

DALHOUSIE UNIVERSITY

Dental Research News



Research Development Office
Faculty of Dentistry
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Montreal Bonanza

We finally got the good news, we have an all time record of 28 abstracts accepted for presentation at the IADR meeting in Montreal next March. Our previous all time record was ten at last years meeting. This clearly puts us in the big league internationally in terms of research activity.

It was encouraging to find that one of the areas of emphasis emerging from the first phase of our curriculum planning process with Larry Meskin was that of increased involvement with research in our dental programme. In fact this trend is not just occurring at Dalhousie but is clearly emerging in all dental schools in both Europe and North America. This trend in part explains the fact that a record number of 2761 papers were submitted to the IADR meeting in Montreal next March.

Some indication of the international distribution and trend in the types of research can be gained by looking at the percentage of abstract papers in the different categories (Table 1.). As can be seen the two largest areas involve dental materials and periodontal research which between them account for close to one third of the total abstracts submitted and accepted for the Montreal programme. A total of 770 abstracts at the Montreal meeting will deal with these two subject areas. It is clear that other new emerging areas such as geriatric dentistry and implantology will tend to grow over the next few years.

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Table.1.
Montreal IADR Programme 1988.
Abstracts Submitted as a % of Total

Area	%Submitted	%Rejected
Dental Materials	16.26	13
Periodontics	15.57	12
Microbiol/Immunol.	8.44	12
Mineralized Tissue	6.74	5
Cranio Biology	6.63	11
Cariology	6.23	14
Prosthodontics	5.76	17
Behavioral Science	4.60	22
Neuro-Science	4.20	24
Pharma/Therap/Toxicol	4.09	10
Experimental Pathol.	3.73	12
Pulp Biology	3.59	11
Salivary Research	3.22	18
Implantology	3.15	13
Oral Surgery	2.83	12
Health Services	1.52	14
Geriatric Dentistry	1.23	24
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Total abstracts submitted 2761, total rejected 363(13%)		
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University Committee Appointment

Dr.Choong Foong has been appointed by President Clark to the University Committee for Ethics of Laboratory Animals. This is the first time that the Faculty of Dentistry have been represented on this very important committee. This is indicative of the growing acceptance of our Dental Faculty's involvement in research. The committee deals with the protocols for animal experimentation.

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Research Funding Available ?

The main research funding available in Canada for dental research comes from the support of the Medical Research Council. The total funds given out each year for medical and dental research are of the order of 170 million dollars. Health and Welfare Canada have a much smaller budget of about 12 - 15 million dollars for various types of grants. Details of MRC funding for 1986/87 which was received by the ten Universities who have a dental faculty are shown in table.2. A further distribution of MRC funding by Province is shown in table 3. The competition for research funding from these federal agencies is however, extremely tough. Dentistry has to compete with medicine and novice researchers have to compete with experienced researchers who have a track record. This state of affairs presents a real problem for the novice researcher who has yet to develop a track record. It is important to remember that the greatest expenditure involved in any research project is probably time rather than money. Time is the only real capital we have, we should spend it wisely. Fortunately the Medical Research Council do recognize the need to stimulate research, they supply funding to each dental faculty which provides in-house support.

If you have the time available to do research and the only limitation is a few dollars you should apply to the Research Development Office (phone 2545) for funding to support your project. A limited amount of MRC discretionary funding is available to support research projects, drop by and discuss your ideas with Derek Jones. Try to plan ahead now with your research project so that you have the ideas firmly established on paper in time for consideration for any summer research student involvement.

"You can't build a reputation on what you are going to do."

Henry Ford.

Table .2.

* MRC FUNDING 1986/87

University	%(\$)
Toronto.....	19
McGill.....	14
UBC.....	8
Western Ontario.....	6
Manitoba.....	5
Alberta.....	4
Laval.....	4
Dalhousie.....	3
Saskatchewan.....	2
Other Universities and institutions.....	35

*(Note medical and dental funding combined)

Table 3.

MRC FUNDING 1986/87

Province.	%(\$)
BC.....	8.4
Alberta.....	7.9
Saskatchewan.....	2.5
Manitoba.....	5.0
Ontario.....	37.1
Quebec.....	30.3
New Brunswick.....	--
Prince Edward Island.....	<0.1
Nova Scotia.....	3.5
Newfoundland.....	1.0
Other.....	4.3

Request from MRC

As part of the on-going evaluation of its programmes to encourage health professionals to pursue research careers, MRC have requested details relating to the beneficiaries of the MRC Farquharson Research Scholarships (formerly Summer Undergraduate Scholarships). It was with considerable pleasure that we were able to report that as a result of their summer research our four students will in fact be presenting papers at the IADR meeting in Montreal.

NHRDP Funding at Dalhousie

Our colleagues at Dalhousie in the health professions have been reasonably successful in obtaining funding from the NHRDP over the past few years. Some 48 investigators from 21 Dalhousie Units have received a total of over 3 million dollars between 1980-1988. Details of the funding received each year is shown in table 4. A list of the various units which have received this funding is given in table 5. We should aim to include the Faculty of Dentistry amongst the recipients for 1988/89.

Table 4.

NHRDP Research Funding Received by Dalhousie University.

Year	Amount
1980-81.....	\$341,904
1981-82.....	\$247,086
1982-83.....	\$403,030
1983-84.....	\$314,913
1984-85.....	\$361,157
1985-86.....	\$371,135
1986-87.....	\$472,315
1987-88.....	\$507,375
Total.....	\$3,018,915

Applications by Faculty for NHRDP Funds.

Table 5.

Dalhousie University Units Funded by NHRDP 1980-1988.

Family Medicine
 Dept. Medicine
 Dept. Microbiology
 Dept. Paediatrics
 School of Human Communication Disorders
 Dept. Obstetrics and Gynecology
 Clinical Research Centre
 Division of Continuing Medical Education
 Department of Preventive Medicine
 School of Nursing
 Dept. Pharmacology
 College of Pharmacy
 Dept. Psychiatry
 Division of Physical Education
 School of Physiotherapy
 Dept. Urology
 Dept. Psychology
 School of Occupational Therapy
 Infection & Immunology Research Lab.
 Dept. Community Health & Epidemiology
 Division of Infectious Diseases.

Two grant applications have been submitted in the past few weeks to NHRDP for off cycle funding. One of them deals with "Oral Health Outcomes of a Dental Health Programme for Mentally Handicapped Adults Living in Grouped Homes" this has been submitted by N.Prowse, T.Mitchell, C.Jackson and M.Forgay. The second one "Risk Assessment of Health Hazards Due to Mercury from Dental Amalgams" The six individuals involved with the project are Dr's Cunningham, Foong, Jones, McCurdy (Path.Inst.), Moss (Path.Inst.) and Sutow. The total funds requested for the first year of this project are \$104,547.00 and for the second year \$93,990.00. Let us all hope that 1988 will be a lucky year for both of these projects.

Painless?

In 1896 we had Painless Parker, in 1986 we had Painless "Caridex". In 1988 we may have Painless "Harrison". Dr. Ros Harrison in collaboration with Dr's Mezei, Foong and Howell is working on a project to take some of the fear of pain from dental injections away from young patients. The removal of pain for young impressionable patients may have a significant effect on the future utilization of dental services.

"What we need is not the will to believe, but the wish to find out, which is the exact opposite".

Bertrand Russell.

NHRDP

The visit of Dr. Ron Heacock Director General, National Health Research and Development Program (NHRDP), of Health and Welfare Canada, on December 1st provided us with a most useful contribution to our Research Seminar Series. Extremely valuable information and advice was given relative to the type of funding available and the format and style of grant applications. Of special interest to our faculty was the mention of the small start up grants of up to \$15,000 which are available at any time of the year. The main areas which are covered by NHRDP grants are: Public Health; Information relative to the health of Canadians; The availability, accessibility, and quality of health care. Health hazards, illness prevention and the promotion of behaviours conducive to good health. Special consideration is given to projects dealing with the disabled handicapped and native peoples. Dr. Heacock made a point of mentioning that a special grant competition would be offered in 1988 dealing with the elderly.

It is clear that many of our clinical faculty members will be able to take advantage of the NHRDP grants programme during the next few years. Extensive epidemiological studies of the prevalence and incidence of dental and related health problems of the elderly are urgently required. However, there is also considerable scope for epidemiological studies in Atlantic Canada for a whole range of dental and medical problems. The appointment in 1988 of an epidemiologist to our faculty will provide a golden opportunity for Dalhousie to take a major step forward in this area of research.

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"Research teaches a man to admit he is wrong and to be proud of the fact that he does so, rather than try with all his energy to defend an unsound plan because he is afraid that admission of error is a confession of weakness when rather it is a sign of strength".

H.E. Stocher.

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Research Stimulation from a Troubled Mind

Research can be stimulated by many and varied factors. For example when the Soviet Union in 1957 successfully launched its space capsule, "Sputnik", it simultaneously launched a new era in support of science and technology in the United States. In the same year, the US federal budget for research and development was \$12 billion; in ten years it had doubled to \$24 billion. It is difficult to extrapolate from this event to determine the influence if any on the spending on "Dental Research". Over the past twelve years the Canadian MRC budget has however, risen from \$30 million to the present \$170 million.

In the swinging 1960's there was considerable discussion of the so called "Population Explosion" and in the 1970's there were similar debates about the "Energy Crisis". Both of these phenomenon are closely related to the question of the limits to "Growth". The possible limits to growth are perhaps a major factor influencing research trends and research funding. No one can deny that the limits to growth are a major factor influencing the growth and direction of research in faculties of dentistry. It is interesting to note that at a time of stress and change, dentistry is placing a high priority on increased research activity. This can only be seen as a very healthy attitude. It is only through extra emphasis on research that dentistry can be psychologically prepared for change. The words of Sir Frederick Banting come to mind "Many people think that research is a supernatural gift of the gods. However, it is simply an idea from a troubled mind, an inspiration followed by infinitely painstaking work and perspiration".

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Do you have any "RESEARCH NEWS ITEMS" Which you would like to share with your colleagues? If so, please forward such items to the Research Development Office.

The Mussel Power of *Mytilus Edulis*

The recent crisis of the poisoning caused by mussels from Atlantic Canada and the heroic efforts by our colleagues and friends at the NRC Atlantic Research Laboratory in Halifax brings to mind the difficulties presented in analysis of natural marine compounds.

Research was conducted by Professor Cook at the University of Newcastle in England in the 1960's and early 1970's when he looked at naturally occurring adhesives of aquatic invertebrates such as the common mussel (*Mytilus Edulis*). He worked for almost twenty years to try to determine the chemistry of the adhesive system with the hope of producing a dental cement which would set in the moist conditions of the mouth. For the past ten years Dr. Herbert Waite and colleagues at the University of Connecticut have also studied the rapid acting glue which anchors mollusks to virtually any underwater surface. Dr. Waite and his group claim that they have now isolated and characterized the adhesive protein. The obvious advantage of such a glue are that it not only creates a strong bond in a wet, saline environment but also maintains the stability of the bond in the dry condition.

A further major advantage is that the protein (unlike demoiic acid) is considered to be biologically inert. The adhesive if successfully developed would have a wide application in both dentistry and medicine since it has the potential for bonding to both hard and soft tissues. The primary ingredient of the ten repeating amino acid is a polphenolic protein which is catalysed by an enzyme catechol oxidase which is said to produce the setting reaction. The University of Connecticut have taken out a patent approval on the adhesive system. Recombinant DNA technology is now being used to synthesize the mussel glue in large quantities. The researchers state that using mussels as a direct source of the adhesive is not feasible, since it would take more than three thousand mussels to produce a mere gram of adhesive. This is bad news for our local fishing industry with tons of mussels they cannot sell. The researchers

claim that the adhesive will be available for dental feasibility studies and testing within two years. However, the good news is that the real mussels will eventually return to the menus of Halifax restaurants and Nova Scotia will not become an industrialized province producing mussel glue.

***** Goodbye 87, Hello 88 *****

As we wave goodbye to 1987, we can look back at a very hectic year in terms of research activity in our faculty. As we say hello to 1988, we can dream and hope and speculate about what could and should happen in our faculty. Here are a few dreams that might just come true:-

- 1) Successful funding of our School of Dental Hygiene NHRDP Grant application.
- 2) A further success for the NHRDP Grant application dealing with the problem of mercury.
- 3) A successful outcome for the four project programme grant application to MRC.
- 4) A successful outcome for our applications for Redistribution and Development funding to support our growing research activity.
- 5) Success for our application to NSERC for a five year support for a faculty member.
- 6) Success for our application for a Killam Postdoctoral Fellowship.
- 7) A rapid increase in our epidemiological research with the arrival of our new faculty member from McGill.

HAPPY NEW YEAR?

"The best thing about the future is that it only comes one day at a time".

Dean Acheson.

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