Dr. Richard Ellen: An Inside View of Oral Health Research in Canada

Dr. Richard Ellen is a professor in the faculty of dentistry at the University of Toronto. He is also the director of the Canadian Institutes of Health Research (CIHR) strategic training program, Cell Signaling in Mucosal Inflammation and Pain. He is a recognized authority on oral microbial ecology, the biology of dental plaque and other biofilms, the biology of spirochetes and the pathogenesis of periodontal diseases.

Dr. Ellen serves on the institutional advisory board of the CIHR Institute of Musculoskeletal Health and Arthritis (IMHA), the institute where oral health research is nested. Dr. Ellen is past president of the Canadian Association for Dental Research (CADR), and is currently the regional board member for North America of the International Association for Dental Research (IADR).

JCDA caught up with Dr. Ellen to seek his unique insights and perspectives about the oral health research infrastructure in Canada.

JCDA: *How has the overall funding landscape changed since CIHR replaced the Medical Research Council (MRC)?*

Dr. Richard Ellen (RE): Funding for all health research has changed drastically since the legislation that brought in CIHR around 2000. Without doubt, there has been a large increase in the amount of investment in health research from the federal government since that time.

In terms of operating grants and money spent funding actual research, each of CIHR's 4 pillars (biomedical, clinical, health services and population health) has seen large increases in total budgets and budgets awarded per grant since the transition from MRC to CIHR. The greatest increase has been in health services and population health, the 2 pillars that started with the smallest amounts.

The CIHR budget has risen annually, but these increases have decelerated rapidly since 2005. Budget increases were expected to continue for about a decade and bring the CIHR budget up to approximately $1 billion; however, we have stalled far short of that goal.

JCDA: *If there is more money in the CIHR budget, why are health researchers finding it difficult to obtain funding for operating grants?*

RE: The entire funding system faces challenges, primarily because the mandate of CIHR is far broader than MRC's ever was. CIHR supports health research exploring all phases of society that have an impact on people's health. There is now a focus on social science issues, gender issues, aboriginal issues, community health issues and a marked emphasis on knowledge translation — or the ability to translate research into improved health for Canadians. CIHR has done a marvellous job bringing all of these communities into the system, but of course they all need financial support.

CIHR issued numerous requests for applications (RFAs) during its first 5 years, and it made several long-term commitments to projects for 5 or 6 years. This means that funds which would normally be available for the open grant competitions are tied up. On top of this, there are now far more investigators in the system competing for a limited amount of grant funds.

Dr. Richard Ellen (far right) pictured with trainees, mentors and guests at the annual meeting of the CIHR strategic training program in 2006.

JCDA: *The success rate for CIHR's most recent open grants competition was 16%. Are you concerned about this figure and its possible implications on oral health research in Canada?*

RE: This 16% success rate was an historical low and it will have an enormous impact on health research in Canada. If it continues at this rate, the effects could be felt for quite some time.

First, it will be very difficult for many of those who already have operating grants to continue with their research. I'm talking about qualified, top-ranked researchers who are not making the cut. Second, the people that CIHR has already trained and invested in will not be used productively. These are highly motivated individuals who want to, and should, succeed. Some of these investigators will look at other options, perhaps moving to other countries or into private practice.

In the last few grant cycles, we haven't had a single new investigator receive an operating grant in oral health. Without these types of grants, new investigators will have great difficulty establishing a track record. We have a tough enough time convincing dentally trained scientists to take their first step into a research career; such a competitive funding climate will likely make them question whether to continue in this direction.

JCDA: *Can the oral health research community overcome these funding challenges?*

RE: I believe we can, especially if we cooperate with other sectors and research communities. In terms of federal funding for research, we are definitely in much better shape since the inception of CIHR. However, oral health is a relatively small and vulnerable community compared with other research fields. In a tough funding environment, we may be more susceptible than others.

JCDA: *You were a member of CIHR's Dental Sciences Committee. Can you talk about the relative importance of oral health research within CIHR?*

RE: When CIHR was created, it was made very clear to the oral health community that there would be no stand-alone dental research institute. However, since there was a natural fit with research areas such as mineralized tissue, arthritis and rehabilitation, oral health was designated as one of the 6 research foci within the Institute of Musculoskeletal Health and Arthritis (IMHA).

In my opinion, this turned out to be a very fortunate event. We have made far greater strides as a research community by being nested within a multidisciplinary institute like IMHA than we would have on our own.

JCDA: *I'm surprised to hear you say that. Why do feel this is the case?*

RE: One of the challenges of oral health research has always been to be viewed by the health research community as an important and legitimate research endeavour. Within IMHA, the oral health research community is well respected as a small but strong and unified community. It is good for our community if we can keep driving our oral

health research objectives within the context of the overall research priorities of the Institute. If we pursue collaborations in areas such as skin, rehabilitation, arthritis, infection, immunity, neurosciences and pain, we will continue to gain respect and obtain research dollars. We share so much common ground.

JCDA: *You mention "the overall research priorities of the Institute." What are these priorities and how can oral health research meet them?*

RE: CIHR is structured so that each of its 13 institutes receives an equal amount of funds from the overall CIHR budget. Each institute has an advisory board and a scientific director, who together determine their own institute's research priorities. At IMHA, a decision was made to pay attention to the 3 smaller communities within its domain in the next few years, namely, skin, rehabilitation and oral health. This is very significant as these research communities are at the most risk in the broader context.

The institutes are also mandated to do priority-driven research and they post RFAs asking for grant applications targeting these priorities. The great thing about oral health research is that not only does it encompass IMHA's priorities of chronic disease, tissue injury, pain, tissue repair and replacement, it also fits the priorities of many of CIHR's 12 other institutes. For instance, we can meet certain priorities of the Institute of Infection and Immunity; Neurosciences, Mental Health and Addiction; Human Development, Child and Youth Health; Aging; Aboriginal Peoples' Health; Circulatory and Respiratory Health; and Health Services and Policy Research.

If our community initiates the proper collaborations, oral health researchers can qualify for a greater variety of research projects.

JCDA: *Is the oral health community approaching these other CIHR institutes right now?*

RE: Although a number of our investigators have grants in priority areas of other institutes, there isn't a single oral health representative that sits on the advisory board of an institute other than IMHA. We need to branch out to other institutes to address some of the cross-cutting issues at CIHR.

Within IMHA, oral health is certainly visible and vocal. We originally had only one person, Dr. James Lund, dean of dentistry at McGill University, on the Board and he did a marvellous job promoting oral health within IMHA. The Institute has kept its commitment about placing its research priorities on its smaller communities.

JCDA: *So how can we ensure that oral health remains a priority within IMHA and CIHR in general?*

RE: I would like to see other institutes within CIHR partnering their RFAs that address oral health needs with the oral health community. For example, in CIHR's last release of RFAs, there was a seed grant to develop teams to address disparities in oral health of vulnerable populations. This falls squarely in the arena of health services and population studies, as the burden of dental needs in the Canadian population is among vulnerable populations, like aboriginal communities, those living in poverty, the elderly or those without dental insurance. Health Canada certainly has a stake in this research. Indeed, the idea for the RFA started in cooperation with Dr. Peter Cooney, Chief Dental Officer for Health Canada.

JCDA: *Are these seed grants the same as the strategic training programs that CIHR promotes?*

RE: Not exactly. When CIHR was created, it realized that to meet its wider mandate it would need to build greater research capacity, and it did so by including RFAs for training programs called Strategic Training Initiatives in Health Research (STIHR).

In the first round of grants, the program that I'm involved with (Cell Signals) received funding from the central CIHR budget. While Cell Signals isn't solely focused on oral health, it is centred in a dental school and many trainees come through the graduate department of dentistry.

IMHA then funded the undergraduate research program Network for Oral Research Training and Health (NORTH). This national program has great applicants and has been highly successful in terms of increasing the Institute's visibility in dental schools across the country. Some dentists don't realize that this is a fully funded strategic initiative of IMHA.

More recently, IMHA provided funding for an Applied Oral Health Research (AOHR) strategic training initiative specifically directed at graduate and post-graduate students and faculty members. This program is shared among the 3 dental faculties in Quebec and is centred at McGill University under the direction of Dr. Jocelyne Feine. It concentrates on research at the clinical

Dr. Richard Ellen, representing the IMHA Institutional Advisory Board, presents Dr. Michael Glogauer of the University of Toronto with the IMHA Quality of Life Award for research in oral health for 2005.

and population level as opposed to fundamental laboratory sciences.

JCDA: *So is it fair to say that CIHR and IMHA are, in fact, making significant investments in the oral health community?*

RE: CIHR has been extremely supportive of oral health research, especially in the area of capacity building. Cell Signals, NORTH and AOHR have each received funding of $300,000 per year for 5 or 6 years. However, once the funding for these programs runs its course, the same level of funding may not be available. This is why it is essential to forge new partnerships.

It is also important that trainees who complete STIHR programs and pursue a research career find an environment that continues their mentoring, supports their ideas and sustains them as leaders in research over a long career. This will allow them to go beyond our past generations in driving oral health research into new frontiers where it will translate into accelerating improvements in oral health for all.

JCDA: *What areas of oral health research are Canadians considered world leaders?*

RE: While there are many disciplines where Canadians are making great contributions internationally, I believe we are especially strong in 5 broad categories: connective tissues/mineralized tissue biology, neurosciences and pain, biomaterials and implant research, microbiology/infectious diseases and health services research.

Health services research covers topics like health care delivery and policy, and issues involved in dental public health. Canada has many pockets of excellence in health services research at our universities, including a strong track record in geriatrics and aboriginal research. Canada has a terrific group of investigators in dental public health, but we need to attract new investigators into becoming clinician-scientists in these fields.

JCDA: *Do you feel that the Canadian oral health research community is well positioned for the future?*

RE: For a country with a relatively small population, the Canadian oral health research community has been recognized internationally as one that contributes well beyond its size. But the generation that drove this research from the late 1960s onward is now approaching retirement or has retired.

We need our dental administrators at the universities to have the fortitude to appoint and support research-oriented professors who have what it takes to drive outstanding oral health research. This needs to be seen as a priority. Wasn't it a former CDA president who coined the phrase "No professors, no profession"?

JCDA: *What actions can the dental profession take to help the research community?*

RE: The profession must continue to increase the communication between the research community and practitioners. This has improved quite a bit in recent years. Organized dentistry can also help by recognizing that research is a high priority for improving practice. This message needs to be reinforced to governments at the federal *and* provincial levels. We are far too reliant on the federal government for funding and should consider reaching out for more provincial support. The FRSQ (Quebec's public health research fund) is perhaps the best model for this type of approach.

Our professional associations are knowledgeable in talking to politicians and are the best group to present our case. The messages being conveyed should reinforce the idea that Canada has a high-quality oral research community that must be sustained into the future.

JCDA: *What can private practitioners do to help support research?*

RE: Every time a practitioner truly signs on to the idea of evidence-based dentistry, he or she is supporting the concept that continuous research is valid and important to the modern dental practice.

It's also very important to the research community that individual practitioners support their local dental faculty through its fundraising efforts or continuing education courses. These investments help support the infrastructure that in turn helps to support our young investigators.

Managing a dental practice is very demanding, but if practitioners can dedicate part of their schedule to reading and seeking out health information, this also validates oral health research in this country.

On a national level, the Dentistry Canada Fund is conducting a campaign to raise funds that will be applied to oral health research. Private practitioners can support research by donating to this worthwhile endeavour.

JCDA: *Can you talk about your involvement with CADR and now IADR?*

RE: CADR is a relatively small association with about 250 active and student members, composed primarily of people with experience in dental research, many of whom are on the editorial boards of journals or are involved in the peer-review process. CADR promotes the quality and continued sustainability of dental research in Canada by aiming to coordinate research activities with other stakeholder groups. Despite being a modest-sized division within IADR, CADR is looked upon as a leader in oral health research and many Canadians have served in high-level positions at IADR.

Toronto will host the IADR annual meeting in July 2008 and since this meeting does not come to Canada very often, I would encourage all Canadian dentists to attend. The academic program will have a local flavour and there is usually a range of continuing education options.

JCDA: *Do you have any final thoughts, Dr. Ellen?*

RE: I really appreciate the opportunity that the Canadian research community extended to me, providing support and a welcoming environment that enabled me to pursue an active and vibrant research career in Canada. This is why I immigrated, and I have not been disappointed. I want to try to pass on these same opportunities to a new generation of Canadian researchers.

Sean McNamara *is writer/editor at the Canadian Dental Association.*