, J. A. (1998b). Maryland adults' knowledge of oral cancer and having oral cancer examinations. Journal of Public Health Dentistry, 58(4), 281-287.

Horowitz, A. M., & Nourjah, P. A. (1996). Factors associated with oral cancer examinations among U.S. adults 40 years of age and older. Journal of Public Health Dentistry, 56(6), 331-335.

Horowitz, A. M., Nourjah, P., & Gift, H. C. (1995). U.S. adult knowledge of risk factors and signs of oral cancers: 1990. Journal of the American Dental Association, 126(1), 39-45.

Ikeda, N., Ishii, T., Iida, S., & Kawai, T. (1991). Epidemiological study of oral leukoplakia based on mass screening for oral mucosal diseases in a selected Japanese population. Community Dentistry and Oral Epidemiology, *19*, 160-163.

Izquierdo, J. N. (1996). Oral and pharyngeal cancer research, prevention, and control: Quo vademus? Journal of Public Health Dentistry, *56*(6), 303-305.

Jackson, R., & Jackson, D. (1990). Politics in Canada Culture, institutions, behaviour and public policy (2nd ed.). Scarborough, Ontario: Prentice-Hall Canada Inc.

Janesick, V. J. (1994). The dance of qualitative research design. In N. K. Denzin & Y. S. Lincoln (Eds.). Handbook of Qualitative Research, (pp. 214-215). Thousand Oaks, California: SAGE Publications, Inc.

Johnson, N. W. (1991). Detection of patients and lesions at risk. Oral Cancer, *2*, 47-49.

Johnson, P. (1982). Supervision requirements for dental hygienists in Ontario: A policy analysis. Toronto: Ontario Dental Hygienists Association.

Johnson, P. (1988). Canadian dental hygienist study Part I: Demographic and educational profile highlights. Canadian Dental Hygienists Association Journal Probe, *22*(3), 124-127.

Johnson, P. (1989). Canadian dental hygienist study Part III: Dental hygiene workplace and hours of work. The Canadian Dental Hygienists Association Journal Probe, *23*(1), 26-29.

Johnson, P. M. (1992). Dental hygiene practice: International profile and future directions. International Dental Journal, *42*, 451-459.

Johnson, T. J. (1972). Professions and power. London: The MacMillan Press Ltd.

Jones, L. (1979). Dental hygiene as a female dominated semi-profession. The Canadian Dental Hygienist, *Fall, 13*, 62-66.

Jullien, J., Downer, M., Zakrzewska, J., & Speight, P. (1995). Evaluation of a screening test for the early detection of oral cancer and precancer. Community Dental Health, *12*, 3-7.

Kassirer, B., & Lessio, A. (1994). Initiating a smoking intervention program. Canadian Dental Hygienists Association Journal Probe, *28*(1), 21.

Kaugers, G. E., Burns, J. C., & Gunsolley, J. C. (1988). Epithelial dysplasia of the oral cavity and lips. Cancer, *62*, 2166-2170.

Kazanjian, A. (1993). Health-manpower planning or gender relations? The obvious and the oblique. In E. Riska & K. Wegar (Eds.), Gender, work and medicine Women and the medical division of labour. London: SAGE Publications Ltd.

Kernaghan, K. (1985). Public administration in Canada Selected readings (5th ed.). Toronto: Methuen Publications.

Kinnear, M., & Forgay, M. (1991). Monitoring levels of streptococcus mutans A clinical tool in caries prevention. Canadian Dental Hygienists Association Journal Probe, 25(2), 64-66.

Kraemer, L. G. (1994). Research and theory development in dental hygiene. In M. L. Darby & M. M. Walsh (Eds.), Dental hygiene theory and practice (pp. 1109-1124). Philadelphia: W. B. Saunders Company.

Krutchkoff, D. J., Chen, J., Eisenberg, E., & Katz, R. V. (1990). Oral cancer: A survey of 566 cases from the University of Connecticut Oral Pathology Biopsy Service, 1975-1986. Oral Surgery, Oral Medicine, Oral Pathology, 70, 192-198.

Krutchkoff, D. J., & Eisenberg, E. (1985). Lichenoid dysplasia: A distinct histopathologic entity. Oral Surgery, Oral Medicine, Oral Pathology, 30, 308-315.

Lalonde, M. (1974). A new perspective on the health of Canadians. Ottawa: Minister of Supply and Services.

Larson, M. S. (1977). The rise of professionalism: A sociological analysis. Berkeley, California: University of California Press.

Lauter, C. (1993). The status of dental hygiene as a profession: Perceptions of dental hygienists and dentists in Alberta. Unpublished doctoral dissertation, University of Calgary, Calgary.

Lauter, C. (1995). Is dental hygiene a profession? A literature review. Canadian Dental Hygienists Association Journal Probe, 29(4), 127-132.

Lauter, C. (1996a). A focus group study: Overview of the methodology. Canadian Dental Hygienists Association Journal Probe, 30(2), 53-56.

Lauter, C. (1996b). Towards the professional status of dental hygiene in Alberta. Canadian Dental Hygienists Association Journal Probe, 30(3), 93-98.

Leake, J. L., Main, P. A., & Woodward, G. L. (1996). Report on the RCDSO/CDHSRU workshop on developing clinical guidelines/standards of practice. Journal of the Canadian Dental Association, 62(7), 570-577.

Leake, J. L., & Woodward, G. L. (1994). Introduction to the quality assurance workshop in dentistry: Why dental educators need to learn how to develop practice guidelines. Journal of Dental Education, 58(8), 610-612.

Leong, I. T., Main, J. H., & Birt, B. D. (1995). Cancer of the tongue. Journal of the Canadian Dental Association, 61(9), 792-796.

Lewis, D. (1989). Epidemiologic trends and dental care issues relevant to future dental hygiene. The Canadian Dental Hygienists Association Journal probe, 24(3), 132-137.

Lincoln, Y., & Guba, E. (1985). Naturalistic inquiry. Beverly Hills, CA: SAGE Publications Inc.

Lipskie, T. L. (1998). A summary of cancer screening guidelines. In Health Canada - CDIC, [Online]. Available: http://www.hc-sc.gc.ca/hpb/lcdc/publicat/cdic/cdic193/cd193e_e.html [2000, January 19]

Locke, L. F., Spirduso, W. W., & Silverman, S. J. (1993). Proposals that work: A guide for planning dissertations and grant proposals (3rd ed.). Newbury Park: SAGE Publications, Inc.

Love, R. R. (1988). The physician's role in cancer prevention and screening. Cancer Bulletin, 40, 380-383.

Lumerman, H., Freedman, P., & Kerpel, S. (1995). Oral epithelial dysplasia and the development of invasive squamous cell carcinoma. Oral Surgery, Oral Medicine, Oral Pathology, 79, 321-329.

Lunn, R. (1997). Oral management of the cancer patient. Part I: Overview of cancer and oral cancer. Canadian Dental Hygienists Association Journal Probe, 31(4), 137-141.

Lynch, G. R., & Prout, M. N. (1986). Screening for cancer by residents in an internal medicine program. Journal of Medical Education, 61, 387-393.

MacDonald, K. M. (1995). The sociology of the professions. London: SAGE Publications Ltd.

MacDonald, L. L. (1994). Concepts of health and wellness. In M. L. Darby & M. M. Walsh (Eds.), Dental hygiene: Theory and practice (pp. 55-73). Philadelphia: W.B. Saunders Company.

MacFarlane, G. J., Boyle, P., Evstifeeva, T. V., Robertson, C., & Scully, C. (1994). Rising trends of oral cancer mortality among males worldwide: The return of an old public health problem. Cancer causes and control, 5(3), 259-265.

Maguire, B. T., & Roberts, E. E. (1994). Dentists' examination of the oral mucosa to detect oral cancer [Abstract]. Journal of Public Health Dentistry, 53, 115.

Manga, P. (1997). The independent practice of dental hygiene: Political economy, professionalism and policy. The Canadian Dental Hygienists Association Journal Probe, 31(1), 16-18, 20.

Manga, P., & Campbell, T. (1994). Health human resources substitution: A major area of reform towards a more cost-effective health care system (Economic Projects No. Monograph 94-101). Queens. University of Ottawa.

Manitoba Law Reform Commission (1993). Future of occupational legislation in Manitoba. Winnipeg, Manitoba: Manitoba Law Reform Commission.

Mao, E. J., Schwartz, S. M., Daling, J. R., Oda, D., Tickman, L., & Beckman, A. (1996). Human papillomaviruses and p53 mutations in normal, premalignant and malignant oral epithelia. International Journal of Cancer, 69, 152-158.

Marshall, C., & Rossman, G. (1989). Designing qualitative research. Newbury Park: SAGE Publications, Inc.

Mashberg, A., & Garfinkel, M. A. (1978). Early diagnosis of oral cancer: The erythroplastic lesion in high-risk sites. CA-A Cancer Journal for Clinicians, 28(5), 297-303.

Mashberg, A., & Samit, A. (1989). Early detection, diagnosis, and management of oral and oropharyngeal cancer. CA-A Cancer Journal for Clinicians, 39(2), 67-88.

Mashberg, A., & Samit, A. (1995). Early diagnosis of asymptomatic oral and oropharyngeal squamous cancers. C-A A Cancer Journal for Clinicians, 45, 328-351.

Mathew, B., Sankaranarayanan, R., Wesley, R., & Krishnan Nair, M. (1995). Evaluation of mouth self-examination in the control of oral cancer. British Journal of Cancer, 71, 397-399.

Maxwell, J., & Maxwell, M. (1978). Occupational therapy: The diffident profession. Kingston, Ontario: Queen's University.

McDaniel, R. K. (1999). Clinical aspects of the "other" oral malignancies excluding squamous cell carcinoma. Oral Health, 89(5), 29-31.

McDonald-Wright, A. (1995). Independent practice for dental hygienists. Unpublished manuscript.

McFarlane, B. A. (1964). Dental manpower in Canada Report prepared for the Royal Commission on Health Services in Canada. Ottawa: Queen's Printer.

McIntyre, E. (1989). Dental hygiene: The consequences of a feminized profession. Canadian Dental Hygienists Association Journal Probe, 23(4), 186-189.

McKinney, B. E. (1994). Quality assurance in dental hygiene. In M. L. Darby & M. M. Walsh (Eds.), Dental hygiene Theory and practice (pp. 1097-1107). Philadelphia: W.B. Saunders.

Meskin, L. H. (1994). Oral cancer - The forgotten issue. Journal of the American Dental Association, 125, 1042-1045.

Miller, D. C. (1991). Handbook of research design and social measurement (5th ed.). Newbury Park: SAGE Publications, Inc.

Millerson, G. L. (1964). The qualifying association. London: Routledge and Kegan Paul Publishers.

Monteith, J. (1984). Modern age demands review of supervision of dental hygienists. Ontario Dentist, October.

Motley, W. E. (1986). History of the American Dental Hygienists Association. Chicago: American Dental Hygienists Association.

National Cancer Institute of Canada (1999). Canadian Cancer Statistics 1999. Toronto, Canada: Author.

National Dental Hygiene Certification Board (1996). National Dental Hygiene Certification Board annual report. Ottawa: National Dental Hygiene Certification Board.

National Forum on Health (1997). Report and recommendations. Ottawa: Secretariat, National Forum on Health.

Nettleton, S. (1992). Power, pain and dentistry. Buckingham: Open University Press.

Nielsen-Thompson, N., & Brine, P. (1997). Expanding the physician-substitute concept to oral health care practitioners. Journal of Public Health Policy, 18(1), 80-97.

Niessen, L. C., Jones, J. A., & Lonergan, J. J. (1986). Oral examination of the geriatric patient. Geriatric Medicine Today, 5, 113-116.

O'Donnell, J. F., Bakemeier, R. F., Chamberlain, R. M., Gallagher, R., Kupchella, C., Parker, J. A., Hill, G., & Brooks, C. (1992). Changing the cancer curriculum: A curriculum committee's response to the results of the AACE Cancer Education Survey II. Journal of Cancer Education, 7, 115-124.

O'Keefe, J., Lessio, A., & Kassirer, B. (1995). A pilot smoking cessation program involving dental offices in the Borough of East York, Ontario: An initial evaluation. Journal of the Canadian Dental Association, 61(1), 65-67.

O'Malley, M. S., & Fletcher, S. W. (1987). Screening for breast cancer with breast self-examination: A critical review. Journal of the American Medical Association, 257, 2197-2203.

Office of Cancer Communications, National Cancer Institute (1997). The public's perception of medical and cancer research. Bethesda: National Cancer Institute.

Ontario Dental Hygienists Association (1996). Dental Hygienist: Professional partner in oral health. Toronto, Ontario: Globe & Mail, Special Insert.

Oral Health Division, Centers for Disease Control and Prevention (1996). Oral cancer background papers. Atlanta: Centers for Disease Control and Prevention.

Organization for Economic Co-operation and Development (1993). OECD health systems Facts and trends 1960-1991. Paris: OECD.

Organization for Economic Co-operation and Development (1994). The reform of health care systems A review of seventeen OECD countries. Paris: OECD.

Pal, L. A. (1992). Public policy analysis An introduction (2nd ed.). Scarborough, Ontario: Nelson Canada.

Palys, T. (1992). Research decisions Quantitative and qualitative perspectives. Toronto: Harcourt Brace Jovanovich Canada Inc.

Parkin, F. (1979). Marxism and class theory: A bourgeois critique. London: Tavistock.

Paterson, I. C., Everson, J. W., & Prime, S. S. (1996). Molecular changes in oral cancer may reflect aetiology and ethnic origin. European Journal of Cancer Part B, Oral Oncology, 32B, 150-152.

- Patton, M. (1990). Qualitative evaluation and research methods (2nd ed.). Newbury Park: SAGE Publications, Inc.
- Pavalko, R. (1988). Sociology of occupations and professions (2nd ed.). Itasca, Illinois: F. E. Peacock Publishers, Inc.
- Pederson, A., Edwards, R., Kelnor, M., Marshall, V., & Allison, K. (1988). Coordinating healthy public policy An analytic literature review and bibliography. Toronto: Minister of Health and Welfare.
- Pederson, A., O'Neill, M., & Rootman, I. (Eds.). (1994). Health promotion in Canada Provincial, national & international perspectives. Toronto: W.B. Saunders Canada.
- Peters, E., & McGaw, W. T. (1995). Detection of premalignant oral lesions: a 10 year retrospective study in Alberta. Journal of the Canadian Dental Association, 61(9), 775-778.
- Pimlott, J. (1994). Assessment of the dentition. In M. L. Darby & M. M. Walsh (Eds.). Dental hygiene Theory and practice. Philadelphia: W. B. Saunders Company.
- Pogrel, M. A. (1974). The dentist and oral cancer in the North East of Scotland. British Dental Journal, 137, 15-20.
- Pritzel, S. J., & Green, T. G. (1990). Working relationships between dentists and dental hygienists: Their perceptions. Journal of Dental Hygiene, 64(6), 268-272.
- Pross, P. (1992). Group politics and public policy (2nd ed.). Toronto: Oxford University Press Canada.
- Prout, M. N., Heeren, T. C., Barber, C. E., Rose, L., Geller, A., Witzburg, R., & Koh, H. (1990). Use of health services before diagnosis of head and neck cancer among Boston residents. American Journal of Preventive Medicine, 6, 77-83.
- Prout, M. N., Morris, S. J., Witsburg, R. A., Hurley, C., & Chatterjee, S. (1992). A multidisciplinary educational program to promote head and neck cancer screening. Journal of Cancer Education, 7, 139-146.
- Province of British Columbia (1994). Order in Council No. 1564 Dental hygienists regulation. Victoria: Province of British Columbia.
- Province of Nova Scotia (1992). Dental Act, S.N.S., c.3.
- Province of Nova Scotia (1994). Dental Hygienists Regulation, N.S. Reg. 67/94.
- Provincial Dental Board of Nova Scotia (1997). Mandatory Continuing Education Guidelines (Revised April 11, 1997). Halifax: Author.
- Province of Nova Scotia (2000). Medical Act, Chapter 10 of the Acts of 1995-96, amended 1998. In Legislation of the Province of Nova Scotia, [on-line]. Legislation of the Province of Nova Scotia. Available: <http://www.gov.ns.ca/legi/bills.htm> [2000, August 26].

Prowse, N., Mitchell, T., & Butt, G. (1989). Dental hygiene practice model: Application to dental hygiene education. Canadian Dental Hygienists Association Journal Probe, 23(1), 35-37.

Rankin, K. V., Burzynski, N. J., Silverman, S., & Scheetz, J. P. (1999). Cancer curricula in U.S. dental schools. Journal of Cancer Education, 14, 8-12.

Reisine, S., & Locker, D. (1995). Social, psychological, and economic impacts of oral conditions and treatments. In L. K. Cohen & H. C. Gift (Eds.), Disease prevention and oral health promotion Socio-dental sciences in action (pp. 33-71). London: Munksgaard.

Reverby, S. (1990). A caring dilemma: Womanhood and nursing in historical perspective. In P. Conrad & R. Kern (Eds.), Sociology of health & illness Critical perspectives (pp. 184-195). New York: St. Martin's Press.

Rootman, I., & Raeburn, J. (1994). The concept of health. In A. Pederson, M. O'Neill, & I. Rootman (Eds.), Health promotion in Canada Provincial, national & international perspectives. Toronto: Harcourt Brace & Company, Canada.

Rosati, C. (1994). Prevention of oral cancer. In Canadian Task Force on the Periodic Health Examination (Eds.), The Canadian guide to clinical preventive health care (pp. 839-847). Ottawa: Minister of Supply and Services Canada.

Rosenberg, D., & Cretin, S. (1989). Use of meta-analysis to evaluate tlonium chloride in oral cancer screening. Oral Surgery, Oral Medicine, Oral Pathology, 67, 621-627.

Rossi, P., & Freeman, H. (1993). Evaluation A systemic approach. Newbury Park: SAGE Publications, Inc.

Rowe, D., Gallagher, R. P., Warshawski, L., & Carruthers, A. (1994). Females vastly outnumber males in basal cell carcinoma of the upper lip. A peculiar subset of high risk young females is described. Journal of Dermatologic Surgery and Oncology, 20(11), 754-756.

Rozovsky, L. E. (1987). Canadian dental law. Toronto and Vancouver: Butterworths.

Sadowsky, D., Kunzel, C., & Phelan, J. (1988). Dentists' knowledge, case-finding behavior, and confirmed diagnosis of oral cancer. Journal of Cancer Education, 3(2), 127-134.

Salant, P., & Dillman, D. A. (1994). How to conduct your own survey. New York: Wiley.

Schein, E. (1973). Professional education: Some new directions. New York: McGraw-Hill.

Schnetler, J. F. (1992). Oral cancer diagnosis and delays in referral. British Journal of Oral and Maxillofacial Surgery, 30, 210-213.

Schoen, M. (1989). A quality assessment system: The search for validity. Journal of Dental Education, 53, 658.

- Schon, D. (1983). The reflective practitioner How professionals think in action. New York: Basic Books, Inc., Publishers.
- Shafer, W. G. (1975). Initial mismanagement and delay in diagnosis of oral cancer. Journal of the American Dental Association, 90, 1262-1264.
- Shafer, W. G., & Waldron, C. A. (1975). Erythroplakia of the oral cavity. Cancer, 36, 1021-1028.
- Shklar, G. (1999). Development of experimental oral carcinogenesis and its impact on current oral cancer research. Journal of Dental Research, 78(12), 1770.
- Silverberg, E., & Lubers, J. A. (1989). Cancer statistics, 1989. CA-A Cancer Journal for Clinicians, 39(1), 3-20.
- Silverman, S. (1992). Precancerous lesions and oral cancer in the elderly. Clinics in Geriatric Medicine, 8(3), 529-541.
- Silverman, S. J., & Dillon, W. P. (1990). Diagnosis. In S. J. Silverman (Eds.), Oral cancer (pp. 41-60). Atlanta, GA: American Cancer Society.
- Silverman, S. J., Gorsky, M., & Lozada, F. (1984). Oral leuoplakia and malignant transformation: A follow-up study of 257 patients. Cancer, 53, 563-568.
- Silverman, S. J., & Shillitoe, E. J. (1990). Etiology and predisposing factors. In S. J. Silverman (Eds.), Oral cancer (pp. 7-30). Atlanta, GA: American Cancer Society.
- Simpson, J., & Amer, S. (1995). Family violence - An issue of our times. Canadian Dental Hygienists Association Journal Probe, 29(3), 79.
- Smart, C. R. (1993). Screening for cancer of the aerodigestive tract. Cancer, 72, 1061-1065.
- Smith, D. (1991). Scratching the surface of professionalism. The Canadian Dental Hygienists Association Journal Probe, 25(3), 113-114.
- Soderstrom, L. (1978). The canadian health system. London: Crom Helm Ltd.
- Spitz, M. R., Chamberlain, R. M., Sider, J. G., & Fueger, J. J. (1992). Cancer prevention practices among Texas primary care physicians. Journal of Cancer Education, 7, 55-60.
- Spitzer, W. O., Hill, G. B., Chambers, L. W., Helliwell, B. E., & Murphy, H. B. (1975). The occupation of fishing as a risk factor in cancer of the lip. New England Journal of Medicine, 293(9), 419-424.
- Starr, P. (1982). The social transformation of American medicine. New York: Basic Books.
- Steering Committee for Canadian Cancer Statistics (1997). Cancer incidence and mortality, 1997 No. Statistics Canada.

Stewart, M. J. (Ed.). (1995). Community nursing Promoting Canadians' health. Toronto: Harcourt Brace & Company Canada, Ltd.

Stewart, M. J., & Langille, L. L. (1995). Primary health care principles: Core of community health nursing. In M. Stewart (Ed.), Community nursing Promoting Canadians' health (pp. 62-88). Toronto: Harcourt Brace & Company Canada, Ltd.

Strauss, A., & Corbin, J. (1990). Basics of qualitative research. Newbury Park: SAGE Publications, Inc.

Sugarman, P. B., & Shillitoe, E. J. (1997). The high risk human papillomaviruses and oral cancer: Evidence for and against a causal relationship. Oral Diseases, *3*, 130-147.

Sunell, S. (1993). Report on the CDHA/CFDE/ACFD strategic planning session for dental hygiene. Canadian Dental Hygienists Association Probe, *27*(6), 204-205.

Swango, P. A. (1996). Cancers of the oral cavity and pharynx in the United States: An epidemiologic overview. Journal of Public Health Dentistry, *56*(6), 309-318.

Tan, M. M., Darby, M. L., & Walsh, M. M. (1994). Extraoral and intraoral clinical assessment. In M. L. Darby & M. M. Walsh (Eds.), Dental hygiene Theory and practice (pp. 299-325). Philadelphia: W.B. Saunders Company.

Tepperman, B. S., & Fitzpatrick, P. J. (1981). Second respiratory and upper digestive tract cancers after oral cancer. The Lancet, *2*, 547-549.

Thomas, J. E., & Faecher, R. S. (1992). A physician's guide to early detection of oral cancer. Geriatrics, *47*(1), 58-62.

Thompson, V., & Borowko, M. (1994). A new dental health initiative in British Columbia. Canadian Dental Hygienists Association Journal Probe, *28*(3), 105-107.

Trebilcock, M. J. (1978). The professions and public policy: the nature of the agenda. In P. Slayton & M. Trebilcock (Eds.), The professions and public policy. Toronto: University of Toronto Press.

Tuohy, C. (1992). Policy and politics in Canada Institutionalized ambivalence. Philadelphia: Temple University Press.

Tuohy, C., & Wolfson, A. (1977). The political economy of professionalism. In Consumer Research Council Canada Four aspects of professionalism (pp. 41-86). Ottawa: Consumer Research Council Canada.

U.S. Preventive Services Task Force (1996). Guide to clinical preventive services Report of the U.S. preventive services task force (2nd ed.). Baltimore: Williams & Wilkins.

Vokes, E. E., Weichselbaum, R. R., Lippman, S. M., & Hong, W. K. (1993). Head and neck cancer. New England Journal of Medicine, *328*, 184-194.

Walton, L., Silverman, S., Ramos, D., & Costa, C. (1992). Dental student education in oncology: Design and assessment of an undergraduate course. Journal of Cancer Education, *7*(3), 221-225.

Warburton, R., & Carroll, W. (1988). Class and gender in nursing. In S. B. Bolaria & H. Dickinson (Eds.), Sociology of health care in Canada (pp. 364-374). Toronto: Harcourt Brace Jovanovich Canada Inc.

Warnakulasuriya, K. A., & Johnson, N. W. (1999). Dentists and oral cancer prevention in the UK: Opinions, attitudes and practices to screening for mucosal lesions and to counselling patients on tobacco and alcohol use: Baseline data from 1991. Oral Diseases, 5, 10-14.

Warnakulasuriya, S., & Pindborg, J. J. (1990). Reliability of oral precancer screening by primary health care workers in Sri Lanka. Community Dental Journal, 7, 73-79.

Weinberg, R. A. (1996). How cancer arises. Scientific American, 275, 62-71.

Wilkins, E. (1994). Clinical practice of the dental hygienist (7th ed.). Philadelphia: Williams & Wilkins.

Williams, P. A., & Williams, M. (1988). Barriers and incentives for primary care physicians in cancer prevention and detection. Cancer, 61, 2382-2390.

Willis, E. (1983). Medical dominance. North Sydney, Australia: George Allen & Unwin Australia Pty Ltd.

Wilson, M. (1993). Family violence: A problem with relevance for the dental hygienist. Canadian Dental Hygienists Association Journal Probe, 27(5), 173-175.

Winn, D. M. (1995). Diet and nutrition in the etiology of oral cancer. American Journal of Clinical Nutrition, 61(suppl), 437S-445S.

Winn, D. M., Diehl, S., Horowitz, A. M., Gutkind, S., Sandberg, A., & Kleinman, D. (1998). Scientific progress in understanding oral and pharyngeal cancers. Journal of the American Dental Association, 129, 713-718.

Witz, A. (1992). Professions and patriarchy. London: Routledge Publishers.

Woodall, I. (1993). Comprehensive dental hygiene care (4th ed.). St. Louis: Mosby-Year Book, Inc.

World Health Organization (1978). Report of the International Conference on Primary Health Care in Alma Ata, USSR. Geneva: Author.

World Health Organization (1988). From Alma Ata to the year 2000: Reflections at the midpoint. Geneva: Author.

World Health Organization (1995). Renewing the health-for-all strategy: Elaboration of a policy for equity, solidarity and health. Geneva: Author.

World Health Organization, Health & Welfare Canada, & Canadian Public Health Association (1986). Ottawa charter for health promotion. Ottawa: Canadian Public Health Association.

Wright, B., Howell, R., & Dewar, R. (2000). A 15 year review of oral cancer in Nova Scotia. [Abstract] Abstracts and Clinical Pathologic Conference Cases, American Academy of Oral and Maxillofacial Pathology, 54th Annual Meeting & Continuing Education Program (April 28-May 3), 12.

Yellowitz, J. A., Horowitz, A. M., Drury, T. F., & Goodman, H. S. (2000). Survey of U.S. dentists' knowledge and opinions about oral pharyngeal cancer. Journal of the American Dental Association, 131(May), 653-661.

Yellowitz, J., Horowitz, A. M., Goodman, H. S., Canto, M., & Farooq, N. (1998). Knowledge, opinions and practices of general dentists regarding oral cancer: A pilot survey. Journal of the American Dental Association, 129, 579-583.

Yellowitz, J. A., Goodman, H. S., Horowitz, A. M., & Al-Tannir, M. S. (1995). Assessment of alcohol and tobacco use in dental schools health history forms. Journal of Dental Education, 59, 1091-1096.

Yu, M. C., & Henderson, B. E. (1996). Nasopharyngeal cancer. In D. Schottenfeld & J. F. Fraumeni Jr. (Eds.), Cancer epidemiology and prevention (pp. 613-614). New York: Oxford University Press.