

Oral Health Researcher: A Viable Career Option

Encouraging individuals to pursue a career in oral health research is crucial if the Canadian dental profession wishes to continue moving its collective knowledge base forward. As dentistry increasingly moves toward an evidence-based model of delivery of care, members of the profession must engage in cutting-edge research. While the oral health research community in Canada has rightfully earned a strong international reputation as a leader in a variety of disciplines, financial and human resource challenges are gathering on the horizon.

JCDA interviewed 4 individuals currently involved in oral health research in Canada. All are excited and passionate about their chosen fields of specialty. Corey Felix is completing his DDS at Dalhousie University and is a research assistant under the guidance of Dr. Richard Price. Dr. Michael Glogauer is a professor with the Canadian Institutes of Health Research (CIHR) Group in Matrix Dynamics at the University of Toronto. Dr. Lewei Zhang is a professor in oral biological and medical sciences and a pathologist in the department of laboratory medicine and pathology at the University of British Columbia. Finally, Dr. Gilles Lavigne is a professor in

dentistry and physiology at the University of Montreal, co-director of the Quebec Pain Research Network of the FRSQ (Quebec's public health research fund) and president of the Canadian Sleep Society.

All 4 researchers come from a diverse range of specialties and are at various stages of the traditional research career. They all agree that becoming a researcher is often not a priority for most dental students, whose first thought is to become a dentist and find viable employment in their chosen profession. Most times, a research career isn't even considered an option. In that sense, Corey Felix is a bit of an anomaly — while still working toward his dental degree, he's already participated in a number of research projects. No doubt he has that inquisitive nature that Dr. Lewei Zhang sees as a prerequisite for pursuing research: "Research is a great career for people who love problem solving," she says. "You get chances to ask interesting and important questions, and design studies to search for answers to these questions. It is rewarding to achieve some of the answers, particularly when they can make a difference in people's lives."

Corey Felix was bitten by the research bug early in his studies, but for others, research is an interest that develops over time. The research road not taken early on in a dental career may suddenly intersect with the clinical practice path. That was the case for Dr. Gilles Lavigne. He recalls how, after establishing a private family practice for 3 years, his work with patients was raising more questions than answers. "I quickly realized that when I was observing patients with pain or discomfort, such as abnormal swallowing, I just didn't have the necessary answers," he explains. "I had always been a curious person so I decided to get involved in research to try to find the answers."

Choosing the research laboratory doesn't mean abandoning the practice setting. In fact, for Dr. Michael Glogauer, the dual roles of clinician and researcher keep his career interesting. "I really enjoy the balance of being both a researcher and clinician," he says. "Being a researcher makes me a better

"WE CAN'T BE STUCK ON YESTERDAY'S RESEARCH. THERE ARE SO MANY NEW MATERIALS BEING USED IN DENTISTRY TODAY, BUT IF WE DON'T HAVE THE PROPER EVIDENCE THEN WE CAN'T RELIABLY USE THEM. OUR CLINICAL PRACTICE GUIDELINES NEED TO BE EVIDENCE-BASED, BUT WHO IS GOING TO ADD TO THIS BODY OF EVIDENCE IF PEOPLE AREN'T ENGAGING IN ORAL HEALTH RESEARCH?"

Corey Felix, BSc (Hon), MSc, DDS (4th year)



Corey Felix completed a master's degree in pharmacology before entering dental school. He is currently a fourth-year dental student at Dalhousie University as well as a dental officer with the Canadian Armed Forces. He works as a research assistant in Dalhousie's department of dental clinical sciences, in the area of restorative materials, under the guidance of Dr. Richard Price.

clinician and vice versa. It allows me to arrive at new clinical questions.” Dr. Lavigne concurs: “It’s a major challenge for clinician-scientists to adjust to the differences in rhythm and to be able to utilize different parts of our personality.”

Nurturing New Generations of Researchers

Continuity in research is essential and passing on knowledge through generations of researchers contributes to building a strong community with a common purpose. A large part of this responsibility rests on the shoulders of current

community herself, and cites her own role as a mentor in helping to guide others down the research path. “In the course of research and teaching, an academic can make a difference in students’ career paths. It is very gratifying to see your students and other people that you have helped achieve success.”

While these 4 people had effective role models and benefited from strong mentor relationships, is this enough to encourage new dental students to become the researchers of the future? What about financial considerations — always a significant factor for any student who has to make major career decisions. All agree that the profession should concentrate its efforts on encouraging new dental school graduates to consider oral health research as a career, despite the substantial financial burden that students may have accrued upon graduation.

“Even if students are considering going into research, graduating with these huge debt levels makes it a daunting prospect,” Dr. Glogauer admits. “You have your dental degree to show for your hard work, but can you then wait another 3 to 4 years to complete a PhD or post-doctorate fellowship before starting to pay off your student debt?”

Dr. Glogauer stresses the importance of promoting summer undergraduate research programs, like the Network for Oral Research Training and Health (NORTH), as an effective way to attract and retain new recruits.

“In my experience, most people who eventually have a dental research career started in a summer program being exposed to research,” he explains. “NORTH is a great program because you are able to work with really great mentors and meet other dentists also involved in research. You get to see dentistry in a whole different light, in what I think is a much more relaxed environment than a traditional dental practice.”

Corey Felix has participated in NORTH for 3 summers and has nothing but praise for the program. “This was a great research experience for me, working on a variety of projects dealing with restorative dentistry,” he says. “All of the NORTH students attend an annual meeting to talk about our projects and it really helps reinforce our decisions to pursue research.”



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Michael Glogauer, DDS, PhD, Dip Perio

Dr. Glogauer’s research focuses on the role played by oral neutrophils in acute inflammation. He is examining the role of cell signalling proteins in regulating neutrophil chemotaxis and recruitment to sites of infection. His other research interests include cytoskeleton and signal transduction and innate immune functions.

researchers, who must detect an interest and passion in their students and young colleagues and nurture these qualities. Influential professors who act as role models in a mentoring capacity can have a profound effect on new investigators.

Corey Felix talks about his relationship with his current mentor Dr. Richard Price. “From the very first day that I started as his research assistant, we’ve had a mentor–student relationship,” he notes. “Dr. Price involved me in the research process and allowed me to formulate my own ideas and design my own experiments. He has done everything he can to help advance my dental and research career.”

Dr. Zhang is equally exuberant about the influence of some of her early mentors, Drs. David Mock and James Main: “I am particularly grateful for the confidence they showed in me and their hands-off style of supervision, which cultivated my independent thinking and problem-solving ability.” She is very proud of now being in a position to foster new talent in the research com-

Funding Will Always Be a Challenge

With the relative dearth of operating grants for oral health, the NORTH program is an effective way to achieve greater student involvement in research. The issue of funding and obtaining operating grants is inevitable in any discussion on health research in Canada. The researchers we interviewed have employed, at one time or another, a variety of funding avenues to continue in their chosen profession. Partnerships and mutually beneficial relationships can provide innovative solutions to the funding dilemma.

Dr. Lavigne cites the essential role that the Quebec health agency FRSQ has played in promoting research careers in that province. “The FRSQ provided my salary to do research, basically reimbursing 50% of my salary to the dean of my university, in such a way that it allowed me to spend more time with MSc and PhD students on the clinical research floor.”

Institutions like the CIHR have played similar roles nationally. Dr. Glogauer feels fortunate to have received CIHR salary funding for several years. “This financial support has meant that the university doesn’t have to pay my salary, which effectively frees up my time to focus on research,” he explains. “It really gives me an opportunity to get ahead in my research.”

It is also vital, agree the researchers, to recognize that support for research is not limited to a financial element. For Dr. Zhang, it meant having Dr. Robert Priddy, chair of her division at UBC, take on the bulk of teaching, service and committee responsibilities to allow her time to dedi-

cate to research. “Support like this is critical for research development of any new scientist.”

Adds Dr. Lavigne: “I received great support from the University of Montreal, including having the dean provide me with a research technician,” he notes. “Every university that I visit around the world that is able to provide this type of human resource support is also able to make major advances in research.”

The youngest of the 4 researchers interviewed believes that other creative types of funding opportunities need to be explored. As a member of the Dental Officer Training Program with the Armed Forces, Corey Felix has seen his tuition fully funded in return for serving a minimum of 4 years as a dentist in the military upon graduation. “I’ve often wondered why the dental schools don’t run a similar program, where they can help subsidize your education in exchange for going into research or academia for a prescribed amount of time.”

Aside from increased financial and human resource support, what else will it take to encourage students to pursue research? Many believe that the lifestyle benefits of a research career should also receive greater promotion. Dr. Glogauer, who has 12 graduate students in his laboratory at the University of Toronto, continually extols the virtues of the lifestyle of a researcher. “You essentially are your own boss. I know that as a dental practitioner you’re also your own boss, but you are tied more to traditional business hours,” he explains. “For those with a family, the research lifestyle is much more flexible as a lot of time is spent on the computer and this can be done at home or anywhere.”

Dr. Zhang agrees: “As a female scientist, I believe that this is a terrific career for women professionals as the job is very flexible and you can attend your children’s school activities and then make that up by working at night.”

Multidisciplinary Focus

How will oral health research in Canada continue to thrive if it succeeds in attracting new dental students to its ranks? Forming research teams and engaging in research that bridges dentistry to other fields of health is cited by



“IT IS GRATIFYING TO KNOW THAT YOU HAVE MADE A DIFFERENCE IN THE LIVES OF THESE PATIENTS, BUT MORE IMPORTANTLY, THAT THESE TECHNIQUES CAN BE USED BY OTHER HEALTH PROFESSIONALS TO MAKE A DIFFERENCE IN MANY MORE PEOPLE’S LIVES.”

Lewei Zhang, DDS, Dip Oral Path, PhD, FRCD(C)

Dr. Zhang’s research focuses on identifying genetic or phenotypic markers and cell alterations that can be used to identify and manage high-risk oral premalignant lesions and early oral cancer. She is part of a research team, the British Columbia Oral Cancer Prevention Program, that has developed the Velscope, a visual tool that can help detect high-risk oral premalignant lesions and early malignancies. She is currently working on an ongoing prospective study involving 200 patients with primary oral dysplasia and 200 patients with a history of oral cancer.



"AS DENTISTS, WE ARE WELL POSITIONED. IF THE CIHR HAS IMPORTANT HEALTH MESSAGES THAT NEED TO BE COMMUNICATED TO THE PUBLIC, THEY SHOULD SHARE THESE WITH DENTISTS WHO CAN THEN PASS THEM ALONG TO PATIENTS. WE NEED TO DESIGN SOME VERY SIMPLE QUESTIONS, WHERE DENTISTS CAN IDENTIFY POTENTIAL HEALTH PROBLEMS IN PATIENTS THAT WILL ENABLE ACADEMIC DENTISTRY TO REALLY MAKE A MOVE IN THE AREA OF KNOWLEDGE TRANSLATION."

Gilles Lavigne, DMD, MSc, PhD, FRSC

Dr. Lavigne is a world leader in research on sleep bruxism, sleep apnea, and sleep and pain interaction. He was recently appointed Canada Research Chair (tier 1) in Pain, Sleep and Trauma.

Dr. Lavigne runs a sleep laboratory based at Sacré-Coeur Hospital in Montreal, along with his co-investigator, Dr. Jacques Montplaisir. Dr. Lavigne is the director of the trauma research unit at the hospital and is the newly appointed chair of the Canadian Dental Association's Committee on Dental Academia.

Drs. Lavigne and Zhang as essential for survival in today's funding environment.

"When my research partner Dr. Jacques Montplaisir and I renew our grant applications, we are very conscious to include a dental interest and a medical interest, to ensure that our applications will appeal to a broad range of reviewers and to the research communities," notes Dr. Lavigne.

"For instance, we received a grant for using dental appliances to open the airways in order to treat respiratory disorders secondary to sleep bruxism," he adds. "Physicians are able to see the relevance of these projects and dentists see an added value of our work."

Dr. Zhang has also broadened her research to other health domains with her research partner, biologist Dr. Miriam Rosin. "Our research developed from a 2-person collaboration into an internationally known multidisciplinary research team that includes oral medicine specialists, surgeons, molecular biologists, physicists, engineers, statisticians and epidemiologists," she explains.

"With the development of the multidisciplinary team, we are able to address issues regarding early diagnosis and management of high-risk oral premalignant and early cancer from multiple angles," she continues. "The spirit of col-

laborative research is definitely here, and personally I could not talk about my research without talking about our multidisciplinary collaboration."

Ultimately, the 4 researchers are aware of the challenges that remain in trying to attract new people to become involved in research. Yet a sense of optimism prevails.

Corey Felix is excited about developing his role as a clinician-researcher. "Dentists simply don't have time to investigate every new product that comes out. That's a full-time job in itself. This is where I would like to have a role. Although I enjoy working with patients, I also enjoy the research side," he concludes.

Dr. Lavigne reveals that even at this stage of his career, he gets immense satisfaction both from working in the clinic and with his students. "I enjoy spending time in the clinic, learning from and interacting with people," he says. "However, being with my students also brings me great joy. My students are my *raison d'être*."

For Dr. Zhang, being witness to the growth of new investigators makes her efforts worthwhile, "It is incredible to watch your students develop into leaders in the laboratory, taking the initiative and developing their strength as clinician-scientists," she says.

These 4 researchers all share a strong sense of personal and professional satisfaction. The road they chose, though less travelled, has proven immensely satisfying. A career in research may not appeal to everyone, but Dr. Glogauer knows that he would have it no other way. "Not a day goes by that I am not thankful that I do what I do: being able to see patients, spending the majority of my time working with students, working on problems that will help benefit society in general. I really think that I have the best job on the planet." ♦

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