

## A taste of oral health in undergraduate medicine

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Gillian has worked in the Faculty of Health Sciences, the University of Adelaide for the past twelve years, the last 8 years with the Discipline of Rural Health, in conjunction with the Spencer Gulf Rural Health School. Her research and education skills are in the areas of: rural medical education and workforce, public and rural health.

As Project Manager for the Medical Graduates Careers Outcomes Evaluation Program, Gillian is responsible for a longitudinal study following University of Adelaide MBBS graduates from 2003, 2004, 2005 and 2006. The evaluation program is designed to explore the medical student's progress from selection to medicine, undergraduate education, intern assessment and their postgraduate training years.

As academic coordinator for the International Primary Health Care course Gillian facilitates medical student learning in preparation for working in rural, remote, tropical medicine, Indigenous health and the developing world. The three week course includes understanding the social determinants of health, infectious diseases (tropical and developing world), the need to work in teams, with cultural sensitivity and in difficult situations. Gillian is also an academic advisor for the Rural Public Health Intensive course.

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### Abstract

**Introduction:** Whilst there have been extensive advances in health there continues to be an epidemic of dental caries in special populations and huge problems of access to oral health care, exist in rural communities and often whole countries. We know there is an inequitable distribution of doctors in areas of need and while we aim to prepare medical students to work in these areas, they should also be aware that there is an even greater problem associated with dental caries and periodontal disease, their impact on general health and how they as future medical practitioners can help.

**Global Health Elective:** Since 1998 a vertical grouping of 4th, 5th and 6th year medical students have been offered a three week Global Health elective. Through Global Health the students are exposed to health issues relating to poverty, powerlessness, lack of access to resources and education, with particular reference to health and illness in rural and remote locations in Australia and internationally. Students attend seminars, workshops and site visits presented by health professionals from a wide range of disciplines who work in areas of need. Each professional speaks with experience, passion and practical examples of their work.

**Objective:** In 2009 two sessions on oral health were introduced within a three week elective—Global Health (formerly International Primary Health Care), to provide essential foundation knowledge on oral health to 4th, 5th and 6th year undergraduate medical students.

**Design:** Small group teaching using a multimodal learning environment

**Method:**

- Two interactive teaching sessions (1.5 hours each).
- An easy to use, interactive 'Tour of the Mouth' DVD was developed for students Real Time Learning and as a reference tool for future practice. **Error! Reference source not found.**

**Conclusion:** Analysis of the 'Student Evaluation Learning and Teaching' (SELT) feedback demonstrates student interest and support for oral health in the medical curriculum, to prepare a new generation of medical professionals for working in resource poor areas.

## Introduction

Whilst there have been extensive advances in health there continues to be an epidemic of dental caries in special populations<sup>(1)</sup> and huge problems of access to oral health care, exist in rural communities and often whole countries.

We know there is an inequitable distribution of doctors in areas of need and while we aim to prepare medical students to work as medical practitioners in these areas, they should also be aware that there is an even greater problem associated with dental caries and periodontal disease and how they can help.

Medical practitioners and students who work in underserved areas will be exposed to one of the most unrecognised and untreated diseases—dental caries.<sup>(1)</sup> In Australia in 2005 the distribution of dentists and primary care physicians (respectively) per 100,000 population was higher in major cities (58.6 vs 335) than in remote areas (19.8 vs 147).<sup>(2,3)</sup> These data support the need for “... medical education to change to meet the health care needs in a world where national and discipline-based boundaries are becoming increasingly meaningless”.<sup>(4)</sup>

## Global Health Elective

Since 1998 a vertical grouping of 4th, 5th and 6th year medical students have been offered a three week Global Health elective (formerly known as International Primary Health Care). Through Global Health the students are exposed to health issues relating to poverty, powerlessness, lack of access to resources and education, with particular reference to health and illness in rural and remote locations in Australia and internationally. Global Health provides a very important facet of intercultural learning within the medical curriculum to prepare our students for working in an increasingly globalised society.<sup>(5)</sup>

Students attend seminars, workshops and site visits presented by health professionals from a wide range of disciplines who work in areas of need (Table 1). Each professional speaks with experience, passion and practical examples of their work.

Global Health provides an opportunity for students to:

- gain an overview on primary health care from a World Health Organization (WHO) perspective;
- gain an understanding of diseases and health issues specific to the developing world;
- increase their understanding of the need for doctors to be culturally aware, and aware of the effect of politics and environment on health outcomes.

Global Health uses a constructivist learning theory<sup>(6)</sup>, allowing students to use their prior knowledge as medical students to develop a greater understanding of the impact of social issues and environment on health. The multimodal learning sessions progress from foundation sessions in the first week (e.g. global overview of health and illness) to disease principles in the second week (leprosy, nutrition and HIV), through to application of knowledge gained (e.g. case studies) in the final week.

## Introduction of Oral Health

In a review of the very busy medical curriculum in 2008, we found that medical students were exposed to only a very small, but critically important amount of ‘oral health’ information. All students receive a one hour lecture in their 3rd year, the second session is offered in 5th year as part of a geriatric elective in a tertiary setting.

The session in 3r year is part of the core curriculum with a focus on ‘Special Needs Dentistry’ and the collaboration necessary between medicine and dentistry concerned with the care and treatment of people severely affected by intellectual or physical disability, psychiatric or complex medical issues and nutrition, with emphasis on the link between oral health and general health.

The second oral health session focus’ on the impact of oral health on healthy ageing. This session encompasses issues such as: discharge planning and patient access to private and public dental care; dry mouth and products to alleviate; chronic disease management and the Medicare program for dental care<sup>(7)</sup>; dentures and

denture care; oral health and chemotherapy; links between oral health and general health in an increasingly ageing population and introducing the medical students to the South Australian Dental Services 'Better Oral Health in Residential Care' program<sup>(8)</sup> a team approach between care workers, dental professional, General Practitioners and registered nurses share the responsibility for the good oral health of the patient.

Whilst acknowledging the varying interest in Global Health amongst the medical students we found that there is a need for a core foundation in oral health within the medical curriculum. It was determined that graduating MBBS students need to understand the burden of oral disease and to be able to differentiate between deciduous and permanent dentition. Medical graduates should also be able to recognise the ever present oral manifestations of infectious diseases such as HIV, tuberculosis and oral cancer.<sup>(1)</sup>

Disadvantaged and poor populations globally experience the greatest burden of oral diseases<sup>(9)</sup>, yet currently medical students do not readily associate the key risk factors for general health as also impacting on oral health. Clean drinking water, nutrition, poverty, sanitation and hygiene practices and exposure to infectious diseases are key to both oral and general health. For example, whilst tobacco related oral diseases are prevalent in both low and high income countries, increased tobacco consumption in low to middle income communities increases the risk of periodontal disease, tooth loss and oral-cavity cancer<sup>(9)</sup> highlighting the importance of screening, early diagnosis and referral for care.

However, the question was, how do we increase oral health content in an already overcrowded curriculum? How do we respond to the World Health Organization (WHO) global policy to 'increase the awareness of oral health worldwide as an important component of general health and quality of life'<sup>(9)</sup>?

In 2009 'Oral Health' was added to the Global Health. Professor Viv Burgess (School of Dentistry) joined the Global Health multidisciplinary team by designing, developing and delivering two 'Oral Health' sessions for the medical students. Oral health is now delivered as two interactive teaching sessions (1.5 hours each) (Figure 1 and 3).

Professor Burgess also designed an easy to use, interactive 'Tour of the Mouth' DVD for students' real time learning and as a reference tool for future practice. **Error! Reference source not found.** The face to face teaching sessions and the DVD **Error! Reference source not found.** include the following sub topics:

- Oral and Dental Anatomy: Mouth; Tongue; Palate; Radiographs; Formation and Emergence—Deciduous and Permanent Dentition; Dentition—Occlusion/Malocclusion
- Diagnosis and Commonly Occurring Dental Problems: Gingivitis; Periodontal Disease; Caries and Restorations; Trauma; Ulceration; Major Pathology; Local Anaesthesia—Extraction
- Oral Surgery and Emergencies

### Results of a Taste of Oral Health in Medicine

"New, practical, applicable and involving."

There are a total of 31 sessions in the Global Health course spread out over a three week period, with students attending two sessions on oral health. Students are asked on the first day of the course to use their program to record diary notes about each session as memory prompts when giving their feedback. Evaluation of Global Health is undertaken on the last day of each course (twice per year) and we now have feedback from 37 of the 40 students who attended the four courses during 2009 and 2010, 92% (34) of the students reported that the course overall had met its objectives.

As part of the evaluation students were asked two open ended questions about overall course: 1) "What are the best aspects of this course, and why?"; 2) "This course could be changed in the following ways to improve my learning".

Overall, student feedback is very positive, with students making particular reference to the knowledge and experience of the presenters. Students reported the "Broad overview of different aspects of developing world health. Opportunity to interact with lecturers who attended and have had experiences of International

Health.” As one of the best aspects, with students reporting as inspiring to hear firsthand about working in areas of need

“The fact that all the lectures/presenters came with firsthand experience, very inspiring and stimulating, in terms of interest and wanting to know more about International Health.” The Global Health course demonstrates and emphasises the cooperative multidisciplinary approach to health care and the “Wide range of issues relevant to the developing world, both medical and non-medical.”

### **Best aspects**

“Practical exercises—fillings, extractions etc. Gave us some basic background 1st eg. Gingivitis, as we look in lots of mouths and now could offer advice to our patients.”

Although students weren’t asked to specifically comment on the Oral Health sessions in the overall course evaluation the following comments relating to oral health were provided in ‘best aspects of the course’. Students are very supportive of the inclusion of Oral Health, “Exposure to knowledge/experiences not taught in medical school ie—oral health, travel medicine.” Although Global Health was originally developed for international students in preparation to their work outside of the Australian health care system, it has now developed into a pre-departure course for Indigenous and international electives. “It covers an area of medicine, that is usually glossed over, really well.” and we continue to strive to provide non-core curriculum content: “I found the sessions in the dental school very useful as we don’t have much exposure to dental health”.

The perceived quality of the Oral Health sessions is not easy to evaluate, however students use their own variety of words to describe their satisfaction “Oral health by Dr John Kibble was excellent.”, “Dental school visits were awesome.” and “Loved dentistry.” ((left to right) Ms Kudnarto Watson, Ms Ayesha Richardson and Ms Hann Yee (dental students in the background)

Figure 3). Professor Burgess was unavailable to teach Oral Health in the second semester of 2009 and was relieved by Dr Kibble. Comparing the feedback on the oral health sessions delivered by two different dentists further demonstrates it is the content that is important to the students and the excellent feedback is not wholly personality dependent. However, we should note here that both dentists are engaging and enthusiastic teachers.

The students found it easy to integrate their learning with the clinical scenarios presented by Professor Burgess and requested “more time set aside for his teaching”. Having actual hands on experience within the dental student learning laboratory using dental equipment, models and human teeth (extracted due to caries and periodontal disease) are key factors in the oral health sessions “very hands-on”.

The sessions were found to be “Practical. Extremely important learning.” and “very student oriented”. with “clear explanations at a level appropriate for our limited dental knowledge.”

Students reported their appreciation in “Learning about major diseases in developing countries (HIV, TB etc). Hands on work at the Dental Hospital.” and most importantly that they will be able to apply the knowledge and skills gained “Prof. Burgess’ dentistry was really good. New, practical, applicable and involving.” with the topics within the oral health session described as “relevant topics”. The oral health sessions provide the students with “the opportunity to do practical things.”

“Excellent, well-summarised, highly relevant dental tutorials. The practicals were greatly appreciated.”

As with all placements within the medical curriculum, the site visits place the new knowledge into context: “The site visits were great—particularly to the dental hospital, as it is something completely new that none of us had ever had exposure to before, and it was highly valuable.”

### **How can we improve student learning?**

Although three out of 46 hours is allocated to Oral Health over the three weeks many students report the content is important enough to warrant “More time and a more structured approach for the dental sessions.”

“More time with the dental school.”

“I would love more oral health sessions!!”

“I would love further follow-up of the material. Perhaps we could have access to the My-Uni online resources prior to the sessions so that we could prepare/gain background knowledge.” As a result of this comment the ‘Tour of the Mouth’ DVD is provided to the students at the beginning of the Global Health course.

“None. Continue this program as is. And thanks to the IPHC and dental school for organising this.”

Encouragingly we know that we have satisfied students who are already “Very passionate about Indigenous and developing world health.” However, we also know that not all students are in Global Health for the same reason “Initially, I chose IPHC because of the predictable hours and doing something different—instead of general practice. Now, it has turned out to be one of the best rotations in my clinical years—I think is essential and should be incorporated into the core curriculum.”

Perhaps even more encouraging is the request for career advice on how to plan for their futures:

“More on how to pursue a career in this area/career advise/ options available/ suitable specialties/ how to do a Master in Public Health and where and what areas within the MPH you can specialise in etc!”

## Discussion

### Expected clinical and interprofessional benefits

The introduction of oral health into the Global Health course builds capacity in the medical graduates, with a special emphasis, the ability to recognise the needs of disadvantaged and poor populations.<sup>(9)</sup> In indigenous communities, rural and remote areas and countries with critical shortages of oral-health personnel, it is essential that primary care providers be specially trained in prevention and recognition of oral disease.<sup>(9)</sup> “Prevention of oral disease needs to be integrated with that of chronic diseases on the basis of common risk factors”.<sup>(9)</sup>

We are not suggesting that the role of the oral health professionals should be eroded, rather we are supporting WHO global policy for improvement of oral health and the need to incorporate the “promotion of oral health and prevention of oral diseases into programs for the integrated prevention and treatment of chronic diseases”.<sup>(9)</sup>

### The future for oral health in undergraduate medicine?

The introduction of oral health education into the Global Health course has been positively received by the medical students, with many suggesting more time is needed on this “New, practical, applicable and involving.” topic. As the ongoing inclusion of oral health will strengthen partnerships and shared responsibility among medical and dental teams to maximise resources<sup>(9)</sup> we intend to nurture this new relationship between the School of Population Health and Clinical Practice and the School of Dentistry.

While medical schools are under constant pressure to balance curriculum content with new styles of learning, we understand that oral health may not appear on the core curriculum list in the near future. Australian doctors have traditionally been involved in working in areas of need and the rise in the number of student international health organisations shows us that the next generation of graduates is continuing this work and needs to be prepared. Students are no longer the passive recipients of ‘teaching’, rather they are the “consumers and purchasers of medical education”.<sup>(10)</sup>

As a result of the engagement with medical students in oral health we are in the early stages of discussions to establish a three week MedDent elective for medical students interested in an inter-professional learning experience in dentistry.

We recommend that oral health content should be increased within core medical curriculum, however until that time we recommend that elective courses such as Global Health should further expand their curriculum to include oral health.

**Table 1 Global Health course topics, presenters and their health disciplines**

<b>Topic</b>	<b>Presenter Name</b>	<b>Discipline</b>
Developing an Indigenous nutrition education program	Associate Professor Stuart Andrews	Pharmacy and Medical Sciences
Defence Health in Military Operations Other Than War	Brigadier Robert Atkinson	Orthopaedics
Vicarious Trauma (Doctoring the doctor)	Dr Jill Benson	General Practice
The Leprosy Mission, Eradicating the Causes and Consequences of Leprosy	Ms Ruth Brogan	Non-government Organisation
Understanding the oral cavity: abnormality vs normality Pt 1 and 2	Professor Viv Burgess	Dentistry
Chest Clinic	Dr Simon Cameron Dr Rick Stapledon	Thoracic Medicine
Working in Remote Central Australia	Mr Iain Everett	Nursing
Water and Health; Designing a Development Program	Mr Brett Gresham	Engineer
Child Health; Immunisation; Diarrhoea; Emerging Infectious Diseases and Malaria	Dr Bob Kass	Travel Medicine/General Practice
Academic Course Coordinator; Group Project; Critical Appraisal; Cultural Diversity Workshop	Dr Gillian Laven	Health Sciences
Law/Politics	Associate Professor Peter Mayer	Politics
Trekking in Nepal: Case Study	Professor Jonathan Newbury	Rural Health
Mental Health Issues of Refugees and Asylum Seekers	Professor Nicholas Procter	Nursing/Mental Health/Refugees
Global Review of Major Causes of Health and Illness; Patterns of Mortality and Morbidity in the Developing Worlds	Emeritus Professor Anthony Radford	General Practice/Tabor College
Women's Health	Dr Susan Selby	General Practice
Royal Flying Doctor Service	Dr John Setchell	Royal Flying Doctor Service
Antarctic Case Study	Dr John Smith	General Practice/Rural Locum
Global Ageing	Associate Professor Renuka Visvanathan	Geriatric Medicine
STD	Dr Russell Waddell	Sexually Transmitted Diseases
Fever of Unknown Origin; TB	Dr Bruce Wauchope	General Practice
Indigenous Health	Dr Nick Williams	General Practice



Figure 1 Prof Viv Burgess and the medical students in the dental student training laboratory



# Tour of the mouth

[www.health.adelaide.edu.au/hedi](http://www.health.adelaide.edu.au/hedi)

\*\* The following presents an orientation to the normal anatomy of the oral cavity and some commonly occurring oral and dental problems – it will be supplemented in greater depth and detail in class activities

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Figure 2 Introduction to Oral Health



(left to right) Ms Kudnarto Watson, Ms Ayesha Richardson and Ms Hann Yee (dental students in the background)

**Figure 3 Global Health medical students in the dental training laboratory**

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The positive response of the medical students who have selected the course have kept us enthused and make this a highlight of our academic year.

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