



Dental

JUNE 1991

Research News

Research Development Office, (902) 494-1675

VOLUME V, NUMBER 6.

One Million \$ for Research

The MRC Programme Grant has been awarded \$169,700 for one year to continue the research on biomaterials. This award combined with the NHRDP grant of 120,080, and the MRC Development Grant of \$743,156 brings the total research funding obtained this year to \$1,032,936. The investigators involved with the biomaterials programme grant were hoping to get at least a three year award before having to apply for further funding.

Major Breakthrough

A new electron microscope, developed jointly between Dr. Jurgen Kreuzer and Dr. Hans-Werner Fink of IBM was announced as part of the 12th Annual Biomaterials Society Conference held at the Faculty of Dentistry on 6-7th June. The new device is a projection electron microscope capable of atomic resolution with a magnification about one

million. The simple design consists of a point electron source (a very thin wire tip) the object film and an electron detector. No lenses are need. It uses very low energy electrons minimizing radiation damage that has plagued conventional high energy electron microscopes. Pictures of carbon fibers and gold films were shown together with evidence that the double helix in DNA can be resolved, thus promising exciting new vistas in biological research. Dr. Kreuzer is Professor of Physics at Dalhousie and an internationally recognized scientist is also a member of our biomaterials group. Dr. Fink is also internationally known. The Biomaterials Society Conference was ecstatic with the news of this major world class breakthrough, which can open up unbelievable possibilities for studying the interface between biomaterials and natural tissues.

NHRDP grant Success.

As reported in last months Dental research News Dr. Amid Ismail has recieved a renewal of his NHRDP grant worth \$120,080. The title of the project is:

Evaluation of the Restorative Treatment Services of the Quebec Children's Dental Insurance Program

This enterprise by Amid Ismail provides an excellent example of a clinical epidemiology /Health Services research project.

Restorative dentistry for children in Quebec costs about \$40 million annually (in NS the estimate is around \$3-4 million). This research project was organized in 1988 to investigate the current distribution of different types of carious lesions in children and how dental caries is managed by dentists in a province with a dental insurance program for children.

Previous research (only 1 study in Scotland) found that there is a great variation in restorative decisions among dentists and that sound teeth were as likely to be restored as carious teeth. Moreover, some dentists were more likely to restore than others and patients who changed their dentist were several times more likely to have restorations replaced.

These findings are still shocking to many and, therefore, they should either be confirmed or rejected through replication. Accordingly, the Quebec project was organized. A random representative sample of 911 children on the Island of Montreal was selected and examined. All insurance records (after obtaining consent of parents) will be made available since birth. Restorative patterns will be investigated and tooth status will be correlated with restorative decisions made by private dentists during a period of two years starting from the baseline examination in 1990. The first annual examination is now being carried out and the final examination will take place in 1992.

The research team was surprised at how little dental students were trained in diagnosing dental caries. Clinical criteria for diagnosis of dental caries are either not written in dental schools or if present are outdated. Advances in understanding of dental caries are divorced from diagnosis of the disease. The research project will be very controversial and will raise many interesting discussion issues for dental educators and dentists. Dental caries has changed and so should our diagnostic and decision making criteria.

**Further Grants Submitted
to NHRDP**

"Evaluation of dental caries prevalence of children participating in fluoride tablet and fluoride mouthrinse programmes in Northern Newfoundland and Labrador."

The above proposal was submitted (May 15, 1991) by Dr. A. Ismail and Dr. J. Messer (Grenfell Region Health Services) to NHRDP to test for the equivalency of dental caries prevalence between children who received fluoride tablets daily and those who rinsed once weekly with a fluoride solution. During the proposed project 1,000 children will be examined for caries. In addition, many other co-variables will be collected and accounted for during testing for the differences in caries prevalence between the two groups of children. Statistical testing will be carried out in accordance with the criteria of the Council on Dental Therapeutics, ADA.

A further research proposal has also been submitted to NHRDP

**The Relative Risk of
Mercury to Patients
and Dental Personnel.**

The following individuals are involved with the project. Derek Jones, Choong Foong, Elliott Sutow, Bruce Wright,

Mike Moss, Ross McCurdy, Don Cunningham and JoAnne Clovis. Objective will be to collect critical information which will aid in the risk assessment involved in the use of dental amalgam. Specifically, the aim will be to assess the relative mercury risk to both patients and dental personnel.

The public is confused by pronouncements made by some individuals and organizations about the toxic effects of, and suggested disease link with, mercury released from dental amalgam. While there is no scientific evidence to support such claims, the public are frightened by the scare tactics which are fuelled by media sensationalism. Many dentists are increasingly faced with a real moral, scientific and legal dilemma in deciding the proper treatment. There is an obvious urgent need for scientific data which will provide valuable information about the mercury levels in the dental working environment and the release from dental amalgam restorations. This proposed study aims to collect critical information which will aid in determining whether dental amalgam restorations should be withdrawn as a dental restorative material in Canada.

Thought for the day: Results are what you expect. Consequences are what you get.

Canadian Biomaterials Conference Held at Dal.

A very successful 12th Annual Conference of the Canadian Biomaterials Society was held at Dalhousie on June 6th-7th. Papers were presented on a wide range of biomaterials topics. Dr. Dennis Smith, University of Toronto was the Keynote Speaker, his topic was "Biomaterials, Past, Present and Future." Dr. Jim Johnson gave a Plenary Lecture titled "Engineering and Materials in Orthopaedics" A workshop "Application of Computer Modelling to Biomaterials" was presented by Dr. David Pink Physics Department, St. F. X. , and Dr. Jurgen Kreuzer Physics Department Dalhousie University. A further five papers were also given by members of the Division of Biomaterials at Dalhousie. The highlight of the meeting may have been the presentation by Jurgen Kreuzer of the new electron microscope (see front page), however, the Division of Biomaterials were also thrilled with the success achieved by Randall Miller in winning the joint first prize of \$100 for the best student presentation of a research paper. All agreed that the Conference was an outstanding success, the climax was an excellent banquet on Friday evening which was crowned with a superb after dinner talk by Bob Fournier.

Oral and Maxillofacial Surgeons Make Impact in Ottawa.

The following seven research papers were presented by the members of the Department of Oral and Maxillofacial Surgery at the 38th Annual Meeting, of the Canadian Association of Oral and Maxillofacial Surgeons, in Ottawa, May 22-26, 1991.

Precious, D., Armstrong, J., Morrison, A. and Field, C.: Incidence of total hip replacement in 1276 orthognathic surgery patients,

Precious, D., Armstrong, J. and Morais, D.: Relative contra-indication of rif in genioplasty.

Precious, D., Goodday, R., Skulsky, F. and Lewis, D.: Relative functional improvement following BSSO.

Goodday, R. & Precious, D.: Biomechanical analysis of the jaw lever system.

Precious, D.S. and Armstrong, J.E.: Effect of LeFort 1 Surgery on Upper Lip Thickness.

Precious, D., Skulsky, F. and Goodday, R.: The Effect of Presurgical Orthodontic Treatment on TMJ Pain.

Goodday, R.H. and Precious, D.S.: Effect of Skeletal Deformities on Bite Force Prediction: A Preliminary study.

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Record Number of IADR PAPERS

The Acapulco meeting had an all time record number of 2,644 papers being presented. The distribution of papers for the 1991 IADR meeting in Acapulco by subject is shown in the table below. The largest sections are as usual Dental Materials and Periodontal Research with 17.3 and 13.9% of the programme respectively. Microbiology/Immunology is the next highest with 8.3%. What is unbelievably remarkable is the fact that these percentages are almost identical to the 1990 meeting last March in Cincinnati.

SUBJECT	1990%	1991%
Behavioral Science.	5.7	5.5
Cariology	5.4	4.6
Craniofacial Biology	6.5	7.2
Dental Materials	17.3	17.3
Diagnostic Systems	2.2	1.8
Experimental Pathology	4.4	3.4
Geriatric Oral Research	2.1	1.9
Implantology Research	3.6	3.2
Micro/Immunology	8.3	8.3
Mineralized Tissue	6.1	6.1
Neuroscience/TMJ	4.5	4.4
Oral & Maxillofacial	1.1	2.8
Periodontal Research	14.3	13.9
Pharmacol. Therap. Tox.	4.9	3.7
Prosthodontics Research	6.6	7.3
Pulp Biology	2.9	2.8
Salivary Research	4.2	3.8

If you would like to compare the distribution of papers in the various subject areas with past meetings you can consult the back issues of the Dental research News in the Faculty Lounge (Vol II #1 1988, Vol III #4 and Vol III #7, 1989).

The IADR meeting in Acapulco had a total, of 2644 papers, this includes the various invited symposium papers and Hatton award papers. This compares to the meeting in Cincinnati, which had a total of 2,220 papers and the AADR meeting held in March 1989 in San Francisco which only had a total of 1,890 papers. However, a further 1,266 papers were also presented at the meeting in Dublin which gave a combined number of 3,156 for the two meetings. This can be compared with the total of 2,398 for the IADR meeting held in Montreal in 1988. The total number of papers at the IADR/AADR meetings for the years 1988-91 is 10,383. A total of 49 papers for the last two years (1990/91) carried the name of Dalhousie University in front of an international audience. It is encouraging to find that our research papers at international meetings are well received and are a credit to Dalhousie University.

Scepticism

"as scientists we are trained to question decisions continually. Rarely, if ever, are scientists so overwhelmed by data that they can make unequivocal statements about the meaning of these data." Stanford A. Miller.