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## The Collaboration Gap

Professor Robinson hits the nail on the head when he states that one of the disappointments in our health care is the gap between potential and achievement. Enormous advances are being made in the basic sciences, from electromicroscopy to nuclear physics. The nature of D.N.A. has been unravelled, genetic engineering is around the corner, and engineering achievements make the day of the Bionic Woman a real possibility. Yet, in everyday practice, many of the commonly available techniques are not in use.

We have no central registry for many important conditions and thousands of operations are performed on individual initiative without an organized follow-up. Unnecessary duplication of effort occurs frequently, thanks to inadequate documentation. Patients sometimes arrive in specialists' offices without any information. Radiological examinations have to be repeated in different hospitals because of difficulties in coordination.

This issue emphasizes the need for co-operation. Professor Robinson leads the campaign with an adequate plea. A Central Cytology Registry is outlined by Dr. G. A. Anderson. It promises to bring about a province-wide quality control program for the study and statistical analysis of malignant and pre-malignant conditions of the cervix.

Drs. Naqvi and Moffitt have combined to outline the principle requirements and potential of modern equipment in monitoring the critically ill. Intensive Care centers have saved thousands of lives, but many of the devices are complicated and expensive. Their article brings a refreshingly practical approach and will repay careful reading.

Perhaps the most urgent and strong call comes from Drs. Murray and Lawrence. The call of the elderly. In a recent address, Dr. John Bayne, of McMaster University told doctors, "If you can't manage the aged, send them elsewhere!"

The doctors clearly specify a rational attitude to this increasing section of the community. Looking after the elderly requires devotion and patience. It is time consuming, but brings contentment to the enthusiastic geriatrician. Individual enthusiasm, however, is not enough. A geriatric service is needed and we should be grateful for their charion call.

Let's not forget the need for practical clinical judgment and accurate pharmaceutical prescription. Dr. Dill's article on asthma and Mr. Hall's contribution on theophylline will help practising physicians with a distressing group of chest ailments whose primary etiology remains to be elucidated.

Finally, what sort of shape are we doctors in? Read "The Bodycheck Analysis" by Dr. Wheeler, *et al.* □

B.J.S.G.

# "Collaboration in Cancer Detection"

S. C. Robinson,\* M.D., F.R.C.S.(C),

Halifax, N.S.

One of the great disappointments in our health care system is the gap between potential and achievement. How much illness and suffering there is due to causes we well understand and could prevent! What needless cost to treat — often ineffectively — where prevention at low cost would have been effective!

But this has become a society dedicated to shifting responsibility onto others. As physicians, we have frequently left health education, case finding, and political pressure to remedy unhealthy environmental situation, up to others — the lay organizations or just 'the public'. Nurses care for patients but are still doing precious little teaching, missing the golden opportunities provided by the direct personal contact their service entails.

Government looks at soaring health costs and rightly wonders why the provision of all these expensive services has not led to significant improvement in the nation's health.

And the public, except for a small segment who seemingly overuse the various facilities, choose to ignore all the advice and warnings which exhort them to take some personal action either to modify life style or present for "preventive" examination.

Since all this leads to needless suffering from lung cancer, child abuse and neglect; the various conditions associated with obesity and alcoholism, gastrointestinal disorders too numerous to mention separately; and carcinoma of the breast, endometrium, and cervix — to list just a few — we all present the appearance of failure.

The doctors blame the government; the government, the doctors; the public blames both, while we throw up our hands in despair saying — "What can you do for people who won't do anything for themselves"?

\*Professor, Department of Obstetrics and Gynaecology, Dalhousie University, Halifax, N.S.

If we could all get our priorities straight and work in a goal directed manner rather than from day to day 'band aiding' crises, much could be done.

Elsewhere in this issue of the Bulletin is an excellent case in point. The establishment — at relatively low cost — of a gynaecological cytology registry is a beautiful example of good collaborative, goal oriented planning. The purpose is simply to reduce the incidence and cost of invasive carcinoma of the cervix. Why is this necessary?

- a) because all the technology and services already exist.
- b) because despite these, the incidence of this disease in Nova Scotia has not really altered in 30 years.

This facility will make it possible to diminish over-utilization by one segment of the public — many of whom have two or even three Pap smears per year — and to identify that large segment of the population at risk who never have Pap smears and from which the invasive cases of carcinoma of the cervix arise.

The population at risk will have to be identified individually by the registry, using census rolls. We shall then have to provide the leadership along with the nursing profession, the established health services and the Cancer Society, to go directly to individuals with the message and technique of cancer detection by cytology.

To refuse this benefit would then have to be an ultimate personal choice which could not be shifted onto anyone else!

This is no gamble — success is assured. It has already been done<sup>1, 2</sup> — but not in Nova Scotia! □

## References

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# A Central Cytology Registry for Nova Scotia

G. H. Anderson\*, M.B., B.S.,

Halifax, N.S.

## INTRODUCTION

Since 1960, the Uterine Cancer Detection Program, under the able guidance of Dr. S. C. Robinson and with the co-operation of practicing physicians throughout the province, has provided the nucleus of a cytology registry by collecting information relating to women having abnormal Pap smear findings. Since 1960, the number of smears examined annually in the province has increased from 3,000 per year to over 120,000 in 1977.

In 1974, the Pap Smear Committee of The Medical Society of Nova Scotia recommended that a Central Cytology Registry be established in Nova Scotia. During the subsequent four years, approval has been received from the Department of Health to proceed with the development of a Central Cytology Registry, to be located in the Department of Pathology, Victoria General Hospital, utilising modern data collection and storage facilities. This article outlines the aims and the functions of the Central Cytology Registry, which it is hoped will be in operation by the fall of 1978.

## DEFINITION

The Central Cytology Registry will function as a registry of gynecological cytology reports from all the laboratories providing this service in the Province of Nova Scotia. In addition, the results of appropriate colposcopic examinations and cervical biopsies on these patients will be entered in the registry.

Information from the registry will allow province-wide assessment of newer methods of treatment, such as by colposcopy and by conisation of lesions of the cervix.

## OBJECTIVES OF THE CYTOLOGY REGISTRY

**1. To provide complete and accurate information regarding the numbers and locations of women being screened, and the number of Pap smears being examined annually.**

At the present time, although over 120,000 Pap smear examinations are performed each year, we do not know how many individual patients have Pap smears each year. There is little information regarding the distribution of women having Pap smears in different areas in the province. A computerized comprehensive registry will be able to provide these facts and, using this information, it should be possible to determine which population groups or age groups in the province are underserved or overserved from the point of view of frequency of Pap smears. It is likely that the Pap smear program is not reaching many women at highest risk — the older women in the lower socio-economic groups — but without a central registry which includes all of the women having Pap smears in the province, this information cannot be determined.

\*Director, Section of Cytopathology, Department of Pathology, Victoria General Hospital, Halifax, N.S.

**2. To provide information for use in the establishment of a province-wide quality control program in the area of gynecological cytology.**

At the present time, there is no province-wide quality control program for gynecological cytology, such as exists for a number of other laboratory disciplines such as chemistry and haematology. A Central Cytology Registry would allow the establishment of such a program which would aim to evaluate both the quality of the slides being received in the laboratories for screening, and the reliability of the reports being produced by each laboratory. The information collected by the registry would allow each laboratory to evaluate its false positive and false negative rates, and to take appropriate action if these seem to be too high.

**3. To provide information from which it may be possible to base a decision to change the current recommendation for routine Pap smears from annually to once every second or third year, for selected women.**

Before a recommendation of this sort can even be considered, one must know accurately the reliability of the existing cytology service in the province; this information can only be obtained by means of a central registry.

**4. To provide a comprehensive province-wide system of follow-up for cases with abnormal cytology.**

The follow-up of patients with abnormal cytology has, until the present time, been the responsibility of the Uterine Cancer Detection program. In recent years, this has involved a considerable amount of manual clerical work since many hundreds of patients are now involved each year. The Central Cytology Registry computer will be programmed to produce follow-up letters at appropriate intervals, similar to those sent out by the Uterine Cancer Detection Program; the information received from the follow-up letters will be incorporated in the registry.

The most important aspect of follow-up is to ensure that action has been taken following the discovery of a cytological abnormality. However, long term follow-up of patients, who have received treatment following diagnosis, could also be done by the Registry. If it seems appropriate, the doctors of patients with previously normal smears could be notified annually of the need for repeat examinations.

Finally, if the Cytology Registry were linked to a Population Registry, it would be possible to identify women who have never had a cytologic examination and encourage these women to enter the program, since it is from this group that the majority of cases of invasive carcinoma are found each year. It is not planned to introduce these last two steps at the present time, although it may be appropriate at some future date.

## 5. To provide epidemiological data related to malignant and pre-malignant disease of the cervix.

Nova Scotia has a fairly stable population of relatively small size, with approximately 250,000 women at risk to developing cancer of the cervix. For this reason, it provides a good model which may help to answer some important questions in relation to the functioning and efficacy of cervical cancer screening programs in general.

Data collected by the Central Cytology Registry can be used to evaluate patterns of dysplasia, carcinoma-in-situ and invasive carcinoma of the cervix in the province, to determine age-specific prevalence and incidence rates, and to identify any change in them. Using this information, one can determine the effect of the cytology program on malignant and pre-malignant disease of the cervix in Nova Scotia and hopefully modify the program, where necessary, to make it more effective.

### METHOD OF OPERATION

Diagnostic cytopathology services are provided at eight laboratories in Nova Scotia. While the majority of the Pap smears are seen at the Cytopathology Section of the Victoria General Hospital and the Halifax Infirmary, 25% are seen in six regional laboratories around the province. One of the first pre-requisites of a cytology registry is that a standardised method of reporting should be used by those contributing information to the registry. This goal was achieved three years ago, with the co-operation of the members of the Section for Pathology; the majority of laboratories in the province are now using a standardised report form and all pathologists are using a uniform diagnostic terminology.

It is planned that one copy of each gynecological cytology report will be sent to the Cytology Registry by all participating laboratories, and this information will be entered by computer terminal into the registry. Basic to the success of the registry, is the necessity for accurate and legible patient identification, including the patient's full name, M.S.I. number, year of birth and where applicable, maiden name, and a plea is made here for all those submitting Pap smears to provide this basic information.

Cytology reports from individual laboratories will continue to be sent out from these laboratories as they are at the present time, with the function of the registry being primarily to collate the large amount of information which is now being generated annually.

### PATIENT-FOLLOW UP

For the past seventeen years, patient follow-up has been a function of the Uterine Cancer Detection Program, which has followed up all patients in whom a cytological abnormality has been reported. The purpose of this program has been to ensure that appropriate action is taken following the discovery of such an abnormality, and this function will now be taken over by the Central Cytology Registry. The mechanism of follow-up, for those patients having a cytological abnormality, will be by means of a letter generated by the computer on the basis of the report. The letter requesting follow-up information, will be sent out to the doctor who performed the Pap smear, in the same way that a request for follow-up information has been sent from the Uterine Cancer Detection Program office. The co-operation of physicians around the province in providing this informa-

tion has been invaluable in the past, and it is hoped that their continuing co-operation will help the new Central Cytology Registry to make a useful contribution to advancing knowledge in the study of cancer of the cervix, and to improving the efficacy of the screening program in Nova Scotia. □



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# Primary Health Care and the Senior Citizen

Martha K. Laurence,\* B.S., M.S.W., Ph.D.,  
Halifax, N.S.

Approximately one in ten Canadians is over the age of sixty-five, and predictions have been made that the number will double shortly after the turn of the century. The age distribution is changing such that some gerontologists are predicting that as many as a quarter to a third of the population will be in the most-major wage earning period of their lives. The issues of forced retirement, early retirement, second careers, revised value structures and expectations about the quality of life, and impending social changes are bringing attention and focus on the elderly in the Country. Put in other terms, the predicted rate of increase in the over sixty-five population between now and the year 2001 will be 121% versus 42% for the rest of the population.

Health care utilization expenditures look something like this for Nova Scotia. Slightly under half of all office visits (40%) to practising physicians are by persons over the age of sixty-five. Roughly a third of hospital admissions and approximately a quarter of our health care dollars are spent on that 10% of the population, and these figures do not reflect those uninsured and health-related services which, in various forms and pockets of concentration, are rendered in part through our system of welfare and social services.

Is this current interest in aging a fad, a bandwagon? — perhaps; the elderly in our society are not suddenly going to disappear . . . what has been our response to this phenomenon of more old in North America?

We are an institutionally oriented society. We have historically responded to any "deviant" population by removing them from society and isolating them in institutions, often in rural and pastoral settings which serve to keep them out of our immediate view and satisfy our social conscience that we have put them in a "nice" place. Witness the mentally retarded, the physically handicapped, the emotionally and mentally ill. We have a veritable industry in the form of "homes" where we put old people who are sick and/or frail. There, in accordance with principles of good physical care, based on the medical model, we relegate the people to the role of patients with concomitant behavioural definitions and associations of disease, sickness, dependence, docility and compliance (if they're good patients). We have created geriatric ghettos.

Why?

The first reason has been our non-questioning and institutional mentality. Secondly, it has worked as long as there were not too many old people. Now they are getting in the way; they are taking up hospital beds and they are beginning to intrude and create greater demand in community practice. Thirdly, it has been politically popular — buildings (bricks and mortar) are more dramatically visible than are programs and services. And, fourthly, health professionals, and especially those in medicine, have been

(and continue to be) basically interested in acute care and pursuing the more exciting notion of "cure" in medical and health care services.

We have emerged with a system with two basic options for this growing segment of the population. In simplified terms, we offer elderly people the choice of independent and healthy functioning in the community, with expectations which do not allow for certain modifications and disabilities resulting from frailty and/or disease; or institutional care — usually during a crisis.

There has been poor health care for the elderly. The expectation of completely independent and healthy functioning in the community becomes unrealistic in light of modifications and increased instances of diseases and illness to which the elderly are more prone and, with the ever increased life expectancy, the issue becomes not the quantity of life but the quality of that life.

What may be appropriate in the acute care setting becomes inappropriate with the long-term patients. We know that to do everything for the elderly patient in this setting is to encourage deterioration and atrophy in function. In the process of providing good nursing care, we literally "help people to death".

We now talk about the design of the institutional milieu in accordance with the principles which provide for the medical, psychological, and social needs of elderly patients. The first concept is of "role opportunities". If we provide people with opportunities to retain and fulfill the behavioural functions associated with community roles within the institutional settings, we thereby promote greater independence, mobility, and continuity with the life they lived prior to entry in an institution. Secondly, by a very careful assessment and subsequent design of a treatment program, which place stress on the individual, we enable the elderly sick or frail patient to achieve maximum functional level. Finally, there needs to be some homogeneity in grouping of the patient in the setting according to their function and level of sickness and/or frailty, confusion, or mental disability.

Taking these basic principles of treatment and applying them to the design of the treatment setting — the physical environment, the attitudes and behaviour of the staff, the program of activities of daily living — we are more likely to achieve good medical, psychological and social care and maximum quality of life.

## COMMUNITY CARE OF THE ELDERLY

I suggest a redefinition of approach to the elderly patient — "Treatment objective is maintenance of maximum functioning potential and insurance of the quality of life". This calls for some re-education from the disease-oriented pathological attitude with which we are trained. I suggest that a functional approach is more appropriate. The most common problems affecting the elderly patient are — falling, confusion and mental state, continency and incontinency, impaired

\*Assistant Professor, Department of Family Medicine, Faculty of Medicine, Dalhousie University, Consultant in Geriatrics, Department of Medicine, Camp Hill Hospital, Halifax, N.S.

homeostasis and the iatrogenic illness (a quintet of the elderly).

Geriatrics is NOT chronic care; it is NOT institutional care; and it is NOT extended care, as we use the term here to mean long-term care involving admission to some variation on the theme of patient model settings. There is a chronic, or long-term, or long-stay, component to geriatrics. Geriatric health care is the overall maintenance of health of older people with emphasis on potential function and ambulatory care.

A comprehensive geriatric service provides — extended care, active rehabilitation and treatment, day hospital, and community support service systems.

Extended care is usually institutional care for the person requiring heavy nursing care. The objectives in treatment are maintenance of maximum potential function, comfort, dignity, perhaps freedom from pain and certainly quality of life.

The objectives of active rehabilitation are the maintenance at a maximum functioning level, independence, education in the utilization of devices and controls, adaptation — behavioural or environmental and ultimately, discharge into the community.

The day hospital enables the person to remain in the community while receiving appropriate and needed medical, psychological, and social treatment. Community support services include homemakers, meals-on-wheels, visiting nurses, companion aids, friendly visitors, home help and handy men, and telephone reassurance.

#### THE ESSENTIALS OF GERIATRIC HEALTH CARE

The two key essentials to the practice of geriatric health care are assessment and the treatment team.

#### ASSESSMENT

Accurate assessment is essential, in order to design an appropriate treatment program for the elderly patient on whom the maximum stress demand is made in order to preserve function. Too little stress encourages deterioration; but too much stress will precipitate deterioration and breakdown.

#### TEAM

In no other area of health care is the multi-disciplinary health care team more essential than in geriatrics. It cannot work without the combined resources of nurses, physiotherapy, occupational therapy, social work, dietary, pharmacy. The physician cannot provide all these areas of expertise but needs to provide the leadership and has to make decisions.

#### CONCLUSION

In Canada, approximately 5-6% of the population over the age of sixty-five is in nursing homes or homes for the aged. Another 2-3% are in acute care beds, making a total of less than 10% in the over sixty-five population in Canada in some sort of institutional care.

The trend is definitely away from institutional care, and toward development of alternatives which focus the meeting of health care needs of the elderly back in the community under the jurisdiction of the primary health care professionals. □

## FROM STATISTICS CANADA

Males at birth may now expect to live to almost 70 years of age; females to slightly more than 77 years. Life expectancy has increased steadily over the past four decades for both sexes. The increases are largely due to declining infant mortality rates and not to a reduction in the incidence of disease.

In men, the major cause of death, beginning at age 40, is coronary heart disease; after age 60 strokes are also a significant cause. In women, cancer of the breast, cancer of the uterus and ovary and cancer of the intestines are major causes; after age 50 coronary heart disease is the primary cause.

The number of gallons of absolute alcohol consumed per person 15 years and over increased 27 per cent between 1966 and 1974. Consumption varied from a low of 1.83 gallons per person in New Brunswick to a high of 4.76 gallons in the Yukon.

The percentage of men who smoke regularly decreased from 55 per cent of the male population in 1965 to 45 per cent in 1974. Smoking in the female population remained relatively constant at about 31 per cent in both 1965 and 1974.

Some interesting differences show up between the health of Canadians and that of others. The Japanese, for example, have a much lower rate of coronary heart disease and yet a much higher one for deaths due to strokes. Yet both diseases are thought to be caused by hardening of the arteries. □



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# Doctors and the Elderly\*

T. J. Murray,\*\* M.D., F.R.C.P.(C),

Halifax, N.S.

## INTRODUCTION

It has been stated repeatedly that modern medicine has not paid adequate attention to the elderly. In Canada, the fields of geriatrics and gerontology are in their infancy and the number of qualified geriatricians could be counted on the fingers of both hands.

Health care in Canada has centered on active treatment hospitals that focus on acute illness. Physicians have tended to apply the medical principles suited to younger people to the elderly, to concentrate on cure rather than care and to abnegate responsibility for geriatric care. But the number of geriatric patients in the country is increasing and will continue to grow in the foreseeable future.

Geriatric medicine must be seen in its totality. It is not related solely to chronic disease and institutionalized chronic care medicine. Rather, it is, as the British Geriatric Society states, "the branch of general medicine that deals with the clinical, social, preventive and remedial aspects of illness in the elderly."<sup>1</sup> It is imperative that in planning for geriatrics we recognize that we are discussing the health care needs of the over-65 age population and not merely those of the 5% who require institutional care.

There are many deficiencies in the provision of health care to our elderly. Problems are allowed to develop until institutionalization appears the only solution, and once in an institution, the patient is left there until he dies. This represents a failure in the system which should endeavour to keep the patient happy and healthy in his home environment by meeting health needs on an ambulatory basis and, when necessary, in an active treatment geriatric unit. But the education of medical students, nurses and other health personnel does not alter the attitudes that perpetuate our frequently old fashioned and cruel treatment of the elderly.

## PHYSICIAN ATTITUDES TO GERIATRICS

The practice of geriatric medicine is determined largely by the philosophy of physicians who, like society, have moved from the early 19th century reverence for the aged to the present reverence for youth. Speaking of Canada's elderly, Daniel Baum said, "They have been betrayed. They have been betrayed by society, by powerful interest groups and by the state."<sup>2</sup> Simone de Beauvoir, in her scholarly books on aging and the aged, talks of the appalling treatment of the elderly and their position as "throwouts" and "rejects" in society.<sup>3,4</sup>

Recently there has been a renewed interest in the elderly. Geriatric care and care of the elderly in society have provided impassioned paragraphs in the speeches of federal and

provincial health ministers, by guest speakers in medical school and retiring professors; virtually every presidential address to a medical group in the past five years has included these topics. With such broad awareness one would anticipate some amelioration, but that is not forthcoming, or at least, not to a significant extent. Despite the speeches to the contrary, some aspects of medicine are regarded as attractive and others are not.

To many students geriatrics lacks the aura of an exciting rewarding branch of medicine that surrounds other, more overtly exciting specialties. Today the focus is the provision of acute care. It is in active treatment and curing disease that the challenge and excitement of medicine exist and today that stimulus is enhanced by electronic monitoring devices, transplantation, emergency medicine and "miracle" drugs. All of this seems unrelated to helping an 80-year-old woman who is confused, incontinent, arthritic and unable to converse clearly. Despite the fact that 10% of the population are in the geriatric age group and that geriatric patients are responsible for 40% of all office visits, 33% of hospital admissions and 25% of overall health costs, many physicians state that they are not interested in geriatric medicine.

Current attitudes to geriatrics must change. The curative approach to patient care must be modified in caring for the elderly; it must be understood that it is equally important to maintain health, preserve function and prevent deterioration. A small amount of effort can produce tremendous changes in an elderly patient, and the challenges and rewards are great. These concepts are important in geriatrics, but can we reasonably expect them to be accepted by the great body of physicians who are frustrated when patients fail to respond to their drugs, surgery or other therapies; who tend to feel that their role in medicine is to cure disease; and who feel that the problems of the elderly are inevitable and hopeless anyway?

We are only beginning to train medical students with concepts that will lead to better social and psychological approaches to patient management at all ages, and specifically with concepts that are suited to the care of the elderly. Geriatric medicine has lacked the enthusiasm, research and personnel needed to establish it as a solid area of medical knowledge. However, as new advances and techniques are developed, the fields of geriatrics and gerontology will also develop.

To date, one major frustration with geriatric medicine has been lack of knowledge of what to do for the many difficult problems in the elderly. There are many problems we still do not know how to manage and many more about which we do not know enough. Cape<sup>5</sup> points out that there are five common problems in the elderly: falling, confusion, incontinence, impaired homeostasis and iatrogenic problems. These are markedly different from the concepts of medical problems in the young and require new understanding and pose new challenges.

Another reason physicians have been slow to provide appropriate care to the elderly is the disease oriented

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\*\*Professor of Medicine, Dalhousie University and Chief of Medicine, Camp Hill Hospital, Halifax, N.S.

Mailing Address: Camp Hill Hospital, 1763 Robie St., Halifax, N.S. B3H 3G2



teaching of medicine. Often a physician approaches the geriatric patient, or the elderly patient in a nursing home, in the same way he would approach a 40-year-old patient in his office. That is how he has been trained. There may be a medical problem that must be assessed, diagnosed and managed, and the diagnosis is usually specific as is the management. Physicians are taught in medical school how to manage headaches, but not headaches in the elderly that require a somewhat different approach with a different selection and dosage of medications.

### THE MULTIDISCIPLINARY TEAM

The successful approach to geriatrics cannot be on a purely medical plane; it must involve many people and many problems that are outside the traditional concepts of disease and disease processes. The proper management of the patient may require some understanding of the family dynamics, the patient's background and attitudes, the diverse and complex nature of the problems that the patient is experiencing, the social and economic status of the patient and many other factors. A multidisciplinary team is required in geriatrics with a cooperative approach not seen to the same extent in most other areas of medicine. Although the team approach has been widely discussed in the past decade, it has been found to be inefficient, expensive and unnecessary in many areas of medicine. In many cases if one person can do the work he should be allowed to do it. However, in geriatric medicine there can be no question that the **only** viable approach to patient care is by the team effort.

For the physician to play a role in this multidisciplinary team, some changes are required in the traditional concepts he applies to the medical care of his patients. Concepts that are difficult to break are that (a) medicine is the science and art of curing disease; (b) medicine is daily advancing against diseases by new, exciting breakthroughs; (c) geriatric is chronic care; (d) the disorders of the old are inevitable, incurable and hopeless; and (e) doctors are carrying out proper geriatric medicine now because so many of their patients are old.

In 1966 a Special Committee of the Senate on Aging<sup>6</sup> stated, "A serious bottleneck in the provision of health services for old people is the shortage of professional personnel interested and trained in this field". This still applies. The Committee went on to say, "Somehow the value system will have to be revised so that the care of the chronically ill will be as rewarding as the cure of the acute conditions".

When George Adams, an English geriatrician, was on sabbatical in Winnipeg, he wrote that although few young medical graduates consider geriatrics as a career, most appreciate the teaching of geriatric medicine and enjoy geriatric medical practice in a well organized department of geriatric medicine.<sup>7</sup> The few who turn to geriatric medicine as a career do so because of satisfaction that comes "from meeting a challenge that has beaten others, and from being a pioneer".

### ATTITUDES OF GOVERNMENT

Interest in geriatric care has been shown at the federal level, especially by Marc Lalonde.<sup>8</sup> The Government of Nova Scotia has been relatively inactive, however, and compared

with other provincial governments, appears to accept little responsibility for providing proper health care for the elderly.

In 1971, 35% of hospital beds in this province were used by geriatric patients. It is estimated that by 2001, 42% will be occupied by geriatric patients and to cope with this increase, it has been estimated that an additional 166 hospitals of 300 beds each will be needed. But there is little likelihood that the government, with its current attitudes, will allow construction of so many new facilities.

The geriatric population in Canada in 1971 was 1.7 million. By the turn of the century, it is expected to be 3.4 million and by 2031, 6.1 million. If we are either unwilling or unable to provide humane services and care for the elderly throughout the country now, one can only ponder the fate of the aged when their numbers have more than tripled.

### ATTITUDES IN THE ELDERLY

In addition to the other reasons for poor health care to the elderly, the attitudes of the elderly themselves must be considered. Our health services are organized on a self reporting basis. The patient must recognize that he has a problem and present himself to a physician for assistance. This system creates many difficulties for the elderly who often fail to recognize their problems; they frequently accept important and treatable disorders as the result of age alone and are reluctant to seek medical care. For these reasons they often have many more disabilities than those known to their doctors. The problems are magnified in the elderly who live alone, since they tend not to see physicians as frequently as those living with their families. Another problem is the decrease in desire for periodic check-ups that accompanies increasing age. Even when the elderly recognize a medical problem, they are less likely to see their doctor about it than are younger people.

### A UNIVERSITY PROGRAM

A university centred program is essential to improving the status and practice of geriatric medicine. At present, Dalhousie University has no geriatric program and no qualified geriatricians among its faculty. No one is responsible for ensuring that proper principles of geriatrics and gerontology are taught in all areas of medical education.

In 1976 I presented a proposal for a university program in geriatrics<sup>9</sup> to the Dean of Medicine. The proposals called for the formation of a geriatric committee to outline a curriculum and overall teaching program. They included the development of an elective program for students, a bank of audiovisual and literature resources, a program for family practitioners and programs for research and public education.

### GERIATRIC FACILITIES

The development of a geriatric service requires an ambulatory facility with a backup active treatment hospital, and associated area for intermediate and long-term care. The days of regarding a geriatric facility as an isolated chronic care nursing home have passed. The essential elements in a geriatric health care system include facilities for screening patients within the community, assessment clinics, rehabilitation programs, continuing care programs, day hospitals and educational programs.

## **MEDICAL PERSONNEL**

Geriatric care required a multidisciplinary team program. The physician provides one aspect of care and hopefully some leadership in developing programs. The great bulk of geriatric care will be provided by community based general and family physicians, and specialists in geriatric medicine will be involved primarily in university based teaching programs. However, the geriatric specialists needed for the development of university programs are not easy to find since, in Canada, such specialists are extremely rare. Our backwardness in this area is emphasized by comparison with the United Kingdom where the number of geriatricians has increased from 93 in 1962 to 280 in 1972, and the goal is 1 per 100,000 population (or 1 per 12,000 geriatric patients).

## **HOSPITAL PROGRAMS**

Today, geriatric medicine must include active inpatient medical service as well as long-term care facilities. Much of the care should be provided on an ambulatory basis, including general medical services, assessment clinics, day hospital and day centres and home care programs. The ambulatory basis is essential since 95% of those over 65 years of age live at home; furthermore, it is the only practical and humane way to practise the best preventive and maintenance aspects of geriatric medicine. Experience in Canada and Britain has clearly shown the failure to geriatric programs based on the isolated, long-term care facility alone.

It must also be recognized that active treatment beds are needed for the elderly. At present, hospital facilities provided for the elderly in Halifax are less than half the Canadian average.<sup>10</sup>

## **AMBULATORY CLINICS**

### **Outpatient General Medical Clinics**

An active, general medical outpatient clinic, similar to other general medical clinic but for patients over age 65, is needed. This would provide general medical care, and would also maintain the active treatment skills of the geriatrician and help to provide an effective setting for teaching the principles of geriatric medicine. This clinic should include a social worker, physiotherapist, occupational therapist, dietician, speech pathologist and V.O.N. nurses, in addition to physicians.

### **Assessment Clinic**

Patients should be referred to an assessment clinic for multidisciplinary assessment, often to assess problems that may prevent them from living at home. This clinic would screen patients and also identify and correct serious problems. In a study in Edinburgh, Williamson found that 200 elderly patients had twice as many diseases as were known to their doctors and many of these required treatment to prevent serious difficulties in the future.<sup>4</sup> Assessment facilities should be structured so that the patient can be seen in one day for tests, consultations and interviews, stay the night in a hostel facility, and return the next day for further assessment and recommendations. The family doctor would then be contacted and follow-up would be arranged.

### **Day Hospital and Centre**

Dr. Lionel Cosin of Oxford, England, formed the first day hospital for geriatric care patients after World War II. Deer Lodge in Winnipeg and Miamonides Home for the Aged in

Montreal are similar facilities. Such institutions are designed to stimulate the physical, social and mental activities of patients who normally spend one to two days a week at the day hospital, receiving whatever assessment or services are needed, and carrying out various activity programs. A transportation system picks the patient up in the morning and delivers him home in the afternoon.

The day hospital also provides outpatient rehabilitation, support, nutrition and vital social stimulation for those living at home; without these facilities many patients would require chronic care facilities. A close liaison with inpatient services is mandatory since some patients will require periodic admission to hospital for medical or social reasons. The staff of a day hospital must include a program coordinator, nurse, orderly, recreational assistant, social worker and several auxiliary volunteers. We anticipate that the Red Cross Lodge which will be sold to the Province will become the basis for a planned day hospital.

### **Home Care Program**

A home care program, coordinated by the V.O.N., is needed in association with the outpatient services and day hospital. This program could provide important therapy and assessment for the ambulatory clinic programs and assist families in understanding and meeting the needs of their elderly members.

It is obviously important to assess the home carefully if we are to produce a program and service aimed at keeping the patient there. All the efforts of a totally hospital-based program may be ineffective if the home situation is not understood. Often a few changes and suggestions can solve seemingly insurmountable difficulties in keeping the patient in his own community.

## **INPATIENT SERVICES**

The inpatient services of the geriatric program should include an active general medical ward, a long-term care facility and a program for short-term admissions.

### **Active Ward Service**

It is important that the geriatrician have an active general medical service similar to other general medical services but limited to patients over the age of 65. The principles of good geriatric medicine in an active treatment situation are important for medical students and house staff and provide the geriatrician with an important aspect of his specialty that is often forgotten. Also, the active medical service helps foster the proper attitudes towards geriatric medicine, that are difficult to communicate in a long-term care facility.

### **Long-term Care Facility**

Although required by only a small percentage of those in the geriatric age group, a long-term care facility is obviously necessary. This should provide a high level of intensive nursing care in the event of acute illness. Although transfer to an acute care hospital is sometimes necessary, it is emotionally traumatic and patients often ask to remain where the surroundings and personnel are familiar.

### **Short-term Admission Program**

The short-term admission program would allow patients to be admitted to hospital for a few weeks, so that problems

involved in keeping them at home could be solved. The program would provide both rehabilitation and maintenance, and assist families as well as patients. Patients may be admitted on either medical or social grounds, to solve a transient medical problem or to provide the family with a rest or vacation. The support and education of families are extremely important in keeping geriatric patients at home. This program must be related to long-stay beds rather than active treatment beds, since geriatric patients, particularly when admitted for social reasons, have limited ability to compete if they have to vie with active treatment patients for a limited number of hospital beds.

### THE COMMUNITY

Although numerous agencies in the community are concerned with the care of the elderly, there has not been sufficient coordination in the past. We hope that such organizations as The Nova Scotia Council on Gerontology will solve this problem and eliminate the sense of isolation felt by the various agencies and programs at present.

### CONCLUSION

The very elderly, and particularly the elderly poor, are often cast aside and ignored, treated with little dignity or respect and allowed to be poor, hungry, cold, helpless, useless and hopeless. Our society permits this to happen. We can ignore what is going on, particularly if the elderly are in institutions and responsibility for their care belongs to others. We are often remote from the aged and, if we are honest with ourselves, we do not expect to be old. But denying the reality of future old age for ourselves and overlooking the problems of others who are now old do not solve the difficulties that present a major challenge to physicians.

Geriatrics and gerontology are not just bandwagon phenomena. They are social and medical developments in our modern society, and we in Nova Scotia must endeavour to be part of this progression and strive to provide the care of the elderly that is humane and deserved. □

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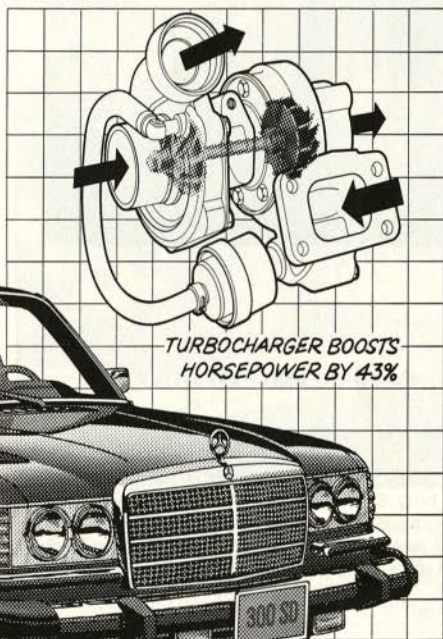
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# Monitoring Critically-Ill Patients

M. A. Naqvi, \* M.D., F.R.C.S.(C), F.A.C.S.,  
Sydney, N.S.

E. A. Moffitt, \*\* M.D., F.R.C.P.(C), and R. J. Rosov, \*\*\* P.Eng.,  
Halifax, N.S.

## INTRODUCTION

Several intensive care and special care units have been or are now being established in hospitals throughout the province. Many decisions must be made concerning their operation but the most difficult involve the selection of electromedical equipment to monitor the physiological status of critically ill patients. The equipment evaluation and selection process must involve the physician-in-charge, the nursing staff and the administrator, in an atmosphere of collaborative decision-making.

No matter how sophisticated, compact, or impressive, a new monitoring system cannot replace the competence, knowledge and concern which only experienced physicians and an appropriately trained nursing staff can provide. Electronics are no substitute for a perceptive, competent bedside evaluation, and highly trained medical personnel will always be the foundation upon which any monitoring programme must rest.

Evolution and revolution in monitoring for the critically-ill have occurred as consequences of advances in semiconductor technology (primarily integrated circuits) and dissatisfaction with the performance of the previous generation of monitoring equipment. Some of the electromedical equipment currently available, and much of the electromedical equipment sold, do not meet standards for leakage current through patient leads to electrodes and catheters, for leakage current on the chassis, and for isolated patient circuits, as established by the Canadian Standards Association (CSA) and other national and international standards groups.<sup>1</sup> There are no established standards for interchangeability of connectors and cables for defibrillator paddles, ECG leads, and pressure and pulse transducers.<sup>2</sup> Some *de facto* standards are coming into existence, and several manufacturers offer their products equipped with a variety of connectors, but the area of connector interchangeability is still a chaotic one. Ultimately, the establishment of connector interchangeability standards will require the force of a vocal, persistent, and insistent medical community.

Just as there are voids in connector interchangeability standards, so there are even larger gaps in standards and specifications for the performance of the modules used in monitoring systems. ECG, pressure, and pulse amplifiers have varying functional and performance specifications from one manufacturer to another, or even from one product to another for a given manufacturer. Practically any monitor will produce a clean display on a screen in a demonstration, but

stable, noise-free data are not always obtained at the bedside under the difficult conditions of critical care. Because of incomplete or misleading specifications, it is usually not possible to properly evaluate instrument specifications and performance unless operation in a clinical setting for some time period is included. Here again, standards in this area are on the way, but will not be completely effective except at the insistence of a determined medical community.



There are two aspects to the evolution and revolution in monitoring technology which are now apparent. First, monitoring equipment is now more portable, reliable, sophisticated, and easier to use for less highly trained staff. Second, the continuing and increasing utilization of digital computers in clinical medicine, caused by better performance and less cost, is evidenced by the several manufacturers who offer sophisticated computer-based monitoring systems which acquire, process, and display physiological data in addition to keyboard entry data such as test requests and reports, drug orders, and nursing notes. At least one system places drug infusion under computer control, thus automatically closing the "feedback loop" between the physiological data and the therapy.

But there is yet even more to come. The widespread commercial availability of microcomputers, or "computers on a chip", costing about \$15 per unit, promises to radically alter present concepts of patient monitoring and data handling. It is not unreasonable to expect a dedicated bedside monitor/computer to function as an electronic medical record which will acquire, display, and process a wide range of data for the patient to whom it is connected, in the same way larger computer systems service several critically-ill patients. As with their larger multi-patient predecessors, these bedside units could be expected to compute cardiac index, total

\*Department of Surgery, Sydney City Hospital, Sydney, N.S.

\*\*Department of Anaesthesia, Victoria General Hospital, Halifax, N.S.

\*\*\*Director, Provincial Medical Engineering Service, based at the I.W.K. Hospital for Children, P.O. Box 3070, Halifax, N.S.

peripheral resistance, blood volume, left ventricular stroke work, frequency of premature ventricular contractions, total breathing work, and pulmonary compliance. One would expect early forms of this new generation of instrumentation to be commercially introduced within two or three years. Some caution is in order, however: while seen as cost-effective entities, computer based monitoring systems have yet to provide solid evidence that they can save lives and/or dollars. Moreover, available systems are economical only on relatively large scale in clinical settings involving tens of patients, and it is unlikely that such systems can be justified in regional hospitals in Nova Scotia.



### MONITORING OF PHYSIOLOGICAL VARIABLES

For intensive care and special care units in Nova Scotia, commonly monitored physiological parameters continue to be measured manually. These include: (1) arterial pressure measured by cuff and stethoscope, or, on occasion, by cuff and ultrasonic detection of arterial pulsation corresponding to the Korotkoff sounds; (2) radial and apical pulse rate and strength; (3) visually observed respiratory rate; and (4) temperature by mercury thermometer. Hourly recording of crystalloid and colloid infusions and of urinary output are also performed, as are daily determinations of body weight, serum electrolytes, and complete blood counts. Heart rate is electronically derived and displayed at the bedside from the electrocardiogram, which may also be displayed. Central venous pressure is measured by water manometer, and serial determinations of arterial blood pH,  $P_{O_2}$ , and  $P_{CO_2}$  are performed in the laboratory by semi-automated techniques.

### THE ELECTROCARDIOGRAM

Electrocardiographic monitors and recorders are currently available with electrically isolated patient circuits (i.e., circuits connected to the patient cable which have no direct electrical connection to any other circuits in the monitor), very high immunity to electrical interference, and full selection of the various ECG leads. The electrical leakage in the patient leads of these units is less than ten microamperes, per CSA standard.

Computerized electrocardiographic analysis has taken two avenues: diagnosis and arrhythmia detection, with the latter of greatest significance for the critically ill. Electrocardiographic quantification and diagnosis by computer has reached a high degree of sophistication, reliability, and accuracy. Both

services and hardware are commercially available elsewhere, and are to become available in Nova Scotia, with a central computer acquiring remotely transmitted ECG's and patient data by telephone, and retransmitting patient data, diagnosis, and other salient data to a teleprinter at the point of origin. On the other hand, continuous detection of premature ventricular contractions has special importance in both the Coronary Intensive Care Unit and the Cardiothoracic Surgical Intensive Care Unit, where there is a high incidence of myocardial hyperirritability. Prompt arrhythmia detection and appropriate treatment have significantly lowered mortality in special care units so equipped.<sup>3</sup> Nonetheless, bedside and centrally located arrhythmia detection units are quite expensive, and only significant reduction in costs will facilitate wider use of these systems.

The additional sophistication of electrocardiographic pattern recognition afforded by computer processing will presumably offer more reliable identification of alarm states in contrast to the conventional bedside unit, which triggers solely on out-of-limits changes in heart rate, and is somewhat sensitive to motion and electromyographic artifact.

### HEART RATE

The automatic measurement of heart rate is invariably derived from the interval between successive R waves of the ECG, a practice which is less than reliable in low voltage ECG's, in some types of heart block, and in hyperkalemia. Full lead selection is necessary to obtain accurate rate indications under these conditions, but is not always available on monitors in current use. Direct connection of alarm systems to the unprocessed rate output in older vintage monitors has resulted in the single largest source of false alarms and nuisance calls for the nursing staff. Improved recognition of R waves, rejection of motion and muscle artifact, and more highly damped rate circuit response have significantly reduced the frequency of false alarms. Nonetheless, broken and intermittent electrode leads and patient cables, and dry, poor quality, or improperly applied monitoring electrodes, continue to plague nursing staffs with wide, wandering, or flat baselines, and peculiar ECG patterns.

### RESPIRATORY RATE

Monitoring of trans-thoracic electrical impedance changes accompanying respiration have permitted the derivation and display of respiratory rate. This is usually done through the same monitoring electrodes through which the ECG is acquired, and involves the measurement of thoracic impedance using very small high frequency currents. Heart and/or respiratory rates can be displayed, and rate limit alarms set for both or either. If a ventilator is in use, alarms can be set for airway pressure, air flow, and air velocity limits.

### THE ELECTROENCEPHALOGRAM

With the introduction of extracorporeal circulation in open-heart surgery over 20 years ago, the EEG was one of several variables closely monitored by the anesthetist. As equipment and technique improved, and with increased monitoring of blood gases, EEG monitoring became progressively less frequent. Nonetheless, the increased sophistication and effectiveness of life-support technology has forced a reexamination of classical criteria of clinical death. Of the criteria proposed by Beecher,<sup>4</sup> the isoelectric (or "flat") EEG

has been accepted as evidence of brain death. The bedside EEG has thus become more important in this regard, as well as in the management of comatose patients.

## BLOOD PRESSURE

Technology for the accurate and facile measurement of intravascular and intracardiac blood pressure had developed rapidly in the past decade. The difference between radial arterial pressure measured by a suitable pressure transducer and amplifier system, and the brachial arterial pressure by cuff and sphygmomanometer, is less than 5% under normotensive conditions.<sup>5</sup> Greater discrepancies are observed under conditions of low blood flow, as in shock or occlusive vascular disease. Highly automated instruments utilizing Doppler ultrasound detection of brachial artery occlusion with pressure cuffs have increased the accuracy and range of such measurements, especially in children and during shock.

Pressure transducers with three types of sensors are commercially available: linear differential transformer, strain gauge, and semiconductor. In all cases, pressure is exerted against a thin, flexible diaphragm which separates the sensor from the liquid under pressure. In the linear differential transformer, the diaphragm moves a magnetically permeable element, or core, which couples an alternating current excitation from one coil of the transformer to the other. The induced voltage in the second coil is proportional to the motion of the core, which is in turn proportional to the pressure on the diaphragm.

In the strain gauge transducer, the diaphragm moves against a conductive material, such as a wire mesh, which changes its electrical resistance as it is deformed. Small changes in resistance are detected by the Wheatstone bridge circuit configuration in which the strain gauge is fabricated, and which is activated by alternating or direct current. A small resistance change in the strain gauge imbalances the bridge circuit which results in a proportional output voltage.

In the semiconductor transducer, the diaphragm itself is made of the semiconductor silicon which has been treated to provide high sensitivity combined with good thermal stability. The high sensitivity of the semiconductor transducer permits considerable miniaturization, and these units can be manufactured in catheter and needle tips, and in Luer-lock connectors.

All three types are in widespread use in medical centres but have not yet come to regional hospitals in Nova Scotia. The linear differential transformer transducer is the most venerable of the group, while the strain gauge transducer is becoming more popular because of cost and reliability (no moving parts) considerations. The transistor type of transducer is very small, and can be mounted in a catheter tip to measure intracardiac pressure in situ.

Central aortic, pulmonary arterial, left atrial, and right atrial pressures are the most useful in monitoring the circulatory status of the critically-ill. Of these, two are usually measured: central aortic or peripheral arterial, and central venous or right atrial.

Right atrial pressure, or central venous pressure, is simply measured by a catheter inserted via an arm vein and a commercially available water manometer. This method should be used regularly in every operating room and

critically-ill patient but is not.

Left atrial pressure may be measured (a) directly during intracardiac surgery by catheter into the atrium or across the interatrial septum; (b) transeptally in cardiac catheterization procedures; and (c) by catheterization of the pulmonary artery from a peripheral vein, where the catheter is wedged into a branch of the pulmonary artery. The pulmonary wedge pressure is a particularly useful indicator of left ventricular pressure by virtue of its relationship to left atrial pressure, and gives accurate values when pulmonary blood volume is normal or increased.<sup>6</sup>



Left atrial pressure measurement has been effective as an aid in the treatment of low flow states. It is not easy to make the distinction between left ventricular failure and right ventricular failure secondary to high pulmonary vascular resistance or cardiac tamponade. Swan and co-workers<sup>7</sup> have developed a balloon-type catheter which is flow-directed into the main pulmonary artery without the need for fluoroscopy. This procedure is particularly effective in the case of the critically-ill since left atrial and pulmonary artery pressures may be estimated and the oxygen content of mixed venous blood determined. During shock and resuscitation, pulmonary arterial pressure is a demonstrably better index of pulmonary and systemic blood volume than is central venous pressure.<sup>8</sup>

## TEMPERATURE

Body temperature measurement by mercury thermometer is traditional, but intermittent and continuous temperature measurement by thermistor probe are becoming more frequent in the care of the critically-ill. Thermistors are composed of electrically conductive materials whose electrical resistance changes in inverse proportion to temperature. The temperature measuring instrument converts thermistor resistance into a direct display of temperature. Skin and esophageal temperature have provided less clinically useful information than rectal temperature.

## CARDIAC OUTPUT

The accurate and continuous, frequent, or intermittent measurement of cardiac output continues to be one of the most crucial measurements in the care of the critically-ill. The clinical estimation of cardiac output based on vital signs is inaccurate. Accurate knowledge of cardiac output permits



accurate determination of such clinically important parameters as total peripheral resistance, stroke volume, stroke index, and stroke work.<sup>9</sup>

The standard Fick method may be utilized frequently if arterial and mixed venous blood samples are available, and if automated techniques are available to determine oxygen consumption rates. However, the frequent bedside determination of cardiac output by automated thermodilution techniques is in widespread use. In this method, a bolus of ice-cold or room temperature saline is injected into the right atrium and blood temperature is measured by thermistor probe in the pulmonary artery. (The same catheter is used that measures pressures in the right atrium and pulmonary artery.) The automatic computation and display of area under the temperature vs. time curve, with appropriate corrections, yields the cardiac output which is read out digitally. The more traditional cardiac output assay by photometric measurement of cardio green is still in use, but is not suited to frequent multiple bedside determinations.

## BLOOD GASES

Knowledge of the status of arterial blood pH,  $P_{O_2}$  and  $P_{CO_2}$  is of paramount importance in the initial assessment and continuing care of the critically-ill. Until recently, the determination of these parameters was a tedious manual procedure which was slow, expensive, and labour-intensive. Highly automated blood gas analyzers are now available which perform rapid determinations, displaying and/or printing results digitally. Expensive and complex, these instruments must be operated by skilled laboratory technologists with daily standardization and quality control determinations performed. Nonetheless, there is no question that the effectiveness of patient care has been dramatically improved by the rapid, frequent, and timely determinations of these vital physiological parameters. Blood gas analysis is available in most regional hospitals in Nova Scotia and should be a mainstay of care of the critically-ill.

While continuous bedside blood gas monitoring is not yet in widespread use, transcutaneous  $p_{O_2}$  and intra-arterial pH,  $P_{O_2}$  and  $P_{CO_2}$  sensor probes and instruments are emerging from development into marketing and distribution, and will be seen more frequently.

## BODY WEIGHT

The serial measurement of body weight is crucial in the pharmacological control of diuresis, and in the determination of the status of water and metabolic balances. Digital bed scales have been available where strain gauge "load cell" transducers measure the weight under each bed caster, sum the inputs, and display the result digitally. The device is zeroed before the patient is placed on the bed, and readings are recorded as frequently as desired. Weight variation resulting from changes in bedclothes, surgical dressings, drains, and catheters must be carefully noted.

## SUMMARY

Despite revolutionary progress in monitoring instruments, systems, and techniques, the importance of skilled and concerned medical and nursing staff in monitoring the critically-ill cannot be overstated. Commonly monitored physiological parameters continue to be measured manually in most intensive and special care units in Nova Scotia.

These are: blood pressure, pulse and respiratory rates, and temperature in addition to the hourly recording of fluid intake and output. The electrocardiogram and heart rate are displayed on a bedside monitor. Two additional parameters should be used more widely: central venous pressure by water manometer, and arterial blood gas and pH determination. Optimal approaches to monitoring instrumentation must be carefully considered by medical and nursing staff and the administrator, relative to facility staffing, cost, location, and design. Technical assistance in equipment evaluation and selection, and in the provision of safe electrical service, is available from the Provincial Medical Engineering Service, based at the I.W.K. Hospital for Children.

Currently under question are the issues of continuous versus intermittent monitoring, selection of optimal monitoring techniques, duration of monitoring, and cost-effectiveness. Finally, an integrated multi-disciplinary approach is essential for decision making because of the diverse perspectives and training of the personnel involved in the care of the critically-ill. □

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# The Office Management of Asthma

John R. Dill,\* M.D., M.Sc., F.R.C.P.(C), F.C.C.P.,

Halifax, N.S.

The purpose of this paper is to review some of the recent advances in the treatment of asthma.

## DEFINITION

Asthma may be defined as episodic wheezing dyspnea which tends to respond well to bronchodilators. The episodic nature of asthma is useful for differentiating it from chronic bronchitis. This latter disease may be characterized to some extent by exacerbations and remissions, but due to the permanent alteration of lung structure, patients with chronic bronchitis do not return to a normal baseline level of pulmonary function. In contrast, patients with asthma, tend to have relatively normal pulmonary function during periods of remission. The response to bronchodilators also serves to differentiate asthmatics from patients with chronic bronchitis, because the former tend to have a dramatic response to inhaled bronchodilators whereas the latter tend to respond rather poorly to these agents.

## CLASSIFICATION

Asthma may be conveniently classified into either extrinsic or intrinsic types, and this is important because the treatment of the two types often differs.

Extrinsic asthma is very much more common and tends to begin early in life. The patient frequently can identify numerous allergic precipitating factors, e.g., pollens, moulds and animal danders. The past history is usually positive for atopic disorders (eczema, urticaria and allergic rhinitis) and the family history is also positive for atopic disorders. If skin testing is performed on patients with extrinsic asthma, numerous immediate type reactions (wheal and flare) are likely to be observed, even if the subject is receiving adrenal steroids.<sup>1</sup> The major immunopathogenic mechanism underlying extrinsic asthma is the Type I immune reaction.<sup>2</sup> This is mediated by respiratory tract mast cells that are sensitized by immunoglobulin E (IgE) antibodies which are specific for certain inhaled allergens. If these allergens are inhaled, they combine with the IgE resulting in the mast cell release of substances including histamine and slow reacting substance of anaphylaxis.<sup>3</sup> Both of these chemical mediators elicit bronchial smooth muscle contraction.<sup>3</sup>

Intrinsic asthma characteristically begins at approximately 40 years of age and the patient is unable to identify any allergic precipitating factors. The past history and family history both tend to be negative for atopic disorders, and skin testing usually fails to show any positive reactions. The etiology of this type of asthma is unknown.

The role of immunological precipitating factors in asthma has already been stressed. It should be remembered, however, that non-immune factors can exacerbate airway obstruction in either type of asthma as well as in chronic

bronchitis. Some of these nonimmune factors consist of exposure to cold or damp air, exercise, emotions, upper respiratory tract infections and drugs, particularly propranolol (Inderal).

## TREATMENT

### Extrinsic Asthma

The treatment of extrinsic asthma can be considered similar to that of a pyramid. The base consists of the use of bronchodilators whereas the apex consists of the use of systemic glucocorticoids. There is still some controversy as to the optimal means of administering bronchodilators but the majority of chest physicians favor oral administration initially. The aminophylline drugs are still in wide use and are of proven effectiveness. Their mechanism of action is to block phosphodiesterase, the enzyme that catabolizes cyclic adenosine 3', 5' monophosphate (cAMP) thus increasing intracellular levels of cAMP.<sup>4</sup> The pulmonary result is relaxation of bronchial smooth muscle, thus reducing airway obstruction. This group of drugs is not specific for the lungs and therefore, cardiac levels of cAMP also become elevated which may result in major rhythm disturbances.

The newer group of bronchodilators consist of drugs that are relatively specific for B<sub>2</sub> receptors that are present in the lung but not in the heart which has B<sub>1</sub> receptors.<sup>5</sup> These drugs stimulate pulmonary B<sub>2</sub> receptors which results in activation of adenylyl cyclase.<sup>5</sup> This enzyme results in the conversion of intracellular adenosine triphosphate (ATP) to cAMP.<sup>5</sup> The end result of the B<sub>2</sub> stimulators is the same as that of the phosphodiesterase inhibitors, the major difference being that the former group of drugs produces very much fewer cardiac side effects. The most commonly used oral B<sub>2</sub> stimulators in Canada consist of salbutamol (Ventolin) and terbutaline (Bricanyl).<sup>4,6</sup> The usual dose of salbutamol is 4 mg., *p.o.*, q6h and that of terbutaline is 5 mg., *p.o.*, *t.i.d.* This latter medication may produce an initial tremor but this normally subsides spontaneously within forty-eight hours.

It has already been stated that the treatment of extrinsic asthma resembles a pyramid. Therefore, if oral bronchodilators fail to control the patient's symptoms, these drugs are then combined with bronchodilator aerosols. Today, the commonly used aerosol bronchodilators consist of salbutamol, orciprenaline (Alupent) and fenoterol (Berotec), and all have been shown to produce less cardiac side effects than inhaled isoproterenol.<sup>4,7,8</sup> The only major difference within this newer group of drugs is that fenoterol has its peak action at about 30 minutes which is a somewhat more rapid onset than that of either salbutamol or orciprenaline.<sup>8</sup> Fenoterol may also have a more prolonged duration of action than either of these latter two agents.<sup>8</sup> It is important when prescribing these aerosols to instruct the patient in their proper method of administration. The patient should breathe out to residual volume, then should administer the aerosol at the start of a vital capacity inspiration, ensuring that the drug reaches those areas of the lung where it is designed to act.

\*Assistant Professor, Department of Medicine, Dalhousie University, Halifax, N.S.  
Mailing address: Gerard Hall, 5303 Morris Street, Halifax, N.S. B3J 2H6.

The combined oral and aerosol administration of bronchodilators is adequate to control many extrinsic asthmatics. If, however, the patient continues to have significant disability from asthma, disodium chromoglycate (Intal) can be added to the therapeutic regimen. Its mechanism of action has yet to be fully defined, but at least part of its action is to inhibit mast cell release of chemical mediators.<sup>9</sup> It is recommended that chromoglycate be used purely as a prophylactic agent and thus it serves no role in the treatment of status asthmaticus. The optimal dose of this drug has not been fully determined but one capsule four times daily controls most patients. It should be stressed that this medication is expensive and is not successful in all extrinsic asthmatics. Therefore, the patient should be re-evaluated four weeks after starting chromoglycate. If no objective improvement is observed at the end of this time the drug may be discontinued.

Most but not all extrinsic asthmatics can be controlled with the above therapeutic regimen. As a further agent, for those subjects who are difficult to control, an aerosol of beclomethasone dipropionate (Beclivent) can be added to the above regimen. Evidence is now available to suggest that this steroid is topically effective in the respiratory tract and only minimal amounts are absorbed into the circulation.<sup>10</sup> Thus, there is insignificant suppression of the pituitary-adrenal axis. The recommended dose of this agent is two inhalations four times daily. Candida overgrowth is a rare complication of this medication but if this does occur the drug should be discontinued.

Finally, some extrinsic asthmatics will fail to be controlled in spite of all of the above medications. It is these subjects for whom the systemic steroids should be reserved, and the most commonly used is prednisone. After initial control has been achieved with systemic steroids, the dose should be tapered to as low a level as is possible. Many asthmatics, furthermore, can be controlled on alternate day steroids, thus producing less suppression of the adrenal-pituitary axis.

It has been stressed throughout this discussion that the therapy of extrinsic asthma resembles a pyramid, to emphasize the point that even if bronchodilators fail to control the patient, they should not be discontinued when disodium chromoglycate is started. In addition, if the patient requires the use of steroids, these should be added to bronchodilators and chromoglycate rather than discontinuing the latter agents.

#### Intrinsic Asthma

Much of what has been said for the treatment of extrinsic asthma can also be said for the treatment of intrinsic asthma. The basic difference is that there is very little evidence to suggest that chromoglycate is effective in the treatment of intrinsic asthma. Thus if bronchodilators fail to control this type of asthma, the next step in treatment should be the use of beclomethasone dipropionate. Furthermore, the prognosis of intrinsic asthma is somewhat worse than is that of the extrinsic type. Therefore, many intrinsic asthmatics will eventually require long-term systemic steroids.

#### CONCLUSION

In summary, it is important to classify asthma as either the extrinsic or intrinsic type because this will modify subsequent treatment. Furthermore, bronchodilators should be the mainstay of treatment. Only if these fail to control symptoms should other agents be added. □

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# Theophylline Dosing

Richard I. Hall,\* B.Sc. (Pharm),  
Halifax, N.S.

Theophylline is a member of the class of drugs known as the methylxanthines, and other members include caffeine and theobromine.<sup>1</sup> This agent has been used for respiratory conditions for many years.<sup>2-4</sup> However, it is only recently that the application of pharmacokinetic parameters has led to a more rational approach to dosing.<sup>5-7</sup>

## PHARMACOKINETICS

Despite popular misconceptions, theophylline is well absorbed when given orally, with nearly 100% bioavailability of the plain uncoated tablet of hydroalcoholic solution, and food does not significantly alter absorption.<sup>8</sup> Absorption from the rectal route is erratic and administration by rectal suppository is not recommended.<sup>5,9</sup> Peak serum levels following oral dosing occur within 1-3 hours, and steady-state levels are achieved after five half-lives (24 hours).<sup>5,6</sup> Theophylline is approximately 60% protein bound and is 90% metabolized in the liver. It has a half-life of about 4.5 hours in adults (range 3-9.5 hours) and 3.6 hours in children (range 1.5-9.5 hours).<sup>5</sup> Smoking appears to increase the clearance of theophylline.<sup>10</sup>

## SERUM THEOPHYLLINE CONCENTRATION

There is high association between the serum theophylline concentration (STC) and improvement in respiratory function.<sup>11-13</sup> There is optimum respiratory improvement between 5-20 mcg/ml but beyond this level, while respiratory improvement still occurs, there is a substantial increase in toxicity.<sup>11-13</sup> If the agent is being given by continuous IV infusion, blood for STC can be drawn at any time. After oral or intermittent IV administration, the best STC to obtain is a steady-state trough concentration. This is achieved by drawing a sample after five half-lives (approx. 24 hours) immediately prior to the next dose.

## INTRAVENOUS THEOPHYLLINE

In 1973, Mitenko and Ogilvie<sup>11</sup> reported on their application of pharmacokinetics to theophylline dosing. They recommend a loading dose of 5.6 mg/kg of theophylline (as aminophylline) followed by a maintenance infusion of 0.9 mg/kg/hr.

These guidelines, though reasonable for the average adult asthmatic, have definite limitations. There are a number of reports of toxicity associated with theophylline administered according to these guidelines.<sup>2,12,13</sup> Theophylline half-life is markedly increased in patients with congestive heart failure, pulmonary edema or hepatic dysfunction. In the elderly, theophylline elimination is reduced. Mitenko and Ogilvie's findings were based upon only nine patients, who were less than 56 years old and who were not acutely ill. Hence, their dosing guidelines are no longer considered appropriate for general use in the treatment of asthma.

Subsequent pharmacokinetic studies<sup>6,7</sup> have clarified the role which such factors as altered metabolic disposition and age play in the response to theophylline. Dosing guidelines now are tailored to meet the varying requirements of theophylline within the asthmatic population.

## Loading Dose

The selection of a loading dose of theophylline should be guided by body weight and the possibility of previous theophylline ingestion. The loading dose of 5.6 mg/kg of theophylline (as aminophylline) recommended by Mitenko and Ogilvie,<sup>11</sup> is unaltered in cardiac or liver dysfunction.

## Maintenance Therapy

The maintenance dose of theophylline should be based upon a consideration of age, body weight, as well as cardiac and hepatic function. Jusko and Koupe<sup>6</sup> have derived a nomogram (Fig. 1) which is recommended as a guide in the calculation of a loading dose, and a maintenance infusion rate for aminophylline.

This nomogram incorporates the following guidelines:

- 1) Loading Dose — 5.6 mg/kg
- 2) Maintenance Dose —  
Infants and children (expected to be rapid metabolizers) 0.9 mg/kg/hr.  
Older patients (25% reduction) 0.68 mg/kg/hr.  
Patients with congestive heart failure or liver disease (50% reduction) 0.45 mg/kg/hr.

## ORAL THEOPHYLLINE

Once the patient's bronchospasm has been stabilized using intravenous theophylline (or aminophylline), he may readily be transferred to an oral maintenance dose using the appropriate conversions (Table I). Since individual differences in theophylline metabolism, distribution and clearance are so varied, it is recommended that the STC be used as a guide when adjusting the dose.<sup>12-14</sup>

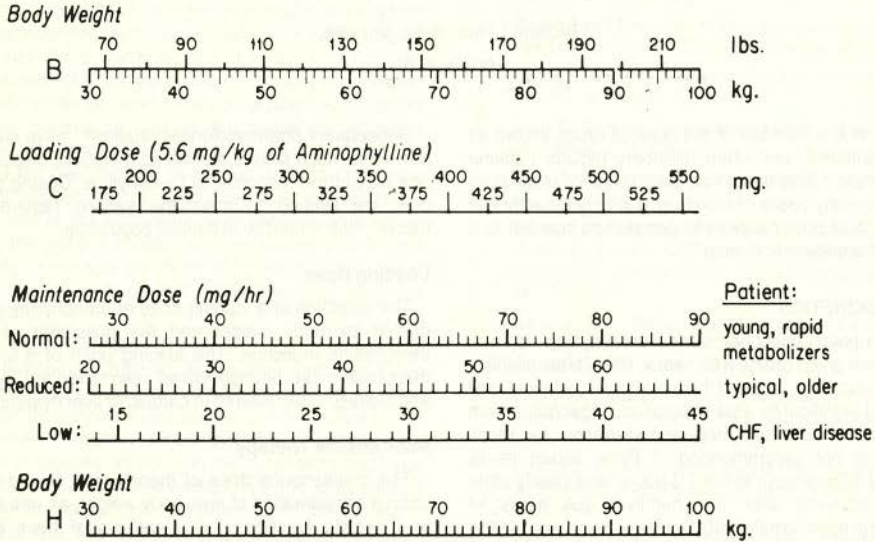
TABLE I

| Preparation  | Percent Theophylline |
|--|----------------------|
| Aminophylline                                      | 85                   |
| Theophylline sodium glycinate — Acet — AM®         | 51                   |
| Oxtriphylline (choline theophyllinate) — Choledyl® | 64                   |
| Theophylline — Elixophylline®                      | 100                  |

When initiating treatment with oral medication, where there has been no prior therapy, the guidelines recommended by Zaske *et al*<sup>7</sup> (Table II) may be followed. It is wise to obtain a STC after approximately 5 half-lives have lapsed. When gastrointestinal intolerance is noted, a STC should be obtained to check for systemic toxicity.

\*Second-year Medical Student, Dalhousie University, Halifax, N.S.

**FIGURE 1**  
**Guidelines for Intravenous Aminophylline Therapy**



Mark patient's weight in kg on Lines B and H. Use a ruler to connect these points.

**Loading Dose:** Line C provides a loading dose of 5.6 mg/kg. Give concentrated solution at a rate not exceeding 50 mg/min. Give 0 to 1/2 of this dose if patients have received theophylline within 12 h.

**Maintenance Dose:** The infusion rate (in mg/h) is obtained from the intersection on the following lines.

**Normal:** Young patients expected to be rapid metabolizers.

**Reduced:** Typical older patients (over 50 years).

**Low:** Patients with congestive heart failure or liver disease.

**Begin infusion** soon after injection of the bolus. The rate of infusion is critical and must be checked frequently by nursing personnel.

**Blood:** Collect 5-ml blood samples at 1, 12, and 24 h after starting infusion. Most patients will be near steady-state by 24 h.

(Reprinted with permission from Jusko et al. . . *Annals of Internal Medicine* 86:400, 1977)

**TABLE II**

**PROJECTED ORAL DOSAGE REQUIREMENTS FOR TROUGH SERUM CONCENTRATIONS OF 10 mcg/ml**

|                         | Younger Children | Older Children | Adults |
|-------------------------|------------------|----------------|--------|
| Theophylline mg/kg/day  | 22.4             | 18.4           | 12.4   |
| Aminophylline mg/kg/day | 28.0             | 23.2           | 15.6   |

(From Zaske et al. . . *J Am Med Assoc* 237:1453, 1977)

In an effort to reduce the gastrointestinal toxicity of theophylline, various salts of theophylline have been introduced (Table I). There is nothing to suggest that any one preparation is better than the other and plain theophylline would suffice.<sup>8</sup> Enteric-coated and slow-release preparations should be avoided because of slow and erratic absorption. There is no advantage to using any of the combination products promoted in the treatment of asthma. In order to obtain maximum therapeutic effects from one of the ingredients, the other component must often be administered in either toxic or subtherapeutic quantities. The addition of the sedative phenobarb is usually not of much benefit and may decrease STC levels by the induction of liver enzymes. □

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# Life Style Risks of Nova Scotia Physicians

Barry R. Wheeler,\* M.B., M.R.C.S., L.R.C.P.,  
Truro, N.S.

Mervin G. Shaw,\*\* M.D., David B. Shires,\*\*\* M.D., C.C.F.P., and Saroja Kamra,† Ph.D.,  
Halifax, N.S.

Retrospective studies have shown that a number of chronic and fatal illnesses such as coronary artery disease, cerebral vascular disease, motor vehicle accidents, carcinoma of the cervix, cirrhosis, and bronchogenic carcinoma, are associated with risk factors. It is assumed that reduction of these risk factors would reduce the occurrence of the outcome diseases. Consequently, the process of Health Hazard Appraisal, known in the Maritimes as **BODYCHECK**, was developed to identify these risks in patients and to develop health education programs to reduce these risks. This program (**BODYCHECK**) was made available to the Fitness committee of The Medical Society of Nova Scotia, for members of the Society, first in 1976 and again in 1977.

As vendors of health, physicians should theoretically be role models for good life styles. We have attempted to demonstrate the prevalence of health risks in a sample of Nova Scotia physicians who responded to the **BODYCHECK** questionnaire, and in addition, by comparing the 1st and 2nd questionnaires, we have attempted to demonstrate the changes in risk prevalence over a period of time (one year).

Our results indicate that Nova Scotia doctors smoked fewer cigarettes and are less overweight, are similar to a patient population in exercise habits and seat belt useage, but drink more alcohol and drive more miles than a patient population. There were no demonstrable changes in the prevalence of life style risks, which were statistically significant between the 1st and 2nd **BODYCHECK** appraisals.

## METHODS

The Fitness committee of The Medical Society of Nova Scotia was formed in 1975. Its objectives were to promote fitness and life style programs both to the Medical Society members and the general public. At one of its earlier meetings, the committee decided to undertake a project which would estimate the prevalence of life style risks in the Society's membership. To do this, they utilized the **BODYCHECK** program, operated by the Department of Family Medicine at Dalhousie University.

In 1976, **BODYCHECK** forms were distributed with a covering letter from the chairman of the committee to all 1,200

physician members of The Medical Society of Nova Scotia. This questionnaire requested information on life style risks including; weight, seat belt use, smoking, exercise, miles driven per year, and alcohol use, and these six risk factors were selected as they were all potentially reducible. It was planned to look at the prevalence rates of these six risk factors, and to repeat the evaluation i.e. one year later to measure any changes. The results were processed by computer and the print-out was returned to the individual physicians, so that they were notified of any high risks capable of reduction both initially and at the end of the twelve month period. For the 217 physicians responding to this questionnaire, the prevalence of life style health risks were reported to the Annual meeting of The Medical Society of Nova Scotia in November 1976.<sup>1</sup>

During the same time, the **BODYCHECK** research group were undertaking studies of patient populations in Nova Scotia.<sup>2</sup> Consequently, they had obtained data on the prevalence on these same life style risks in patient populations attending physician's offices throughout Nova Scotia. It was then possible to compare the prevalence of physicians risks with the prevalence of patients risks.

In 1977 a further **BODYCHECK** form was mailed to the same group of Nova Scotia Medical Society members, and 95 completed both the first and the second **BODYCHECK** forms. The interval between the 1st and 2nd appraisals varied from 12-18 months. These results were then tabulated and using standard statistical tests, correlated and compared with the prevalence data on the same life style risks obtained from the sample population visiting the offices of Nova Scotia family physicians.

## RESULTS

The prevalence of the risks in the members of The Medical Society of Nova Scotia are in Table I.

- Lack of exercise is the most common risk factor amongst members of The Medical Society of Nova Scotia.
- The second most prevalent risk is that of infrequent use of seat belts.
- The third is the high mileage driven (more than 16,000 kilometers per year).
- The fourth is excess alcohol use.
- The fifth is smoking
- The last factor is overweight by more than 10% of ideal weight.

This table illustrates the prevalence of risk compared with the patient population.

\*Chairman, Committee on Physical Fitness, The Medical Society of Nova Scotia.

\*\*Past-Chairman, Committee on Physical Fitness, The Medical Society of Nova Scotia.

\*\*\*Associate Professor, Department of Family Medicine, Dalhousie University, Halifax, N.S.

†Research Associate, Department of Family Medicine, Dalhousie University, Halifax, N.S.

**TABLE I**  
**PREVALENCE OF "TOP-SIX" LIFE STYLE RISK FACTORS**

| Risk Factor                  | % Physicians | % Patients |
|------------------------------|--------------|------------|
| LACK OF EXERCISE             | 61           | 63         |
| INFREQUENT USE OF SEAT BELTS | 57           | 59         |
| SMOKING                      | 27           | 49         |
| OVERWEIGHT                   | 13           | 44         |
| HIGH-MILEAGE                 | 42           | 24         |
| EXCESS ALCOHOL USE           | 39           | 15         |

The conclusions drawn from this table are significant ( $P < 0.01$ ):

- fewer doctors smoke tobacco than the general public.
- fewer doctors are overweight than the general public.
- more doctors consume 7 alcoholic drinks or more in a week than the general public.
- more doctors drive 16,000 kilometers or more per year than the general public.

In addition it was found that doctors are no different from the patient population in their exercise habits and seat belt useage. (both poor)

Improvement of Life Style Risk between the first and second **BODYCHECK** appraisals is shown in Table II.

**TABLE II**

| Risk Factor               | % at Risk First Evaluation | % Improved Second Evaluation |
|---------------------------|----------------------------|------------------------------|
| ALCOHOL <sup>1</sup>      | 39                         | 14*                          |
| SMOKING <sup>2</sup>      | 27                         | 19*                          |
| EXERCISE <sup>3</sup>     | 61                         | 34*                          |
| HIGH MILEAGE <sup>4</sup> | 44                         | 21*                          |
| SEATBELTS <sup>5</sup>    | 57                         | 24*                          |
| OVERWEIGHT <sup>6</sup>   | 13                         | 6*                           |

A person is considered to be at risk if they meet any of the following:

1. 7 or more drinks on the average per week
2. any smoking
3. less than regular moderate activity
4. greater than 10,000 miles or 16,000 km driven per year
5. usage of less than 75% of the time
6. greater than 10% of ideal weight

\*Not statistically significant.

Doctors did not significantly change their life styles with regard to the six risks studied over this short term (12-18 months). In other words, the difference in certain risk problems in doctors in comparison with the patient population must have evolved over a much longer period. In regard to prevalence of risks, doctors who responded to the follow-up (completed both first and second **BODYCHECK** evaluations)

were also not significantly different from doctors in general, (those who participated once in either the 1st or 2nd **BODYCHECK** evaluation).

**CONCLUSION**

This study illustrates that in order to be good role models, doctors have demonstrated their good life style behaviour with regards to smoking and weight control. However, there are other risks which need to be addressed. These include the need for exercise, the use of seat belts, lower intake of alcohol, and fewer miles driven.

Possibly the greatest chances of success would be in weight reduction and exercise programs, because the rewards are more tangible and attractive. The least chance of success is probably associated with smoking possibly because the rewards are somewhat less tangible as well as harder to achieve □

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## THEOPHYLLINE DOSING

continued from page 112

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**References.** Identify references by numbers within the text, and list them in numerical order on a separate sheet [see (f)].

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The usual framework of a paper is as given in (a) to (h) below, starting each section on a new page and numbering pages consecutively to the end of (h).

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- b) Brief summary.
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**Books** — MAJOR, R. H., and OELP, M. H. *Physical Diagnosis*, 6th ed. Philadelphia, Saunders, 1962, p. 51.  
**Contributions in Books** — Voheer, H. Disorders of uterine function during pregnancy, labor, and puerperium. In: *Pathophysiology of Gestation*, ed. by N.S. Assali. New York, Academic Press, 1972, vol. 1, pp. 145-268.
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# Correspondence

## To the Editor:

This is to update the information given in my recent letter to the Editor of the *Bulletin* April 1978.

The M.S.I. fee increases for April, 1978, are now known. The total percentage increase is 6.27%, with the percentage allocated to "across the board" fee schedule increases being 3.05%. In contrast the Consumer Price Index (CPI) increase for March 1977 to March 1978 was 8.84%.

A fee of \$10.00 as of April 1973, allowing for the "across the board" changes that have actually occurred since then, would as of April 1978 be worth \$13.50. Whereas to allow for increases in consumer price index over the period since April 1973, its value should stand at \$15.64.

The implication now is that should a physician wish to retain the same financial position in terms of "across the board" increases, as he would if the increases received had been of the same magnitude as changes in the Consumer Price Index, on the basis of a fee value of \$10 in April 1973 he would now need to directly bill his patients \$4.16. Of this \$2.02 represents 15% of \$13.50 plus \$2.14, being the difference between \$13.50 and \$15.64. This \$4.16 would represent approximately 30.8% of the present Fee Schedule value. In other words physicians would have to directly bill patients approximately 31% of the present fee schedule rather than 15%. This of course assumes that the physician is in the custom of directly billing his patients the difference between the M.S.I. payment and the Medical Society Fee Schedule, which may not necessarily be the case.

The purpose of this letter is again not to suggest that physicians should directly bill their patients at this rate. Rather it is to illustrate the deteriorated state of the fee schedule in relation to inflation.

As explained in my last letter (April 1978), the result of the cumulative effect over a period of time of the failure in any year to achieve an increase equal to that of inflation is here illustrated by the fact that on the basis of last year's Fee Schedule, the physician would at that time have had to directly bill his patients 25% of the Fee Schedule. Whereas it is shown above that this has now increased to 30.8%. This, of course, relates to changes only between April 1973 and April 1978.

It must be again pointed out that the "across the board" fee schedule increases do not represent the entire increases in fees enjoyed by the medical profession in Nova Scotia over these years. As stated above the total increase for the last twelve months was 6.27%.

One factor, that has probably not received as much emphasis as it should, is the amount of time that many physicians spend in the administration of their own practices. Two or three years ago the Provincial Medical Board sent out a manpower questionnaire. While this contained space for reporting on the time spent on hospital committees, etc., no entry was available for time spent in the administration of one's own practice. Based on my own experience as a psychiatrist, and that of one or two colleagues in family medicine, it would seem to me that many of us are spending at least a minimum of 30 minutes a day in such administrative

chores. Assuming a five-day week and a 46-week working year, this comes to about 113 hours per year. Using the standard Nova Scotia civil service work week of 35 hours, this represents approximately three weeks work annually. It should be mentioned that very adequate clerical assistance was available to the above physicians, and they could not therefore be criticized for engaging in poor administrative practices.

No suggestion is made that this administrative time should somehow be remunerated by M.S.I. However, such time is unlikely to appear on a physician's expenses account, since there is little point in most cases in him remunerating himself for this administrative activity. It is therefore a hidden factor which is not often considered. Though in the hypothetical and probably unlikely event of a large scale movement of physicians to salaried employment, this time would clearly have to be paid for either by direct monetary remuneration, or indirectly by reduced time spent on other clinical activities.


Yours Sincerely,

Michael J. C. Thomson, F.R.C.P.(C),  
Woodlawn Medical Clinic,  
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## VOLUNTEERS IN PROBATION

The Junior League of Halifax, in co-operation with Correctional Services, Department of the Attorney General, Province of Nova Scotia, has initiated a two-year demonstration project in the Halifax/Dartmouth metro area called Volunteers in Probation.

Since 1973, the Junior League of Halifax, a voluntary women's organization, has been keenly interested in the Criminal Justice System in Nova Scotia, believing strongly that private citizens must become involved positively in combating crime and delinquency in their community. It is essential that the general community begins to assume some responsibility for those persons who have committed criminal offences. In order to make progress in dealing with crime and delinquency, it is necessary that the public become aware of the gaps in, and responsible to the needs of, the Criminal Justice System.

The Junior League of Halifax believes that trained community volunteers can be effective as helping agents in all areas of crime and criminality. It is with this general philosophy, and after much research, that the Junior League of Halifax, in co-operation with the Correctional Services, established the Volunteers in Probation Project.

The V.I.P. project will recruit concerned men and women of the community who will provide one-to-one service to adults (the majority between the ages of 16 and 25) who have been placed on Probation by the Courts. The volunteers will be expected to give offenders personal, individual attention for a few hours a week. Probation Officers are a highly committed group of professionals, but with overwhelmingly high caseloads it is impossible for them to give that type of extensive service.

The Junior League of Halifax has hired Mrs. Martha Shinyei as Coordinator of the V.I.P. project. Mrs. Shinyei received a Bachelor of Arts in Sociology from Hardwick College, New York, and her Master's Degree from Pacific Lutheran University, Tacoma, Washington. Most recently, she was employed as a Research Associate with the Canadian Penitentiary Service in British Columbia. Mrs. Shinyei has been developing and implementing the various segments of this project.

Those citizens who volunteer go through a rigorous screening process. Following this, an extensive and interesting training program is offered to the volunteers. This training program deals with the Criminal Justice System, including an intensive look at the Courts, the Probation process, as well as discussions of interviewing techniques.

Adult Probation Officers in the metropolitan area have been involved in developing this project and will be supervising the volunteers. As the Volunteer-Probationer relationship develops, further on-the-job training, such as group discussions and film sessions, will also be offered.

The Junior League of Halifax is providing \$37,000.00 funding for this project, having raised money from the community with the Junior League Follies.

Anyone interested in becoming a V.I.P. should contact Mrs. Martha Shinyei, Coordinator, Volunteers in Probation Project, 3rd Floor, Lord Nelson Arcade — 424-5775. □

## OBITUARIES

**Dr. Joseph H. Digout**, 79, of St. Peter's, N.S. died June 24, 1978 in St. Francis Hospital, Antigonish. Born in River Bourgeois, he graduated with his medical degree from Laval University, Quebec. He practiced medicine for 50 years in St. Peter's. Our deepest sympathy is extended to his wife and family.

**Dr. Eily Christina McDonagh** of Sydney, N.S. died August 3, 1978 in Galway, Ireland. She had returned to Ireland the latter part of June. Dr. McDonagh was Medical Director at the Cape Breton Health Centre in Sydney where she had worked for sixteen years. She will be greatly missed by all with whom she came in contact.

## NEW MEMBERS

The Physicians listed below have joined The Medical Society of Nova Scotia between April 1, 1978 and July 31, 1978. A most cordial welcome is extended by the Society.

|                     |                    |
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| Dr. J. W. Beaton    | New Glasgow, N.S.  |
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| Dr. D. R. MacRae*   | Saint John, N.B.   |
| Dr. Kimitaka Saito  | Halifax, N.S.      |
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\*Recent Dalhousie Graduates.

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