



Dr. Charles Shuler

## UBC Dentistry: Education, Research and Community Service

I would like to thank *JCDA* for the opportunity to present the University of British Columbia (UBC) faculty of dentistry to its readership. A major achievement of our faculty was the completion of an operationalized strategic

plan ([www.dentistry.ubc.ca/strategicplan](http://www.dentistry.ubc.ca/strategicplan)) that serves as a guide for all of our planning and activities for the next 5 years. The plan's 10 strategic objectives are all organized around 3 primary themes for the future: enhancing the student experience; amplifying research productivity; and increasing community involvement.

The strategic plan provides clarity on the direction the faculty is heading and how all students, staff and faculty can individually and collectively contribute to achieving our strategic objectives. I hope this special issue of *JCDA* will provide further insight into our current activities and achievements and our plans for the future.

Beginning on page 27, Dr. Joanne Walton reviews our achievements with respect to enhancing the student experience. Dr. Ed Putnins reviews our achievements in amplifying research productivity. Dr. Chris Zed describes how the faculty has increased community involvement. In each of these 3 areas, we provide a brief sampling of the many ongoing activities. We would encourage you to follow the URL links to learn more about the specific topic areas.

Faculty members are the lifeblood of any university. At UBC, we are fortunate to have an outstanding foundation of productive faculty members along with a growing complement of

new faculty. Our financial stability has allowed us to actively recruit new faculty members. In the past year, UBC has appointed 8 new tenure-track faculty members. All of these individuals will contribute to the teaching, research and service missions of the faculty and the university.

Our teaching activities help the educational progress of dental, dental hygiene, dental specialty graduate and master's or doctorate level graduate students. The opening of 4 new graduate dental specialty diploma programs, linked with either an MSc or a PhD, will lead to a robust growth in graduate student research that contributes to improvements in oral health. In addition to our new tenure-track faculty members, we have also benefited from an increase of over 150 additional practising dentists, who serve as clinical instructors in our student clinics. These clinicians provide mentoring and supervision in the direct patient care experiences of the students in the faculty.

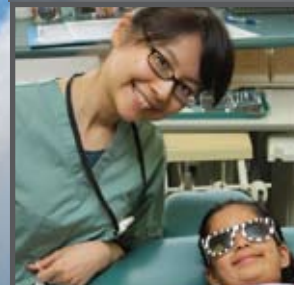
Our healthy financial situation has also permitted extensive renovations to our original dental building—the John B. Macdonald Building. This ongoing renovation project will create new teaching and learning spaces, new laboratory spaces and improved student lounges and facilities. The growth in the number of academic programs and students made the additional space necessary. Furthermore, the increased use of technology-enhanced teaching has changed the structure of student learning areas, which requires careful planning. The growth of research programs in the faculty also requires new laboratory space, and we have been fortunate to collaborate with other departments at UBC to develop research in new buildings on campus. The research conducted by our faculty is shaping the future of the dental profession as new approaches to diagnosis, management and treatment are derived from the completion of this fundamental research.

I hope you enjoy learning more about the UBC faculty of dentistry. We are quite proud of our achievements and excited to share them with you. I would encourage you to visit our faculty of dentistry when you travel to Canada's west coast, to personally meet our outstanding students, staff and faculty members. They are all making a difference and contributing to the achievement of our strategic plan and the future of the Canadian dental profession.

*Dr. Shuler is dean of the faculty of dentistry at the University of British Columbia.*



Student Experience



Community Involvement



Research

### Impressions Magazine

Each issue of *Impressions* magazine focuses on activities that directly address UBC Dentistry's 3 strategic priorities: enhancing the student experience, amplifying research productivity, and increasing community involvement. Feature articles highlight the faculty's recognized leadership and key role in shaping the future of the profession.

*Impressions* magazine won the 2010 Meskin Journalism Award for excellence in dental student publications, presented by the American Association of Dental Editors.



Read past issues of *Impressions* at [www.dentistry.ubc.ca/impresions](http://www.dentistry.ubc.ca/impresions)

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2011;77:b15

Focus on the UBC Faculty of Dentistry

Essential reading for Canadian dentists



photo: Bruce McCaughey



Dr. Joanne Walton

### The Student Experience at UBC Dentistry: An Overview

While providing an excellent education is a given at any institution of higher learning, the notion of enhancing the student experience—one of the three main themes in UBC Dentistry’s strategic plan—is actually a fairly new concept. If learning is approached from the student’s perspective, not only will the education be excellent, but the entire experience of dental school, from application to graduation, will support and reinforce the learning. UBC Dentistry has focused on four main areas designed to “enhance the student experience”.

**TOP-NOTCH EDUCATIONAL FACILITIES.** The introduction of our amazing oral health centre, the Nobel Biocare Oral Health Centre, as the hub of patient care and clinical learning raised the quality of our facilities to match that of our students, faculty, staff and programs. Add to that top quality small-group learning, lecture and lab facilities shared with our partners in Medicine, our new Dentistry Department in the Diamond Centre of Vancouver General Hospital, and our soon-to-be-completed computer learning centre, adjacent seminar rooms and flexible study space in the venerable John B Macdonald building, and we’ve created a learning environment that reflects the Faculty’s commitment to offer the best experience possible for our students.

**COMMITTED STUDENT SERVICES.** UBC was one of the first dental schools in Canada to offer a student services office in the faculty, dedicated to easing the transition into, through and out of the DMD program. From our Admissions Open House that allows applicants to make an informed decision about coming to UBC, to counselling referrals, to tax clinics and time management seminars, to information about practice opportunities, Student Services provides a constant source of support in a challenging academic environment. As two examples, students may participate in our mentorship program which, in partnership with the BC Dental Association, matches students with experienced dentists, or our

Summer Student Practitioner Program which, in cooperation with the College of Dental Surgeons of BC, allows DMD students to experience private practice in the summer between third and fourth years under the supervision of a licensed dentist.

**EXCELLENT TEACHERS.** As a reflection of the increased recognition of the importance of good teaching nationally in dental education, the Association of Canadian Faculties of Dentistry began co-sponsoring a national award for teaching excellence in dentistry in 2001. In the eight



photos: Bruce McCaughey

#### The Nobel Biocare Oral Health Centre

The Nobel Biocare Oral Health Centre at the University of British Columbia uses state-of-the-art technology and an innovative architectural design to create a sophisticated, efficient space for learning, community service and research.

Read more:  
[www.dentistry.ubc.ca/features/nboh](http://www.dentistry.ubc.ca/features/nboh)

## Top-Notch Educational Facilities

years since the award was inaugurated, it has been given to a UBC faculty member five times. Also, since 2001, the faculty has created over 20 slots for dentists who've proven themselves as good teachers to take on full-time roles in all four years of the DMD program. Recognizing that many professors have focused on achieving their own high level of education, without necessarily learning the art and science of great teaching, UBC began offering a certificate program in teaching and learning in higher education for university professors, and Dentistry has among the highest per capita participation on the UBC campus, with 16 Dentistry faculty members having completed the program, as well as other Dentistry faculty who have completed master's degrees in education. As further evidence of the importance of the scholarship of teaching and learning in

### My Role and the Student Experience

From simulation training, CAD/CAM technology and implant modules to learning-centred environments, community service learning, and professionalism, read what several members of the faculty say about their teaching area in the DMD curriculum and particular contribution to enhance the student experience: [www.dentistry.ubc.ca/features/views](http://www.dentistry.ubc.ca/features/views) ✦

## Points of View

the faculty, we are in the process of appointing an educational specialist to lead collaborative educational research and ongoing faculty development of teaching skills.

**INNOVATIVE CURRICULUM.** UBC is one of only a handful of dental schools in North America to use problem-based learning (PBL) as its primary pedagogy. The focus on student-centred,

### A Peer-Facilitated PBL Pilot and PBL in the Admissions Process



A pilot project taking tutors out of the facilitative role makes students fully responsible for their own learning. Results look promising. And, an orientation to problem-based learning (PBL) in Dentistry's two-day Admissions Open House prepares successful applicants. ✦

Read more: [www.dentistry.ubc.ca/features/adea](http://www.dentistry.ubc.ca/features/adea)

### Problem-Based Learning— Classical Antiquity Comes of Age

The UBC DMD curriculum makes extensive use of problem-based learning (PBL), a pedagogy that prepares graduates to use critical and analytical thinking to assess, diagnose and manage complex cases. Throughout their careers, UBC dental alumni will utilize these skills to significantly benefit their patients. ✦



Read the full article: [www.dentistry.ubc.ca/features/pbl](http://www.dentistry.ubc.ca/features/pbl)

small-group learning addresses the learning of foundational knowledge in a clinical context, while introducing students to equally important skills in the areas of communication,

self-directed learning, problem-solving and critical analysis. In a recent study,<sup>1</sup> dental graduates of a PBL program were rated equal to graduates of traditional dental program grads

in terms of clinical skills and better in terms of patient communication, critical thinking, independent learning, small group performance and teamwork skills. Our Dental Hygiene

## Learning Theories in Education

Being an excellent teacher also means being an excellent learner. Dr. Karen Gardner, clinical assistant professor, is passionate about learning theories in education. As a scholar on the subject, she is involved in UBC's Peer Review Program (promotes instructional development and professionalism in teaching across UBC) and Teaching and Academic Growth (TAG) which fosters quality teaching and learning across the university. ✦



Read and watch Dr. Gardner discuss her cross-discipline research about the use of PowerPoint for teaching based on Cognitive Load Theory, Multimedia Learning Theory, and Visual Learning Theory (VLT) here:

[www.dentistry.ubc.ca/features/vlt](http://www.dentistry.ubc.ca/features/vlt)

## Award-Winning Faculty and Students



UBC Dentistry's faculty, students and alumni are no strangers to the podium. Local, national and international organizations have regularly recognized their varied achievements in education, research and community service. ✦

Read more about Dentistry's award winners: [www.dentistry.ubc.ca/awards](http://www.dentistry.ubc.ca/awards)

The 3M ESPE – ACFD National Dental Teaching Award is presented annually to a faculty member who, in the opinion of his or her students and peers, is an outstanding teacher and displays exceptional interest in the learning needs of students. The award has now been given eight times, and four of the previous winners have come from the UBC faculty of dentistry. ✦



[www.dentistry.ubc.ca/awards/espe](http://www.dentistry.ubc.ca/awards/espe)

## Small Groups and Inquiry Changed My Approach to Teaching and Learning

Professor and dean of Dentistry, Dr. Charles Shuler, asks: "So what does a new faculty member do to start teaching an entire course at a new university while also balancing the requirements of building a program of research?" ✦

Read and watch what he has to say about a small-group, inquiry-based pedagogy and its impact on student learning:



[www.dentistry.ubc.ca/features/approach](http://www.dentistry.ubc.ca/features/approach)



Degree Completion Program was a first in Canada, offering online degree courses to dental hygienists around the world. Our new campus-based option offers the first competency-based dental hygiene degree program in Canada, with educational partnerships between dental and dental hygiene students. Innovations continue with the development of electives for fourth-year dental students, including opportunities to address access to care issues at home and abroad.

The development of a student-centered educational program based on excellence in facilities, support services, teachers and curriculum, is a process, not a product, and UBC prides itself on committing the resources necessary to continue enhancing the student experience. ✦

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<sup>1</sup> Thammasitboon K, Sukotjo C, Howell H, Karimbux N. Problem-based learning at the Harvard School of Dental Medicine: self-assessment of performance in postdoctoral training. *J Dent Educ.* 2007;71(8):1080-9.



**Dr. Joanne Walton** is associate dean, Academic and Student Affairs, and professor of prosthodontics at the faculty of dentistry, University of British Columbia.

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Read more about enhancing the student experience at [www.dentistry.ubc.ca/student\\_experience](http://www.dentistry.ubc.ca/student_experience)

## Portrait of a Dental Hygiene Student as a Leader



**Pricilla Ojeda** BSc 2011 is on her way to an exciting career in dental hygiene. But it is clear that she will reach high and far beyond basic practice—because of her passion to serve. While educators debate whether leaders are born or taught, Pricilla exemplifies what leaders do—they lead, and in Pricilla's case she leads in many areas. ✦

Read more about Pricilla: [www.dentistry.ubc.ca/features/pricilla](http://www.dentistry.ubc.ca/features/pricilla)

photo: Martin Dee

## Biochemistry PhD Enriches DMD Experience for All

When Ersilia Coccaro DMD 2012 started dental school at UBC two years ago, she was nearing completion of her graduate studies in biochemistry at the University of Alberta. Now, having recently defended her doctoral dissertation, she is excited at the prospects for her future—as not only a researcher, but also a practising dentist. ✦

Read more about Ersilia: [www.dentistry.ubc.ca/features/ersilia](http://www.dentistry.ubc.ca/features/ersilia)



photo: Bruce McCaughey



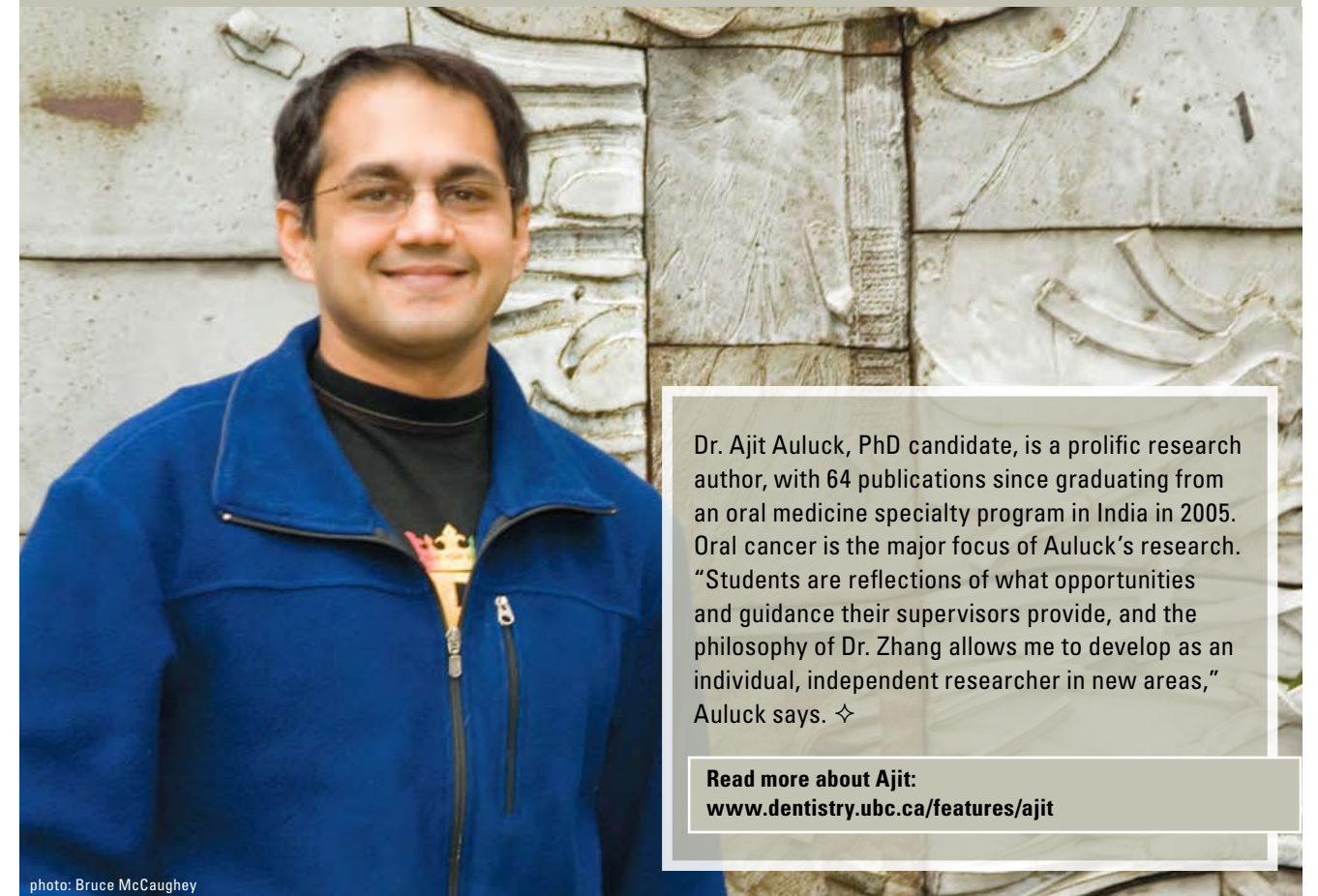
photo: Ian Smillie

## Community, Culture and Practice: A DMD Student in Haida Gwaii

Trevor Lake DMD 2009 had the opportunity to do an externship in Haida Gwaii (Queen Charlotte Islands) through the UBC General Practice Residency Program. In his words: “This experience felt like we were finally putting the things we had learned at UBC into action. One of the main reasons I got into dentistry is that I wanted to be able to provide health care to people in need.” Trevor now practices in rural British Columbia. ✦

Read more about Trevor: [www.dentistry.ubc.ca/features/trevor](http://www.dentistry.ubc.ca/features/trevor)

## Oral Medicine Specialist Now Grad Student Fights a Deadly Cancer in South Asian Populations



Dr. Ajit Auluck, PhD candidate, is a prolific research author, with 64 publications since graduating from an oral medicine specialty program in India in 2005. Oral cancer is the major focus of Auluck's research. “Students are reflections of what opportunities and guidance their supervisors provide, and the philosophy of Dr. Zhang allows me to develop as an individual, independent researcher in new areas,” Auluck says. ✦

Read more about Ajit: [www.dentistry.ubc.ca/features/ajit](http://www.dentistry.ubc.ca/features/ajit)

photo: Bruce McCaughey





photo: Bruce McCaughey

Dr. Christopher Zed

## UBC Dentistry: Community Involvement

As British Columbia's only dental faculty, UBC Dentistry is in a unique position to encourage greater connections between the university and the external community: the organized professions of dentistry and dental hygiene, practising dentists and dental hygienists, and the greater communities of Vancouver, British Columbia, the rest of Canada, and the world. UBC Dentistry's commitment to these communities runs deep and far—and as a central theme of the faculty's strategic plan, it is expressed as a mighty call-to-action: increase the community involvement.

The University of British Columbia, like many universities, encourages a collaborative culture where people thrive in multidisciplinary work. On campus, Dentistry is among many health-related disciplines and its faculty and students are found not only in its dental clinic, where all walks of life from Vancouver can be seen in the chair, they are found working campus-wide with other UBC students and researchers advancing health-related care and scientific knowledge. Dentistry's Elders Link with Dental Education, Research and Service Group is another dynamic example: dental, dental hygiene and graduate students plus general practice residents and researchers work with experts from many disciplines such as nursing, social work, statistics, and psychology to deliver a compelling blend of community service, research and education.

Service learning and cultural competency are rapidly emerging and developing concepts in dental and dental hygiene education. Important outcomes from these experiences include student recognition of their responsibility to provide care to people in need, social awareness and professional responsibility. More off-campus sites for current and future students will increase the diversity of patients treated by the students and enhance students' understanding of the range of oral health needs presented by individuals with limited access to care.

UBC Dentistry's General Practice Residency Program reaches across BC; it places residents and student externs

in dental clinics serving First Nations communities in Skidegate and Massett on Haida Gwaii (formerly Queen Charlotte Islands) and the Nisga'a Valley in Terrace; the northern city of Prince George; the interior city of Kelow-

- abbotsford
- adopt-a-school-program
- birmingham
- brazil
- britishcolumbia
- cambodia
- canada
- children's
- dental program
- community
- cree
- downtown
- eastside
- first nations
- first united
- oral health program
- general practice residency
- geriatric dental program
- global
- japan
- kelowna
- kuper island
- long-term-care-facilities
- masset
- mexico
- pacs
- panama
- penelakut
- princegeorge
- professionalism
- quebec
- service-learning
- skidegate
- south east asia
- vancouver
- vernon
- vietnam
- volunteer-dentistry

na; in the capital, Victoria; and in the Portland Community Clinic in Vancouver's Downtown Eastside. BC is not the only geographic area to benefit from UBC Dentistry's commitment to underserved population groups: across Canada in remote Québec villages people benefit from its research projects such as a randomized controlled trial testing the effectiveness of a dental caries prevention program for Cree mothers and their infants. With its community experience ranging from education, treatment, and prevention to the sustainable transfer of knowledge across a broad spectrum



photo: Terry Wintonyk



## Grad Student Honoured for Work in the Downtown Eastside

Darlene Tam's understanding of Vancouver's oldest and most impoverished neighbourhood and its hard-to-reach and medically underserved community informs her graduate work. Darlene also volunteers for oral cancer prevention initiatives at DTES events. ❖

Read about her achievements: [www.dentistry.ubc.ca/features/darlene](http://www.dentistry.ubc.ca/features/darlene)

of locations and population groups, UBC Dentistry is well equipped to address oral health disparities in other parts of the world. UBC dental teams, whether as part of a general practice residency or a humanitarian volunteer project, can be found regularly in Vietnam and Cambodia and on special trips to countries like Mexico, Brazil and Panama.

Community service beyond the campus dental clinic starts early for dental students; their desire to serve is often inspired by the PACS (Professionalism and Community Service) program, a curriculum component in all four years of dental education that combines classroom learning with community-based outreach initiatives. UBC's CHIUS (Community Health Initiative by University Students) is equally inspiring. This inter-professional group is popular with fellow medical students—with

whom dental students study in years 1 and 2.

Involvement in the organized professions of dentistry and dental hygiene can take many forms for both faculty and students. While many members of the faculty are experts in their fields and sit on specific topic-related groups on the provincial, national and international levels, or involved in research or educational projects like leading a symposium on digital learning that facilitates collaborations among dental personnel throughout Canada and California, students are just beginning their dental careers. UBC Dentistry and the organized professions in British Columbia provide many opportunities for students to connect with the profession and serve in the community. For example, the British Columbia Dental Association (BCDA) and UBC created a mentorship program and a summer student

## A Community on the Edge

UBC Dentistry provides many services in Vancouver's Downtown Eastside (DTES), an inner city neighbourhood with a hard-to-reach and medically underserved population. Regular community volunteer dental clinics run by students operate out of the Vancouver Native Health Society as well as other oral health initiatives at other locations.

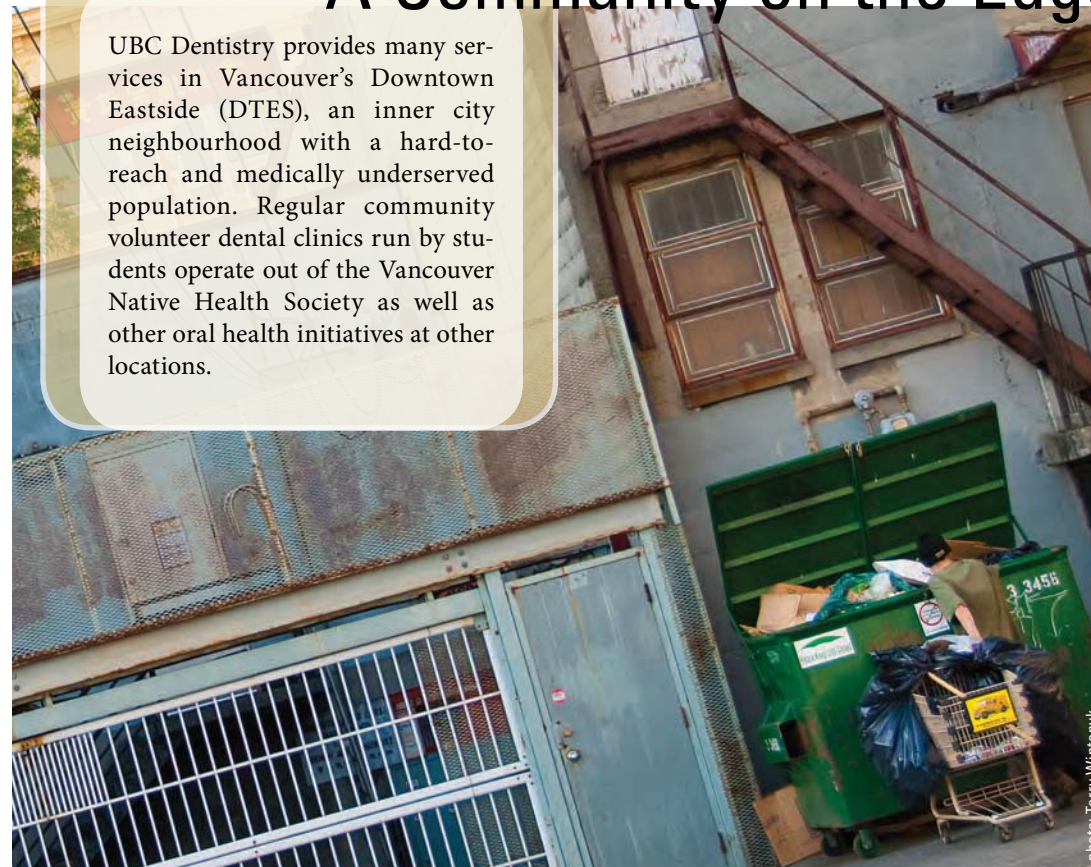


photo: Terry Wintonyk

## Volunteer Dentistry in the Downtown Eastside—DMD Students Rise to the Challenges

Open drug use and a gritty sex trade butt against fledgling urban renewal. So why would students who are in the thick of studying—and particularly those in upper-level years who are also performing demanding clinic work on campus—volunteer their skills on a Saturday morning? ❖

Find out here: [www.dentistry.ubc.ca/features/challenges](http://www.dentistry.ubc.ca/features/challenges)



photo: Terry Wintonyk

## An Unfamiliar Setting for UBC DMD Students

The Community Volunteer Clinical Program engages volunteer dentists, including alumni, and all years of students (both DMD and dental hygiene degree students) in weekend clinics at multiple locations. The program's mission is to improve and sustain the oral health of people in need within the community; to promote health education and social betterment, and provide assistance through treatment, training and education; and to enhance students' awareness and role as global citizens with sustainable opportunities to serve. ❖

practitioner program (see section about enhancing the student experience). The BCDA is also a partner along with Douglas College where UBC dental and dental hygiene students work with practising dentists and dental hygienists, many of whom are alumni, in community volunteer dental clinics. The mission of these clinics (and others at the Vancouver Native Health Society in Vancouver's

Downtown Eastside; the food bank in Abbotsford, BC; and in rural First Nations communities like Kuper Island) is to improve and sustain the oral health of people in need; to promote health education and social betterment, and provide assistance through treatment, training and education; and to enhance students' awareness and role as global citizens with sustainable opportunities to serve.

## Dentistry Grad Committed to Service



For Michelle Lauwers dentistry is more than a science: it's a charitable calling and an art. Lauwers has been active in the program's volunteer efforts, which include free and low-cost clinics in the Downtown Eastside. She describes her volunteer work in the neighbourhood as "eye-opening and rewarding." ❖

Read more about her commitment to service: [www.dentistry.ubc.ca/features/lauwers](http://www.dentistry.ubc.ca/features/lauwers)

photo: Martin Dee



The teams working overseas focus on the long-term impact of its involvement in collaboration with local health care or educational institutions in the host country. Through developing oral health programs for patients and sharing its expertise with local peers (doctors, dentists, and nurses), the UBC teams advance the knowledge of the community with the primary goal of improving the quality of people's daily life. While addressing the immediate oral health needs of patients is the manifest benefit of international outreach, the latent benefits—an enhanced learning environment for general practice residents and students (the clinical experience alone exposes them to diseases not seen at home, which helps make them better dentists in Canada with a large immigrant population) and the transfer of knowledge to local health care workers—have lasting effects.

More community volunteer clinic days are planned for the greater Vancouver area (up to one per month on

weekends throughout the year) as well as expansion to its services in the north of the province. Plans are in the making for a dedicated floor for UBC Dentistry at a specialty hospital in Ho Chi Minh City, Vietnam. Dental students, already coming into the DMD program with a desire to volunteer, understand the educational and community service values; they often jostle for a limited number of volunteer placements and externships particularly with general practice residents. Many of Dentistry's students, dental and dental hygiene alike, raise their own funds to travel on summer volunteer dental missions. With its passionate faculty, alumni and students, the external community views UBC Dentistry and its mandate to increase the community involvement as an integral part of oral health service and policy, and a valuable resource for British Columbians, Canadians and those in many other parts of the world. ❖

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Read more about increasing the community involvement at [www.dentistry.ubc.ca/community\\_involvement](http://www.dentistry.ubc.ca/community_involvement)

## Community Programs

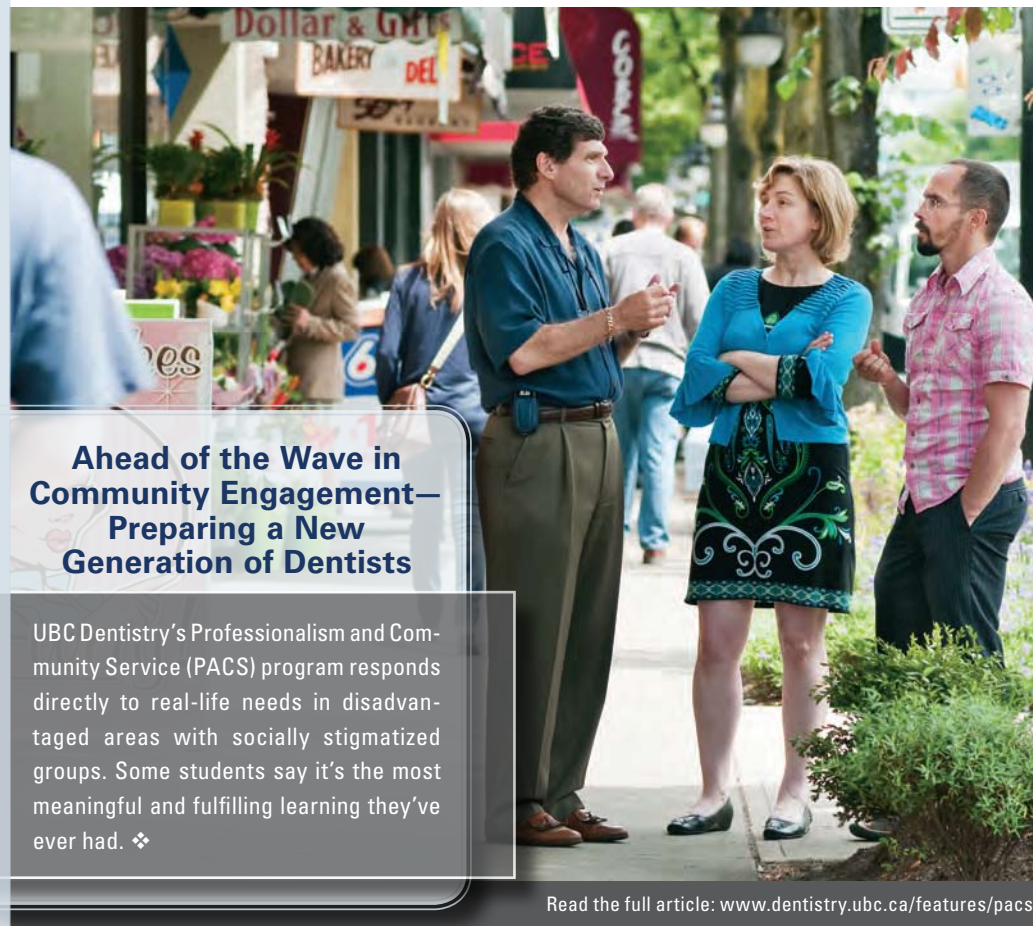
Being a great dental school means stretching beyond the laboratory and classroom. It is a commitment to serve dental professionals and the larger community through outreach and community development efforts. UBC's faculty of dentistry has established a strong track record for developing and implementing new community programs to serve individuals with limited access to dental care as well as providing valuable experience for our students.

The Children's Dental Program offers free basic dental and preventive services to low-income school-aged children from the Lower Mainland who are not eligible for existing government-funded programs. Dental services are provided by DMD and graduate clinical specialty students as well as general practice residents.

### Community Giving, a Fourth-Year DMD Pediatric Elective and a Six-Year-Old's Smile

Providing oral health care to children in need can be challenging, financially overwhelming and sometimes even heartbreaking. It can also provide great inspiration, motivation and passion. Finding a balance is what enables good practitioners—students included—to provide excellent pediatric dental care. ❖

Read more: [www.dentistry.ubc.ca/features/ped\\_elective](http://www.dentistry.ubc.ca/features/ped_elective)



### Ahead of the Wave in Community Engagement—Preparing a New Generation of Dentists

UBC Dentistry's Professionalism and Community Service (PACS) program responds directly to real-life needs in disadvantaged areas with socially stigmatized groups. Some students say it's the most meaningful and fulfilling learning they've ever had. ❖

Read the full article: [www.dentistry.ubc.ca/features/pacs](http://www.dentistry.ubc.ca/features/pacs)

photo: Martin Dee

### Toward a Healthy Smile for Every Child

Dr. Rosamund Harrison, UBC's chair of Pediatric Dentistry, has promoted accessible, community-based oral health programs for hundreds of babies and toddlers, from South Asians and Vietnamese in BC's Lower Mainland to Cree in remote Quebec villages. ❖

Read the full article here: [www.dentistry.ubc.ca/features/harrison](http://www.dentistry.ubc.ca/features/harrison)

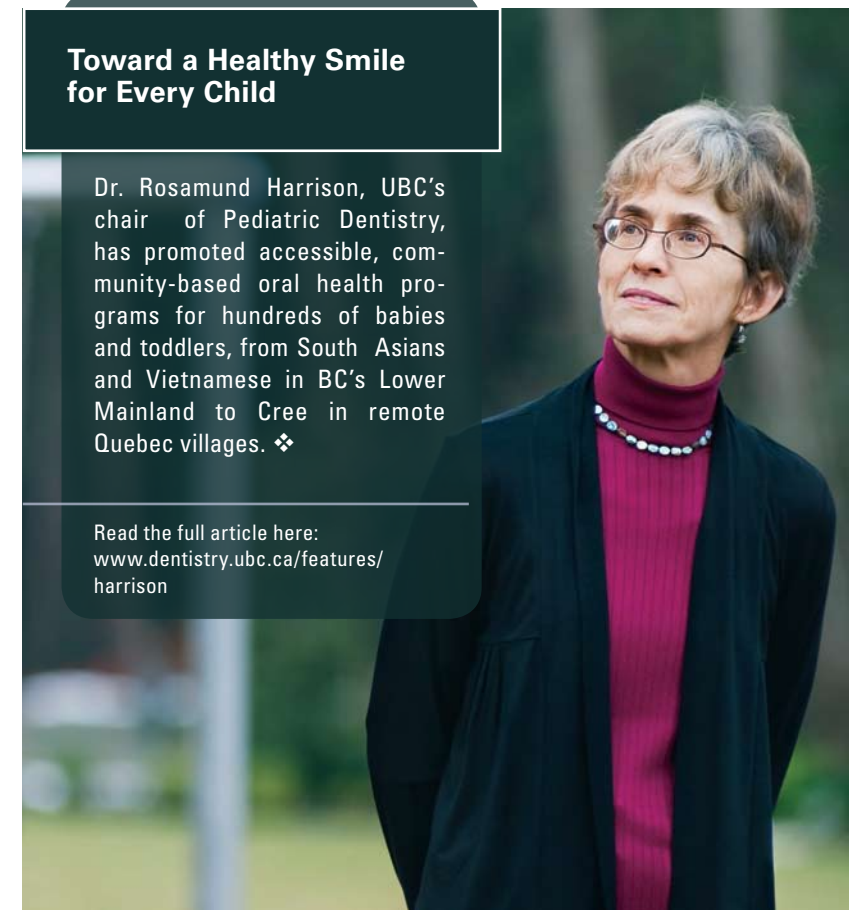


photo: Martin Dee





Dr. Edward Putins

## UBC Dentistry: Research

UBC is a Tier 1 international research-intensive university where all faculties emphasize the need for original research and scholarship. The faculty of dentistry has an exceptional history of research achievement and has implemented, through its strategic plan, a foundation for continued excellence in research.

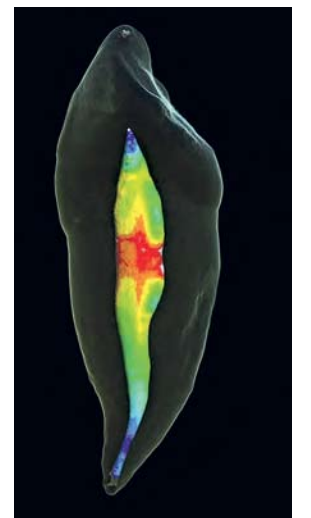
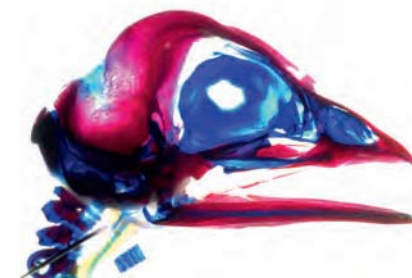
Currently three clusters or groups define the research foci at UBC Dentistry. Clusters enable more efficient handling of resources such as people, equipment and space; better development of research projects like the identification of co-applicant grant opportunities; and facilitate faculty development in the areas of recruitment, mentoring, and time preservation, to name a few. The three current clusters—community and education, oral and biomedical sciences, and clinical research, technology transfer and dental materials sciences—represent approximately 40 faculty members engaged in research.

- pediatric dentistry research in health promotion and access to care;
- embryonic development of the face and teeth;
- bone development, disease and regeneration;
- wound healing and mechanisms of scar formation;
- regulation of cell behaviour on implant surfaces by substratum topography;
- plus, dental instruments and materials, interactive dental anatomy, biomaterials, and dental education.

## Clusters Define UBC Dentistry's Research Foci and Enable More Efficient Handling of Resources

It is significant that the faculty of dentistry has two Tier 1 Canada Research Chairs, professors Dieter Brömme and Christopher Overall. Distinct in their respective areas, they can be understood collectively in the areas of disease markers: lysosomal proteases and proteolytic mechanisms of cell signalling. The BOLD forensic laboratory, under the aegis of UBC Dentistry, is devoted exclusively to forensic dental services, research and teaching and the use of dental evidence for crime investigation and prosecution. Another group, Elders Link with Dental Education, Research and Service (ELDERS) Group, has created a highly successful model that strives to address the oral health needs of seniors. The group is a complementary blend of research, education and community service with each component enriching the other. Sleep apnea and airway obstruction researchers at UBC are renowned for their work including the development of Klearway™, a worldwide-patented device, which is the largest selling adjustable appliance used in the field generating royalties paid to UBC to help further research in this area. Other top areas of UBC Dentistry's basic science and clinical research include:

- oral cancer detection and prevention;
- endodontic disinfection and dental bio-films;



Three research clusters—Community and Educational, iMatrix (oral and biomedical sciences), and Clinical Research, Technology Transfer and Dental Materials Sciences—represent approximately 40 researchers at UBC Dentistry.

Discover more about each cluster and the people in them at <http://www.dentistry.ubc.ca/research>

Writing and contributions by Terry Wintonyk, UBC Dentistry.

## ELDERS Wisdom Improves Seniors' Quality of Life

The Geriatric Dentistry Program started in 2002 as a joint venture between Providence Health Care and the UBC faculty of dentistry. The program now offers services to the residential care populations of several other hospitals. In addition to dental service, the program is also committed to education and research.



photo: iStock

UBC's ELDERS (Elders Link with Dental Education, Research and Service) Group—under the lead of Dr. Michael MacEntee—is a compelling blend of research, education and community service with each component enriching the other. ❖

Read the full article here: [www.dentistry.ubc.ca/features/wisdom](http://www.dentistry.ubc.ca/features/wisdom)

Visit the ELDERS website at <http://www.elders.dentistry.ubc.ca/>

## The General Practice Residency Training Program

places general practice dental residents in local specialty clinics in remote rural locations in the North like Haida Gwaii and around the world to sites in Vietnam, Cambodia and Birmingham. The faculty's community reach transcends geography to provide oral health care to diverse patient groups with exciting learning, research and community-service opportunities for dental residents and students. ❖

[www.dentistry.ubc.ca/education/gpr](http://www.dentistry.ubc.ca/education/gpr)

## Fourth-year DMD Student Elective: Cambodia

Last April, for the first time as an elective in fourth-year, DMD students travelled to Cambodia on rotation with general practice residents in the General Practice Residency Training Program. ❖



Read the story here: [www.dentistry.ubc.ca/features/cambodia\\_elective](http://www.dentistry.ubc.ca/features/cambodia_elective)

## UBC Dentistry Team Serves Penelakut First Nation

This past July, dental and dental hygiene students, alumni and faculty of UBC Dentistry, along with community dentists and other volunteers, donated their time and professional skills to the people of Penelakut First Nation. The community volunteer clinic took place over a weekend on Kuper Island, a small, 8.66-square-kilometre island located east of Chemainus, BC, a town on Vancouver Island. ❖



photo: Margaret Sieber

[www.dentistry.ubc.ca/features/kuper](http://www.dentistry.ubc.ca/features/kuper)




Building awareness in the dental community about its research activities is a priority for the faculty. UBC Dentistry's annual Research Day is a yearly forum to highlight our current research accomplishments. Since its inception in 2008, Research Day has grown to reach beyond its own constituents, to include people from multiple disciplines across the university and the Vancouver area including undergraduate and graduate students, faculty, staff and private practitioners. One of the main goals of the day is to link basic science and clinical applications through a program of presentations. This is effectively accomplished utilizing presentations from basic science and clinical faculty who speak to select topics that are relevant to a clinical case. Recent Research Day topics have covered the basic science of tissue

destruction and esthetic implant placement (2008), oral cancer and its early detection (2009), and 3D imaging of the craniofacial complex (2010). In 2011, the topic of oral health and the frail population will be discussed.

Recent Canadian Foundation for Innovation funding (\$9.4 million) will expand UBC Dentistry's bioimaging facility into a high-throughput phenogenomics centre, making it home to an exciting fusion of researchers from Dentistry, Medicine and Pharmaceutical Sciences. This expansion brings together some of the university's best and brightest researchers to study intra and extra hard connective tissue development, diseases and regeneration. Ten principal investigators organized in two complementary research groups have been inte-

### Battling Biofilms—Innovations in Endodontics



Computational fluid dynamics, multimedia teaching tools and novel irrigation fluids are among the arsenal of technologies developed and employed by UBC Dentistry professor Markus Haapasalo. They are all part of a multiple attack strategy to eradicate biofilms—pernicious colonies of bacteria that destroy teeth, roots and gums. ❖

[www.dentistry.ubc.ca/features/biofilms](http://www.dentistry.ubc.ca/features/biofilms)

photo credit: Martin Dee

### The Overall Approach



**From periodontology to systems biology, UBC Dentistry professor and Canada Research Chair Christopher Overall's discoveries are not only leading to better dental care, they are providing novel insights into human immunity and disease.**

[www.dentistry.ubc.ca/features/overall](http://www.dentistry.ubc.ca/features/overall)

photo credit: Bruce McCaughey

### Oral Insights into Scarless Wound Healing



Periodontology researcher, clinician and professor Hannu Larjava is investigating the remarkable self-healing properties of gums and soft tissue in the mouth in order to improve wound healing in the rest of the body and to reduce painful, debilitating and costly scarring.

[www.dentistry.ubc.ca/features/scarless](http://www.dentistry.ubc.ca/features/scarless)

grated into the centre. One group is focused on the biology of bone-destructive diseases and development of strategies to inhibit bone loss, while the other is focused on bone developmental biology and tissue regeneration.

Western Canada now has more options in clinical and specialty training: UBC Dentistry's integrated clinical specialty programs in endodontics, pediatric dentistry, periodontics, prosthodontics and orthodontics are positioned to meet the critical need for basic science and clinical research. Programs are combined degrees; the diploma in a clinical specialty is completed in conjunction with a PhD or MSc in Craniofacial Science to ensure that all students receive training as clinicians and researchers. In BC, the rest of Canada and the world, there is a recognized shortage of dental academics who are prepared to conduct outstanding research and teach at dental institutions. Due to the aging of current faculty and the expanded number of North American dental schools, this shortage will continue to increase. UBC Dentistry is meeting this demand not only with clinical specialists, but is also preparing the next generation of dental faculty members by providing

graduate training in a wide variety of clinical specialties and research. This inclusive portfolio of recognized specialty degree programs also allows UBC Dentistry to provide more integrated management for their patients with complex oral and craniofacial disorders. We envision that patients with special needs could be referred from across the province or western Canada. UBC Dentistry's undergraduate dental students will also directly benefit from an inclusive portfolio of graduate programs that manage these more complex cases. Studying at a dental school next to professionals undertaking additional clinical specialty training will enable them to observe this full range of treatment. This valuable exposure during their dental education will help them become more effective oral physicians.

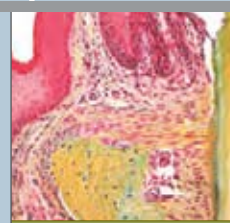
Over the next five years the theme, "Amplify Research Productivity" will guide the faculty to certain research-specific goals: more research active faculty, more research space, more grants, more publications and greater research eminence. This section highlights some examples of Dentistry's research and the people who do it. ❖

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### Annual Research Day

Research Day is a yearly forum to highlight current research accomplishments and to define future opportunities for new investigation.


[www.dentistry.ubc.ca/researchday/archive](http://www.dentistry.ubc.ca/researchday/archive)



In 2008, the program, "Implants: From Basic Science of Tissue Destruction to Predictable Esthetic Implant Placement" demonstrated how the faculty is making contributions in basic biomedical research that are leading to improved treatment options for patients.



Three-dimensional is the buzz. In 2010, "3D Imaging for the Assessment and Management of the Craniofacial Complex" showcased advances in imaging research critical to the dental profession.



"Dignity and Quality of Life for a Frail Population" framed 2011 with research by several members of UBC's ELDERS (Elders Link with Dental Education, Research and Service) Group, a multidisciplinary team which draws on expertise from many faculties.

In 2009, with its affirmative title, "Oral Cancer: Early Detection Saves Lives", the basic research of premalignant lesions and oral cancer, and the progression of these findings into clinical applications that benefit patients lead the day.



**Dr. Edward Putnins** is associate dean, Research, Graduate & Postgraduate Studies at the faculty of dentistry, University of British Columbia.

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Read more about amplifying the research productivity at [www.dentistry.ubc.ca/research\\_productivity](http://www.dentistry.ubc.ca/research_productivity)



## Oral Cancer Prevention

Drs. Lewei Zhang and Catherine Poh, two provincial oral pathologists, are the founders and core members of the BC Oral Cancer Prevention Program, the host of the longest and largest longitudinal study of oral precancers in the world. Using clinical, pathological and molecular markers from this cohort, Zhang's work focuses on the development of risk models for precancer progression and cancer recurrence after treatment. Poh leads the treatment arm using novel optical and molecular technologies. The spin-off of this direction is to lead a cross-Canada multicentric Phase III clinical trial using optical technology to guide the surgical treatment. Building community partnerships with Vancouver's Downtown Eastside, an underserved and marginalized community, Poh has also lead the community outreach activities to assess oral cancer risk and oral care needs in this urban low-income community. Both Zhang and Poh are currently working with oral pathologists from other provinces to build the first Dysplasia Registry in North America. ❖

<http://www.bccancer.bc.ca/PPI/Screening/oral/default.htm>

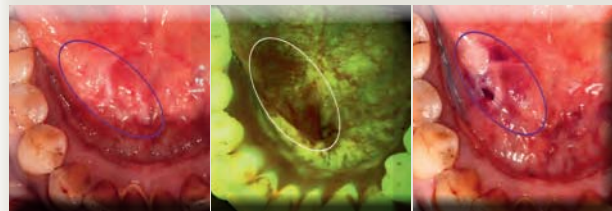


photo credit: Courtesy of Catherine Poh



View and listen to Dr. Poh's presentation:  
**Mobile High-risk Community Outreach**  
[http://www.cda-adc.ca/editor/Catherine\\_Poh.html](http://www.cda-adc.ca/editor/Catherine_Poh.html)



View and listen to Dr. Zhang's presentation:  
**Is my biopsy adequate?**  
[http://www.cda-adc.ca/editor/Lewei\\_Zhang.html](http://www.cda-adc.ca/editor/Lewei_Zhang.html)



View and listen to Dr. Michele Williams' presentation:  
**Early Detection of Oral Cancer in BC**  
[http://www.cda-adc.ca/editor/Michele\\_Williams.html](http://www.cda-adc.ca/editor/Michele_Williams.html)

## Sleep Apnea: Children May Benefit from UBC Device

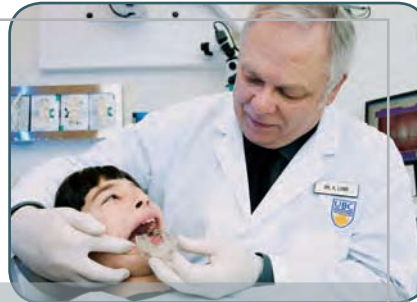


photo credit: Martin Dee

Renowned worldwide for his research contributions on the use of oral appliances for the treatment of snoring and obstructive sleep apnea and their effects on airway size and tongue muscle activity, Dr. Alan A. Lowe, professor and chair of the Division of Orthodontics is the inventor of Klearway™, the largest selling adjustable appliance used in this field (see <http://www.klearway.com/research.htm>). His recent work includes a funded clinical trial underway for the last two years to develop clinical protocols for the application of Klearway appliance therapy to sleep disordered breathing in a child population. ❖

[www.dentistry.ubc.ca/features/apnea\\_device](http://www.dentistry.ubc.ca/features/apnea_device)

## Chicken Embryos Illuminate Cleft Palate Problems

For Dr. Joy Richman, eggs offer an untold wealth of information about human development. A pediatric dentist and development biologist, Richman studies chicken embryos, focusing on the intricately patterned facial bones and limbs. ❖

[www.dentistry.ubc.ca/features/embryos](http://www.dentistry.ubc.ca/features/embryos)



photo credit: Martin Dee

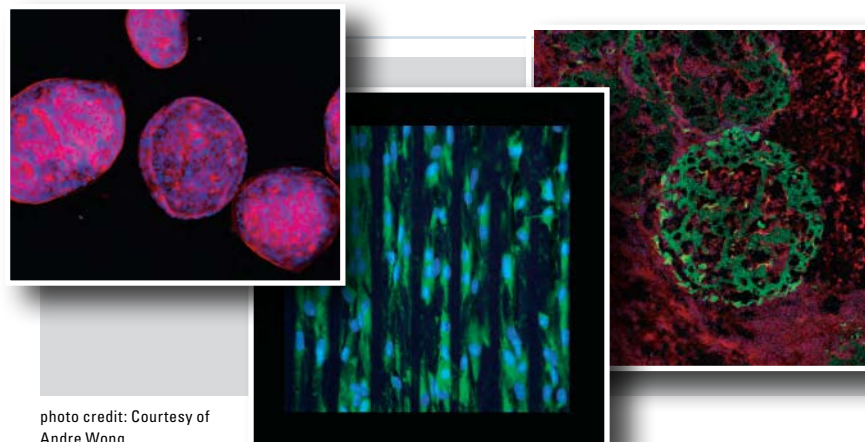


photo credit: Courtesy of Andre Wong

## ELDERS Wisdom Improves Seniors' Quality of Life



photo credit: Martin Dee

UBC's ELDERS (Elders Link with Dental Education, Research and Service) Group has created a highly successful model that strives to reverse the trend of neglected oral health care of seniors in a youth-skewed culture. The group—under the lead of Dr. Michael MacEntee—is a compelling blend of research, education and community service with each component enriching the other. ❖

[www.dentistry.ubc.ca/features/wisdom](http://www.dentistry.ubc.ca/features/wisdom)

## Toothless No More: Team Aims to Reduce Rejection of Implants

An oral biologist in the faculty of dentistry, Don Brunette seeks to create a better dental implant by understanding how cells behave around different types of implant surfaces. ❖

[www.dentistry.ubc.ca/features/toothless](http://www.dentistry.ubc.ca/features/toothless)

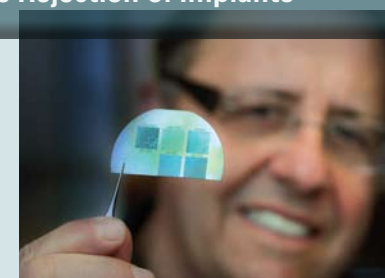


photo credit: Martin Dee

## Moving to the Forefront of Bioimaging—A New High-Throughput Centre at UBC Dentistry

Renowned for its hard tissue imaging and analysis expertise, the faculty has been awarded a multi-million dollar government grant—one of the largest it's ever received—to expand its bioimaging infrastructure. ❖

[www.dentistry.ubc.ca/features/bioimaging](http://www.dentistry.ubc.ca/features/bioimaging)

## The Only Dedicated Forensic Odontology Laboratory in North America

Lead by Dr. David Sweet OC, and under the aegis of the faculty of dentistry, the Bureau of Legal Dentistry (BOLD) laboratory is devoted exclusively to forensic dental services, research and teaching and the use of dental evidence for crime investigation and prosecution. ❖

[www.boldlab.org](http://www.boldlab.org)



Dr. David Sweet

## Clinical Specialty Graduate Programs— an Inclusive Portfolio

Western Canada now has more options in clinical and specialty training: UBC Dentistry's integrated clinical specialty programs in endodontics, pediatric dentistry, periodontics prosthodontics and orthodontics are positioned to meet the critical need for basic science and clinical research. ❖

[www.dentistry.ubc.ca/education/grad](http://www.dentistry.ubc.ca/education/grad)



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