Health Professions Education in the Pacific
The Pacific Region

Source: http://www.lib.utexas.edu/maps/islands_oceans_poles/oceania_pol_97.jpg
The College of Medicine Nursing and Health Sciences would like to acknowledge and thank AusAID for funding this edition of Pacific Health Dialog.
# CONTENTS

**Guest Editorial**  
Graham Roberts, Senior Visiting Fellow School of Public Health and Community Medicine, University of New South Wales, and Adjunct Associate Professor, Fiji National University  
4

**Original Papers Part I** - The Series, Evidence and Policy Options for Healthcare Education and Training in the Pacific Island Countries,

- Medical Education: A Review of International Trends and Current Approaches in Pacific Island Countries  
  5

- Commissioning the Education of Healthcare Professionals: A Review of International Trends and Approaches  
  16

- Accreditation of Healthcare Professional Education Programs: A Review of International Trends and Current Approaches in Pacific Island Countries  
  28

- Medical Internship Programs in the Pacific: Current Situation and Future Challenges  
  42

- Regulation and licensing of healthcare professionals: A review of international trends and current approaches in Pacific island countries  
  53

- Expanded and Extended Health Practitioner Roles: A Review of International Practice  
  65

- Universal Coverage and Incentives to Work in Rural and Remote Areas of the Pacific.  
  Robert G, Lin S, Asimus L  
  78

- Abbreviations and Acronyms for Part I  
  84

- Definitions for Part I  
  86

**Original Papers Part II:**

- Control of Blood Sugar Among Adults Aged ≥40 Years With Self-Reported Diabetes in Fiji  
  Brian G, Ramke J, Szetu J, Sikivou B, Fischer-Harder K  
  89

- Male Breast Cancer in Fiji – A Descriptive Study  
  Singh S, Nagra S, Cama J  
  96

- Preparation For Emerging Infectious Diseases: A study from the Solomon Islands  
  Soma Aota M, Vince D J  
  101

- The Attitudes and Practices of Tobacco Smoking Among Students of a Medical Training Institution in the Pacific  
  Rodgers E  
  108

**Review Papers**

- Developing adolescent health policy in Papua New Guinea – What Are the Sexual and Reproductive Health Needs in Service Provision?  
  McGowan J, Raman S, Bateman-Steel C, Pameh W  
  113

- Enhancing Health Workforce Capacity in Response to STIs and HIV in the Pacific Islands  
  Rule J, Gorman H, Ankus J, Reis E, Mitchell J  
  120

**Case Reports and Short Communications**

- Hypereosinophilic Syndrome: Case Report  
  Raniga D, May W, Tudrvu L  
  125

- Interval Appendectomy to Prevent Late Diagnosis of Appendiceal Cancer  
  Tabakei L, Cama J  
  130

**Viewpoints and Perspectives**

- Perspective from the Pioneers of the “Problem-Based Learning” and a Tribute to the Late Dr Jimione Samisoni: The Guinea Pigs  
  Cama K J, Cama T A, Qovu J  
  133

- Preparing Pacific Health Workers for Climate Change.  
  Thompson M. L, Doyle J, Roberts, G  
  135

- Future Trends for Human Resources for Health in the Asia Pacific Region  
  Roberts, G, Dewdney J  
  138

- Writing a Good Abstract: A guide to good abstract writing for medical science journal articles  
  Ezeala, C, Ezeala , M.  
  142

- Australia and New Zealand’s support for skilled health workforce in maternal, newborn and child health in the Pacific  
  Raman, S., Ekeroma, A., Horner, J., Mola, G., Roberts, G.  
  146

**PHD Matters**  
Roberts, G  
154
Health Professions Education in the Pacific – Winds of Change

Graham Roberts PhD

PhD, Senior Visiting Fellow School of Public Health and Community Medicine, University of New South Wales, and Adjunct
Associate Professor, Fiji National University. Email: g.roberts@unsw.edu.au

Changes to the healthcare professional education, entry into the professions and the dynamics of international labour markets occurring internationally are now poised to play out on a large scale in the Pacific Region. Professional labour movements show both migration out and international recruitment into the region and a consequent need to increase health workforce production. The steady winds of workforce production in the past have now changed and the region needs to set its sails for the future.

The health sector is faced with developing appropriate policy responses to ensure the continuity of health workforce production and the quality of the services that graduates will provide. The list of emerging policy issues is long and complex but they all relate to two questions – how best to create a health workforce that is fit for purpose and fit to practise in response to population health needs and priorities for the next 15-20 years.

Current changes include the growth of private sector training providers, increases in international scholarship offers and graduate output and the development and contextualising of competency based curricula. Responses will include the need for secure funding models for public sector training institutions, choices of regulation and licensing authorities and their provisions, and a need to identify and secure any potential gains from professional labour mobility. While current developments proceed, the institutions involved in funding, training and licensing health professionals are challenged to maximise the positive benefits of change while minimising the adverse risks that are inevitably inherent in policy reform. The challenges are either technical (accreditation of curricula, assessment of competence, defining scope of practice) or administrative (funding models, supervision, regulation and licensing) but they also raise important questions for professional mobility, regional cooperation and the potential to develop a regional health workforce.

In anticipation of these emerging policy challenges, this edition of PHD presents a series of six papers prepared by the Human Resources for Health Knowledge Hub at the University of New South Wales. The series, Evidence and Policy Options for Healthcare Education and Training in the Pacific Island Countries, presents information on international trends and approaches and their relevance to the Pacific region, addressing many of the current issues requiring policy development, particularly in medical education, licensing, and the potential impact of new graduates on professionals working in expanded roles, such as Nurse Practitioners. Policy briefs arising from these ‘strategic intelligence’ papers were presented at the July 2013 Pacific Health Ministers Meeting in Western Samoa to inform and catalyse a new policy dialogue on the future of healthcare professional education and training in the Pacific, and are presented here to stimulate wider discussion and policy responses. A seventh paper within this series on nursing education has not been completed in time for this edition.

Several additional papers from the HRH Hub illustrate current issues requiring changes to the workforce or to the structures that support the workforce: included are papers on incentives for rural staff retention in support of universal coverage, enhancing health workforce capacity in response to sexually transmitted infections and HIV in the Pacific, adolescent health policy in Papua New Guinea (PNG), preparing the workforce for climate change and forecasted future trends for HRH in the Asia Pacific Region.

In addition to the HRH series and papers, and in keeping with the objectives of the Pacific Health Dialogue, this edition provides a vehicle for regional health professionals to publish and present their work. Papers by local authors in Fiji and PNG include reports on cervical cancer, the control of blood sugar, male breast cancer, preparation for emerging infectious diseases in the Solomon Islands, smoking among health professions students, two clinical case reports, and a reflection on problem based learning in the Fiji medical curriculum. Policy responses to emerging challenges in HRH production and deployment are central to the potential for the region to deal effectively with emerging health issues in changing circumstances. As the pace of change quickens with the return of internationally trained doctors, the response of ‘doing what we did last year’ with small incremental changes will not suffice. Perhaps the largest issue to be addressed is that of intraregional cooperation between small nations that are not able to provide comprehensive health services alone. Discussions on intraregional labour flows and common approaches to licensing and regulation of professionals are good starting points: as these winds of change are soon to be felt.
Medical education: A review of international trends and current approaches in Pacific island countries

Judy McKimm\textsuperscript{a,b}
Philip M. Newton\textsuperscript{a}
Jim Campbell\textsuperscript{b}
Rob Condon\textsuperscript{c}
Berlin Kafoa\textsuperscript{d}
Revite Kiriton\textsuperscript{d}
Graham Roberts\textsuperscript{e,d}

\textsuperscript{a}University of Swansea, United Kingdom. \textsuperscript{b}Instituto de Cooperación Social Integrare, Barcelona, Spain. \textsuperscript{c}College of Medicine, Nursing and Health Sciences, Fiji National University, Fiji. \textsuperscript{d}PhD, Senior Visiting Fellow School of Public Health and Community Medicine, University of New South Wales, and Adjunct Associate Professor, Fiji National University. \textsuperscript{e}Corresponding Author: g.roberts@unsw.edu.au

Summary
This paper reviews the international trends and approaches to the planning and delivery of undergraduate and postgraduate medical education. It draws upon country examples of relevance to the future development and strengthening of medical education in the Pacific Island countries (PICs). The review identifies a number of international trends, including:

a) the development of ‘graduate entry’ medical education where entry to medical school requires a prior undergraduate degree;
b) a move toward contextually relevant, work based education and assessment;
c) extended placements focused on specific topics such as rural and remote health;
d) a requirement for multiple assessment domains and assessors to produce reliable evaluations;
e) establishing of common assessment items and licensing examinations across countries and institutions; and
f) the professionalization and formalising of medical education as a discipline, including the need for training of clinical teachers and supervisors.

In the Pacific region the establishment of private medical schools and the increased access to scholarships for overseas medical study are new factors in the preparation of Pacific doctors. As yet, no common accreditation model or defined graduate outcomes exist in the Pacific region, although all medical schools are working towards World Federation of Medical Education standards. Curriculum models vary (including Problem Based Learning); there is no graduate entry program and little training for clinical teachers and supervisors. [PHD 2012; Vol 18(2): p5-15]

1. Introduction

The two medical schools that have traditionally provided training for doctors in the Pacific region — the Fiji School of Medicine (FSMed) at Fiji National University (FNU) and the School of Medicine and Health Sciences (SMHS) at the University of Papua New Guinea (UPNG) — reflect many of the international trends identified by the review. However, these two schools are yet to embrace ‘graduate entry’ programs, while common approaches to selection, assessment, accreditation and subsequent eligibility for licensure reflect historic arrangements and remain relatively informal.

The international trends are strongly reflected in medical education in Australia and New Zealand. These two countries continue to accept small numbers of medical undergraduates from PICs, and provide major inputs and support for postgraduate training. The current programs in the Pacific schools may reflect the historical influence of leaders and faculty members trained in the Australian, New Zealand or British systems.

Over the last six years, medical education in the Pacific has become more complex with additional training options outside the two traditional institutions. First, private medical schools have been established in Fiji, the Umanand Prasad School of Medicine (UPSM) and in Samoa, the Oceania University of Medicine, with systems and resources that are less well-established than those of the traditional schools and with smaller student numbers. Second, candidates from the Pacific have started to access scholarships to study medicine in China, Cuba, Morocco, Russia, Georgia, Taiwan and elsewhere. Pacific institutions and licensing authorities are yet to address the challenges associated with regulating and assimilating professionals from increasingly diverse training locations and health systems into their health workforces.
2. Stages of Medical Education

Medical education continues throughout the entire career of a doctor. Very broadly, there are four stages around which this review is structured.

Many of the key features found in undergraduate medical education are also relevant to the later stages. The internship stage is more fully described in *Medical Internship Programs in the Pacific: Current Situation and Future Challenges*. The third stage (postgraduate specialisation) encompasses the skills needed to deliver high quality services, in both secondary care specialities and primary care settings. Documented participation in CPD activities is increasingly becoming a legislated requirement for continuing licensure and registration in some jurisdictions. In the Pacific, the self-directed educational requirements for annual renewal of fellowship or associate fellowship of Australian and New Zealand specialist colleges also provides a mechanism for recording and validating CPD activities.

### Table 1: The Four Stages of Medical Education

<table>
<thead>
<tr>
<th>Stage</th>
<th>Other names</th>
<th>Brief Description</th>
<th>Years (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>Medical student, Basic education</td>
<td>The University-based ‘medical degree’</td>
<td>4-7</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>Supervised*</td>
<td>Early career doctors, retain generalist roles</td>
<td>1-2</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>Speciality</td>
<td>Training for a particular specialty/career e.g. a ‘surgeon’ or a ‘psychiatrist’</td>
<td>4+</td>
</tr>
<tr>
<td>Continuing</td>
<td>Continuing Professional Development (CPD)</td>
<td>Continuing Medical Education (CME)</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

3. International Trends

#### 3.1 Undergraduate Medical Education

Entry requirements and selection criteria: Selection is ‘the first assessment’ of medical students and is probably the most important assessment a medical school carries out. Student selection is usually through a combination of academic achievement at secondary school or university; with an ‘open space’ in the application based on referees’ report and interview. Most medical schools require students to have studied sciences to school-leaver level. Many also require applicants to pass an entry exam such as the Graduate Medical Schools Admission Test. A 2009 overview of selection tools used in global settings confirms the complexity.

Multiple mini interviews are becoming common in medical selection. Here, applicants move round ‘stations’ or tables and answer questions, perform tasks or discuss issues relating to various topics, including ethical issues, attitudes, career choices, motivation and previous work experience. The responses are scored against criteria, often by two interviewers. Special arrangements exist in many countries to facilitate selection of students from indigenous and rural backgrounds, often to address deficits in the numbers of practitioners in these population groups or areas. Most medical programs also take international students on scholarships and/or full fee-paying status.

**Curriculum design and structure:** Worldwide, two main curriculum models for undergraduate medical education exist, although within these there are a variety of educational offerings:

1. ‘Traditional’ undergraduate program, lasting 5-7 years, primarily for school leavers;

2. Graduate Entry programs lasting 4-5 years for graduates with a prior University degree, or qualified health professionals. Students on these programs are also referred to as Undergraduates as the medical qualification is at Bachelor, not Master, level.

Successful completion of either of these medical programs leads graduates to professional registration and postgraduate training. Many ‘traditional’ programs also include opportunities for additional full-time study leading to an intercalated degree, such as a Bachelor of Science, Masters or PhD. Recently – most notably in Australia, North America and Europe – new professional degrees, based on broad based undergraduate degrees, have been developed leading to employment, a professional graduate degree or a research degree such as an MD or PhD (e.g. the ‘Melbourne model’, introduced in 2008). The rationale behind such shifts was in response to international changes, such as the Bologna Agreement, which aims to streamline and align all higher education programs and levels in the EU.

Historically, medical degrees comprised a two-three year ‘pre-clinical’ course which focused on the biological and
natural sciences and was taught in a university setting, followed by a three-four year ‘clinical’ apprenticeship style of course, largely located in hospitals and covering the major medical specialties. In the last twenty years there have been increasing pressures on medical educators for curriculum reform, driven by concerns over ‘factual overload’ and the temporal and geographical separation of theory and practice. Situational models of learning (where learning happens in the context of practice) have become more influential; these include problem or case-based learning and workplace based clinical placements. This shift has occurred alongside movement towards more integrated curriculum models, in which biomedical sciences are learned alongside clinical medicine.

The consequences of these shifts led to curricula being reviewed and reformed so that students gained early clinical experience and ‘scientific’ learning extended into the clinical years. Medical educators described the shift from the traditional, preclinical-clinical model described by Flexner in 1911 to curricula that were based round the SPICES model (see Table 2).

Outcome-based education was suggested as a way of defining and structuring medical curricula and there is now consensus that curricula should be defined in terms of what students and graduates should be able to achieve at various stages of the program (e.g. UK’s General Medical Council (GMC) Tomorrow’s Doctors 2009). These educational shifts led to an increase in small group teaching and learning methods, particularly for topics such as communication skills, medical ethics and group teaching and learning methods, particularly for case discussions. One of the major introductions was Problem Based Learning (PBL).

However, it is now acknowledged that reliance on one mode of learning is not best educational practice and most schools operate a ‘hybrid’ curriculum that utilises a range of teaching, learning and assessment methods. More recently, case based learning is being introduced where students learn the basic sciences and clinical skills through clinical cases often involving real or simulated patients.

Although the traditional approach has often been criticised for separating the underpinning ‘science’ from clinical medicine, it is often easier to develop and deliver a traditional course within the structure and organisation of established medical schools. Many new schools have however been able to take advantage of a lack of ‘history’ and establish curriculum and funding arrangements more consistent with modern, integrated medical curricula.

Rural and Remote Medical Education: A recent development in undergraduate medical education, of particular relevance to PICs, is the development of educational programs specifically targeted at rural and remote healthcare. These include the establishment of dedicated Rural Clinical Schools throughout Australia, together with the Rural Incentives Program, which aimed to improve the recruitment and retention of general practitioners for rural communities.

Whilst the majority of medical programs require students to undertake a mandatory clinical placement in primary care, some medical schools also offer a dedicated part of their curriculum, optional in some cases, focused on rural and remote health. A well evaluated example is the Parallel Rural Community Curriculum, which was established at Flinders University (Adelaide, South Australia) in 1997 as a stream for 3rd year students within the 4-year graduate entry program. Students spend the whole year located in one of five rural centres. Videoconference links provide communication and teaching media. The 3rd year of the MBBS program at the Fiji School of Medicine (FSMed) includes a community block.

### Table 2: From Flexner to Harden

<table>
<thead>
<tr>
<th>Flexner (1911)</th>
<th>Harden (1984): the SPICES model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher-centred</td>
<td>Student-centred</td>
</tr>
<tr>
<td>Knowledge giving</td>
<td>Problem-based</td>
</tr>
<tr>
<td>Discipline led</td>
<td>Integrated</td>
</tr>
<tr>
<td>Hospital oriented</td>
<td>Community oriented</td>
</tr>
<tr>
<td>Standard program</td>
<td>Electives (+ core)</td>
</tr>
<tr>
<td>Opportunistic (apprenticeship)</td>
<td>Systematic</td>
</tr>
</tbody>
</table>

3.2 Postgraduate education and training

A 2013 paper has categorised models of current medical training around the world and provided an explanation of frequently used terminology of medical education.

While there are differences between countries as to the structure and length of medical education, most require new medical graduates to undertake a period of supervised practice (typically one or two years) under a limited scope of practice registration. This period of internship is typically structured around clinical placements in a small range of core clinical specialties: medicine, surgery and primary care. Because doctors also need skills in assessing and managing patients with acute, undifferentiated presentation, many internship programs also include an emergency medicine rotation. Other rotations are highly variable between programs.
and jurisdictions, and may include paediatrics, reproductive health, mental health and community placements). Progression from internship normally requires satisfactory completion of formal assessments, often with a strong emphasis on Workplace-Based Assessments. (See: Medical Internship Programs in the Pacific: Current Situation and Future Challenges)

### 3.3 Specialty training

Specialty training is where doctors become a specific ‘type’ of doctor, such as surgeon, psychiatrist or ‘general practitioner’ (family doctor). In high income countries (e.g. Canada, UK, US) there are around 60 specialities and sub-specialties. Each specialty generally has its own set of national educational standards and assessments, and is administered by a professional body that is distinct from the overall medical regulator (and may also be distinct from providers of undergraduate education, e.g. professional boards or medical colleges). Specialty training posts are often strictly controlled at national level, tied to workforce planning and the future needs of the healthcare system. In Australia, the future structure of postgraduate training and allocation of postgraduate trainees is currently under review, following a move to increase the number of domestic medical graduates by more than 50% between 2009 and 2014.

As for undergraduate education, specialty training may also have a focus on acquiring knowledge and skills that will enable the practitioner to function at an advanced level in rural, remote or relatively under-resourced settings. The ‘rural physician’ training scheme offered by the Royal Australasian College of Physicians is an example, as is the general practice program available through the Australian College of Rural and Remote Medicine (which is fully accredited in Australia for vocational registration as a general practitioner, alongside the more conventional program offered by the Royal Australian College of General Practitioners).
3.4 Continuing Professional Development

Most countries require doctors to maintain a commitment to education throughout their career, in order to keep up-to-date clinically, typically through participation in small, accredited training/educational courses that are assigned ‘points’ or ‘credits’. The number of credits is broadly correlated with the time taken to complete the activity. In the US, CPD is more commonly referred to as Continuing Medical Education (CME). Evidence that an individual has undertaken CPD is often used by licensing bodies to determine whether a doctor’s license to practise should be renewed, usually on an annual basis but occasionally on an accrual basis over a longer cycle (e.g. 2-5 years).

3.5 Assessment

This definition, from the UK Quality Assurance Agency subject benchmark statement on medicine, summarises the approach to assessment in medical education.

‘Assessment strategies and methods must ensure that the knowledge, understanding, skills and attitudes set out previously are sufficiently covered. Methods must be both valid and reliable. Appropriate procedures for standard setting should be employed. Clinical competence must be rigorously assessed so as to identify those who are not yet fit for practice. Methods ... should always include frequent direct observations of students interviewing and examining patients. ... While professional attitudes ... may be difficult to assess directly, the consequences of attitudes on behaviour must be assessed - usually by observation of that behaviour over a period of time.

Assessment programs should be blueprinted (matched to learning outcomes) and developed for their ‘educational impact’. Standards, pass marks and decisions about borderline performance are determined via ‘standard setting’ processes which use the opinions of expert educators. Different approaches to standard setting methods are available in the literature.

Norcini et al (2011) outlined criteria for good assessment that include validity or coherence; reliability, reproducibility or consistency; equivalence; feasibility; educational effect and acceptability. For high stakes examinations (i.e. those that have a major bearing on the final qualification or registration status), the Australian Medical Council suggests selecting highly reliable methods such as multiple choice questions (MCQs) and objective structured clinical examinations (OSCEs) alongside instruments which ‘measure domains such as independent learning, communication with patients, working as part of a health care team, development of professional qualities and problem solving skills where reliability is less well established’.

Medical schools tend to differentiate between written tests that assess knowledge, practical tests of clinical procedures and workplace based assessment.

Written assessment methods are usually about testing knowledge and understanding. They include essays as well as methods that can be marked quickly and easily, often using optical mark readers, such as for multiple choice questions. Progress testing is where the whole medical school student body (first year students through to final year students) sit the same test (which is set at graduate outcome level) together at regular intervals. The development of knowledge of each year group and each individual can then be mapped over a period of time.

Clinical competence includes communication skills as well as competence in history taking, examination skills or carrying out practical procedures on real and simulated patients requiring the direct observation of student performance. Traditionally, assessment of clinical competence was assessed through ‘long case’ assessments and the viva voce (oral) examination but now more structured assessments are used that sample performance widely over a range of patient problems. This is particularly important for high stakes examinations, and these assessments are now used at all levels of medical education. Examples include the widely used OSCE, and other forms of structured clinical examinations such as the OSLER (objective structured long examination record or case) and the PACES (practical assessment of clinical examination skills) assessments. In an OSCE, learners travel through a series of fixed time stations where they are asked to perform a specific task. At each station there is a task with instructions for the learner and some material (e.g. a mannequin, a simulated or real patient a laboratory test result) and an examiner.

Workplace based assessment is used widely, particularly in early postgraduate training: assessment of practice, in practice, by practitioners, peers and patients. Methods in current use for providing feedback and gathering evidence from the workplace tend to be variations on one of four themes; observations of clinical activities, discussion of clinical cases, analysis of performance data and multi-source feedback. The mini-clinical evaluation exercise or mini-CEX was developed to assess clinical skills most often used in real patient encounters and assesses multiple complete or partial clinical encounters observed by an educational supervisor or other clinician.
Analysis of performance data and volumes of activity assumes that the more of a given activity that a doctor performs, the better their quality of care is likely to be. This basis for judgement is typified by internship log books and those of the procedural specialties, e.g. surgery, obstetrics and gynaecology. Multi-source feedback (MSF) aims to capture data on a doctor's work from a variety of perspectives including peers, co-workers, patients and themselves via surveys. Most qualified doctors and those in training are required to complete a portfolio which demonstrates and evidences education and clinical achievements. Most portfolios are web-based and are commonly used to record CPD activities.

3.5 Teachers

Most regulator bodies require that teaching staff have relevant educational expertise in addition to their clinical and/or academic background. This reflects the worldwide professionalization of teachers in higher education as well as the need to ensure that teachers of medical students understand the particular educational context of medical education, which is now a professional subject discipline supported by associations and peer reviewed journals.

4 The Pacific Context

4.1 Undergraduate medical education

Pacific institutions: Fiji School of Medicine and University of Papua New Guinea: In the Pacific, the two established medical schools in the public sector are Fiji School of Medicine (FSMed; established in 1885 and now part of the College of Medicine, Nursing and Health Sciences at Fiji National University) and the School of Medicine and Health Sciences at the University of Papua New Guinea (UPNG; established in 1964). Although a majority of students entering both schools come from the host country, both also serve the wider Pacific region and also accept small numbers of students from further afield. Domestic health workforce pressures in Fiji, where the doctor-to-population ratio of 4.3 per 10,000 is among the lowest in the Pacific, have seen a numerical increase in FSMed intakes – consisting mainly of candidates from Fiji – and a slight reduction in the proportion of students from other PICs.

FSMed and UPNG have long standing cross-accreditation agreements that enable graduates of either medical school to enter an internship program in either country or elsewhere in the Pacific. Graduates of Australian and New Zealand medical schools are also accredited to apply for provisional or full registration in the Pacific. Nevertheless, common approaches to program accreditation, student assessment, and subsequent eligibility for licensure and registration reflect historic arrangements and remain relatively informal.

Private medical schools: More recently, two new medical schools have been established in the Pacific: the Umanand Prasad School of Medicine (UPSM) in Lautoka, Fiji (which operates as a fully private institution within the University of Fiji) and the Oceania University of Medicine (OUM) in Apia, Samoa (which operates under a collaborative funding model involving Government and the private sector). Reciprocal accreditation agreements do not currently exist with FSMed or UPNG. The OUM curriculum has been given provisional accreditation by PAASCU (the Philippine Accrediting Association of Schools, Colleges and Universities) but the status of an independent assessment of the UPSM curriculum against the World Federation of Medical Education (WFME) standards is uncertain.

Of the 176 students who have enrolled in UPSM since 2008, 169 are from Fiji and 11 from the Solomon Islands (including 5 in the 2012 intake and another four in the 2013 intake). The first cohort of students is expected to graduate at the end of 2013; the Fiji Medical Council has not yet finalised the provisional registration status of these students for the purposes of internship and entry into the medical workforce.

OUM mainly admits students from Samoa or outside the Pacific. It offers two related undergraduate programs: a face-to-face and on-line distance education program for Samoa based students; and an online learning program for students from other countries (primarily the US and Australia). Students in other countries undertake clinical training primarily in their own country and are supervised on their clinical placements by a faculty of clinicians co-ordinated within each country. Since 2006, 34 candidates have graduated from OUM: 16 from Australia, 12 from the United States, 5 from Samoa and one from New Zealand. The title of the degree conferred may be aligned with the one that is usually awarded to graduates in the candidate's own country, e.g. those from PICs, Australia or New Zealand may be awarded the MB BS degree, while those from the United States may be awarded a MD. Samoan graduates can enter their country's national internship program, while other candidates generally enter a medical workforce outside the Pacific by completing a jurisdiction-specific internship requirements and/or licensure examinations, e.g. the United States Medical Licensing Examination (USMLE) for US students.

Entry requirements and selection criteria: The minimum entry requirement for the MBBS program at FSMed is a mark of 250/400 in Fiji's final secondary school examinations. FSMed also accepts students who

have been selected by PICs to be given scholarships for full time studies at FSMed and UPNG and who have met the minimum criteria. Selection of candidates to send to FSMed or UPNG is done by respective national scholarship units, and mostly by academic achievements and interviews. These scholarship holders make up about 90% of the FSMed intake each year with only 10% of places available for privately funded students. Students from Pacific Island Countries including Fiji are given preference to applicants from outside the region.

Curriculum design: Both FSMed and UPNG have PBL elements in their undergraduate programs. The curriculum of UPSM is based on a ‘pre-clinical:clinical’ model, with a lecture based rather than case or PBL based curriculum in the early years and relatively limited clinical exposure to patients in the Western Divisional Health Service and the Divisional Hospital in Lautoka.

FSMed has a traditional entry undergraduate program lasting 6 years. There is no formal graduate entry program, although recognition of prior learning is considered on a case-by-case basis. At FSMed the first 3 years are PBL and systems based with classroom based activities and some exposure to clinical settings during Clinical Skills Sessions. The curriculum in the first 3 years is integrated. This is followed by 2 years of predominantly (80%) clinical exposure and one community rotation. This is a mixture of didactic learning and practical skills learning using an apprenticeship model. At the end of the 5th year the final written exit exam is held. The 6th trainee internship year is logbook driven with a mixture of assessment methods; a skills based/practical assessment, clinical assessment and workplace assessment.

OUM has a PBL based curriculum in which PBL cases are discussed online, supplemented by face to face or video conference lectures and tutorials depending on where students are based. Students in the US undertake clinical training after two years when they have passed USMLE part 1. In Samoa, students are involved in supervised clinical training in both hospital and the community from the first year, although this is relatively limited in the early years.

Table 3: Country of origin of all students enrolled in the MBBS program (all years) at FNU from 2008-2012.

<table>
<thead>
<tr>
<th>Country</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pacific Island Countries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiji</td>
<td>253</td>
<td>264</td>
<td>272</td>
<td>282</td>
<td>282</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Kiribati</td>
<td>13</td>
<td>11</td>
<td>11</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Micronesia</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Nauru</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Niue</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Palau</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Samoa</td>
<td>28</td>
<td>31</td>
<td>25</td>
<td>23</td>
<td>14</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>35</td>
<td>32</td>
<td>31</td>
<td>35</td>
<td>36</td>
</tr>
<tr>
<td>Tokelau</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Tonga</td>
<td>21</td>
<td>18</td>
<td>18</td>
<td>32</td>
<td>31</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>11</td>
<td>10</td>
<td>19</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Total all PICs</td>
<td>384</td>
<td>384</td>
<td>393</td>
<td>412</td>
<td>402</td>
</tr>
<tr>
<td>Total non-Fijian</td>
<td>131</td>
<td>120</td>
<td>121</td>
<td>130</td>
<td>120</td>
</tr>
<tr>
<td>% non-Fijian PIC</td>
<td>34.1</td>
<td>31.3</td>
<td>30.8</td>
<td>31.6</td>
<td>29.9</td>
</tr>
<tr>
<td><strong>Other countries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>New Zealand</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Timor Leste</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total FNU enrolments</td>
<td>387</td>
<td>387</td>
<td>395</td>
<td>415</td>
<td>404</td>
</tr>
<tr>
<td>% from PICs</td>
<td>99.2</td>
<td>99.2</td>
<td>99.5</td>
<td>99.3</td>
<td>99.5</td>
</tr>
<tr>
<td>% from other countries</td>
<td>0.8</td>
<td>0.8</td>
<td>0.5</td>
<td>0.7</td>
<td>0.5</td>
</tr>
</tbody>
</table>
4.2 Postgraduate medical education

In relation to the general models of medical education described in Figure 1, there is no single agreed model in the Pacific, although PICs with an internship program generally track on Route IV. Those without an internship program have sent their students to countries with programs or have tracked on Route III. Some countries are developing their own internship programs to accommodate the scale up in graduates from overseas programs, e.g. Kiribati is currently developing their own to commence in the second half of 2013. (See: Medical Internship paper).

Formal, structured postgraduate training is limited in the Pacific. FSMed and UPNG offer postgraduate diplomas and Masters of Medicine in various specialties, and enrolment is open to candidates who obtained their primary undergraduate degree at either institution (or in Australia or New Zealand) and who have completed an accredited internship and selection process (see below); i.e. (and subject to availability of places), enrolment is available to candidates from any PIC as well as the host countries. OUM and UPSM do not currently offer formal postgraduate education.

Pacific candidates who hold an undergraduate medical degree from FSMed or UPNG are often able to complete part of their postgraduate training via supervised 6-12 month placements in Australia or New Zealand, under a specific category of associate registration in each country. Pacific graduates from Australian or New Zealand medical schools are able to access postgraduate training via the Australasian professional colleges with the same eligibility and in the same way as domestic graduates.

5 Matching supply and demand

Historically, small numbers of students from the Pacific have studied at medical schools in Australia, New Zealand or, rarely, the United States; generally dependent on individual scholarships or private funding (e.g. family resources). For the purposes of subsequent registration and licensure, degrees from all of these countries carry mutual accreditation with Pacific institutions and jurisdictions.

Since 2007, there has been a proliferation of scholarship opportunities for students from the Pacific to study outside the region. The largest program is through the Escuela Latino-Americano de Medicina (ELAM; Latin American Medical School), where more than 200 medical students from 8 different PICs are currently enrolled. The first 18 graduates are expected to return to the Pacific (to Kiribati) in the second half of 2013. Scholarships to ELAM are offered under bilateral agreements between PIC governments and Cuba; these agreements generally also fund the placement of varying numbers of Cuban medical practitioners in-country while the students are away studying in Cuba.

Smaller numbers of candidates have been granted scholarships to study in locations and health systems as diverse as China, Morocco, Russia, Georgia and Taiwan. Scholarship arrangements to medical schools outside the Pacific are generally negotiated outside the health sector and without reference to national health workforce development strategies and plans (where they exist). Moreover, none of the curricula from the non-Pacific institutions has been objectively compared with or accredited against those offered through FSMed or UPNG, nor have they been assessed as providing relevant knowledge and skills to practice in PIC health systems and settings. There has been a slight easing in rates of scholarship acceptance while PIC Ministries of Health consider the possible implications for their health workforce and recurrent health budgets, and on the potential for overlapping the strongly community-focused scope of practice of Cuban graduates with other cadres, in particular nurses, nurse practitioners and medical assistants. (See: Expanded and extended health practitioner roles: a review of international practice).

More recently, the increasing recruitment of overseas trained doctors into the region made it apparent that FSMed and UPNG were not able to meet the region’s demand for doctors. Concurrently the increasing numbers of scholarship funded students reduced the opportunity for privately funded places in their programs. These demands have been the impetus for the emergence of private medical schools and the acceptance by many PICs of scholarships for places in overseas medical schools, all of which have been agreed without coherent workforce planning or recurrent budget forecasting. It can be anticipated that when the more than 200 Pacific Island graduates of overseas training programs start to return to their countries from 2014 and UPSM graduates its first cohort, also in 2014, that gaps will be filled steadily and progressively; however, the effects may be that governments will have difficulty employing them all and will need to review their scholarship programs. Sensing this possibility, some PICs have begun to scale back their overseas scholarship acceptances while others, including Fiji, continue to allocate national scholarships for medical training in Fiji and foreign scholarships for medical training overseas.
6 Policy implications for the Pacific

Based on the international evidence and regional trends, Pacific Island countries (PICs) would benefit from:

1. Aligning scholarship and educational commissioning systems with workforce planning and fiscal potential, so as not to impact adversely on health budgets.

2. Greater alignment of undergraduate medical education and postgraduate training with workforce planning, both within and between PICs.

3. Different curriculum models (such as graduate entry) to enable career progression into medicine for health professionals from other disciplines, or for new roles.

4. Defining common training standards, outcomes and competencies across the Pacific region (the ‘Pacific doctor’) at each stage of training to ensure Pacific doctors are ‘fit for practise’ and ‘fit for purpose’ given epidemiological transitions to non-communicable diseases (NCDs) and the reinvigoration of primary health care.

5. Ensuring curricula, teaching and learning methods and assessments enable achievement of the defined outcomes at key stages of medical education and training, and that learners gain sufficient experience of relevant specialties or topics (e.g. NCDs, tuberculosis, malaria) and health contexts (e.g. primary / remote area health care).

6. Review of program accreditation, regulatory and licensing mechanisms to reflect international best practice, ensure minimum professional standards and to facilitate mobility across the region to practice in areas of need.

7. A common, agreed scheme of postgraduate training which includes structured internships and specialty training programs.

8. Regulatory and licensing systems clearly defining scopes of practice relative to other cadres of health professionals and to facilitate the assimilation of overseas trained doctors into the workforce.

9. Designing training programs to equip practitioners to work in these defined scopes of practice.

10. Establish medical education training programs for academics, clinical teachers, and postgraduate supervisors, mentors and managers to facilitate learning and ensure a high quality education and training system.

7 Conclusions

The international review and analysis of the current Pacific context suggests a number of findings with potential relevance to PICs and to Pacific regional organisations.

Undergraduate medical education and postgraduate training needs to be aligned more closely to workforce policies and planning based on clear role delineation and models of care, both within and between PICs. Different curriculum models (such as graduate entry) may help enable career progression into medicine for health professionals from other disciplines or the establishment of new roles to work alongside doctors and nurses (e.g. physician’s assistants). (See: Expanded and extended health practitioner roles: a review of international practice).

Scholarship and educational commissioning systems must also be linked with workforce planning and defining needs for graduates in various localities and specialities, this must also be consistent with health strategic plans and fiscal potential, so as not to impact adversely on health budgets.

Defining common standards, outcomes and competencies across the Pacific region (the ‘Pacific doctor’) at each stage of training would help ensure Pacific doctors are ‘fit for practise’ and ‘fit for purpose’ given epidemiological transitions to NCDs and the reinvigoration of primary health care. (See Medical Internships). Alongside this, curricula, teaching and learning methods and assessments should be designed to enable achievement of the defined outcomes at key stages of medical education and training and should enable learners to gain sufficient, in-depth experience of relevant specialties and health contexts (e.g. primary health care).

Program accreditation, regulatory and licensing mechanisms should reflect international best practice, in order to facilitate mobility across the region whilst also ensuring minimum professional standards and encouraging doctors to practice in areas of need (See: Accreditation of healthcare professional education programs; and, Regulation and licensing of healthcare professionals).

The regulatory and licensing system should clearly define scopes of practice relative to other cadres of health professionals, and training programs should be designed to equip practitioners to work in these defined scopes. As additional graduates enter the workforce, support and training programs should be in place to enable academics, clinical teachers, postgraduate supervisors and managers to facilitate learning and ensure a high quality education and training system.
A common, agreed scheme of postgraduate training which includes structured internships and speciality training programs will help smooth out existing differences in undergraduate training and facilitate the assimilation of overseas trained doctors into the workforce. As experience advances, this should be progressively informed by models and experience of postgraduate training schemes that are specifically designed to address rural, remote and resource-limited environments.

References


15. DEST (2007) Flinders University Parallel Rural Community Curriculum: a proven model of successful medical education in Australia, DEST Medical education study: What makes for success in Medical Education?


“The road to health is paved with good intestines!”

Sherry A. Rogers
Commissioning the education of healthcare professionals: A review of international trends and approaches

Judy McKimm<sup>a</sup><sup>b</sup>  
Philip M. Newton<sup>a</sup>  
Ana De Silva<sup>a</sup>  
Jim Campbell<sup>b</sup>  
Berlin Kafoa<sup>c</sup>  
Revite Kiriton<sup>c</sup>  
Sophia Lin<sup>d</sup>  
Graham Roberts<sup>d</sup>  

<sup>a</sup>University of Swansea, United Kingdom.  
<sup>b</sup>Instituto de Cooperación Social Integrare, Barcelona, Spain.  
<sup>c</sup>College of Medicine Nursing and Health Sciences, Fiji National University, Fiji.  
<sup>d</sup>PhD, Senior Visiting Fellow School of Public Health and Community Medicine, University of New South Wales, and Adjunct Associate Professor, Fiji National University.  

**Summary**

This paper reviews international approaches to commissioning and how to determine and control the number of places available on educational programmes for doctors, nurses and midwives. These approaches are currently undergoing significant change in many international settings. This active state of flux provides learning opportunities for the Pacific Island Countries (PICs), as innovations are currently being developed, tested and refined. Key points are summarised below.

The commissioning of education is a fundamental part of workforce planning for healthcare provision and aims to align the education and training market with the demand and supply of the health workforce, in contrast to laissez-faire market principles. It is informed by health labour market analysis and supports the effective and efficient management of the workforce for long-term self-sufficiency and to manage labour mobility. It is subject to a number of influences and models vary between countries, primarily based on whether the healthcare education and health system is publicly funded or not. Commissioning models seek to maximise the public investment in education, training, labour participation and workforce supply.

Pacific countries currently have mixed models of determining the number of available places, and resources for, healthcare education and training with inherent inefficiencies if not closely linked with workforce planning. PICs are now at the stage to commence identifying the fiscal space within the whole of government accounts to fund sustained increase in health staff. The introduction of a commissioning policy closely tied with projected population health care needs and national workforce planning is recommended for all PICs. (PHD 2012; Vol 18(2): p16-27)

**1. Introduction**

**1.1 Workforce planning**

Educational commissioning is a fundamental aspect of workforce planning. We therefore summarise some basic principles and issues in workforce planning as well as those with relevance to the Pacific. Recent detailed reviews are available (e.g.).

"The vast majority of countries in the world do not have an explicit human resources for health strategy. Typically, if there is any policy focus it is on establishing training numbers and related costs, rather than developing a comprehensive strategy covering compensation, working conditions, recruitment and retention issues."<sup>1</sup>

In the Organization for Economic Co-operation and Development (OECD) countries, the health and social care workforce accounts for, on average, 10% of all persons employed.<sup>2</sup> The effective management of this workforce is an enormous and critically important challenge. This is compounded by a significant lag time and cost required to respond to any change in demand – e.g. to fully train a doctor to specialist qualification takes approximately 10 years. Nurses can be trained in less time (between 3-5 years) and can then (if required) go on to train as advanced practitioners, fulfilling many of the roles of doctors, allowing more flexibility.

Many OECD countries have substantial net immigration, forming up to and over 20% of the workforce.<sup>3</sup> There is a stated preference for self-sufficiency in healthcare workforce production (as expressed in the World Health Organisation's Global Code of Practice on the International Recruitment of Health Personnel<sup>4</sup> but some countries are finding it difficult to maintain self-sufficiency despite identifying the barriers to doing so.<sup>5</sup>

Most Western countries tightly manage healthcare education and workforce, although with limitations...
Figure 1: Factors affecting healthcare workforce planning.


described throughout this paper. One notable exception is the United States, where market forces play a much more significant role in healthcare generally, and where the national approach to workforce planning has been described as ‘laissez-faire’.

What is clear from the evidence is that (particularly for publicly funded education, training and health workforce systems) specific alignment needs to be made between the commissioning of health education places, the numbers of registered professionals required in the workforce and the implementation of targeted schemes to meet short term need or to address specific service needs. This requires a ‘whole workforce’ approach.

1.2 Workforce planning issues of particular relevance to the Pacific region

1.2.1 Rural and Remote Health

Across the Pacific region, in common with many other countries such as Canada, Australia and New Zealand, an acute shortage of rural and regional doctors exists, with regional hospitals struggling to fill vacancies and attract new graduates. A number of specific policies and programmes exist in Australia aimed at achieving an equitably distributed medical workforce, regardless of location. These include:

- The Bonded Medical Places scheme;
- The Medical Rural Bonded Scholarship scheme;
- The General Practice Rural Incentives Program;
- The 5-year Overseas Trained Doctors Scheme;
- Medicare provider number restrictions for overseas trained doctors.

As part of the solution to provide appropriate healthcare to rural and remote areas, the role of all healthcare practitioners is changing from specialist to generalist and this is also reflected in commissioning policies as well as educational and political approaches.

1.2.2 The United States and Caribbean Medical Schools

The Caribbean currently has 55 medical schools, for a population of ~39,000,000. There are two principal types of medical school in the Caribbean - ‘Regional’ and ‘Offshore’. Regional schools train graduates for the geographical site in which they are located (and the wider Caribbean). These are described in more detail in the companion paper Accreditation and Licensing of Healthcare Professionals.

Offshore schools are essentially satellite campuses for medical schools located in the USA, training a mixture of (largely) US-citizen and foreign students for subsequent entry into the American physician workforce. Between 1996 and 2005, these schools contributed 19,436 doctors to the US workforce, although concerns are consistently expressed about the educational standard to which these doctors are trained, reflected in subsequent academic under-performance. These schools normally offer only the basic science component of medical education in Caribbean itself (i.e. two years of education leading to...
United States Medical Licensing Examination (USMLE) part 1), with subsequent clinical training occurring in the US. Thus Caribbean schools enter partnership agreements with clinical sites in the US, which may cause difficulties and controversies integrating with clinical placements for students at US-based schools.¹³

The offshore schools generally run at lower cost than schools physically located in the US and thus generate greater revenue, making them attractive to ‘for-profit’ education companies such as DeVry, which has recently acquired the American University of the Caribbean School of Medicine.²⁴ The local economic benefits of offshore medical schools, generated largely through the import of a relatively affluent student and teacher population, has also seen local governments actively recruit offshore medical schools and offer tax and other incentives for their establishment. The current situation in the Caribbean has caused many in the field of medical education to question the emergence and potential impact of so-called ‘for profit’ medical education, a principle which contradicts that proposed by Flexner in 1910 and is in contrast to the model currently used in the majority of the western world.²⁵

2 International evidence and trends

2.1 Commissioning of medical education - common principles

One approach to commissioning medical students and doctors, adopted by many OECD countries, is to set clear and dynamic limits (a closed number or numerus clausus) on the available medical school intakes, both at country and individual medical school levels (see Table 1 for individual policies). These are typically tied to intern (junior doctor) training posts.

Because most countries fund medical education from public funds, it is vital to ensure that public investment is maximised. The numerus clausus exists therefore to control both medical intake and graduates to:

- Restrict medical intake to the most academically able, and more recently to students whom the school believes will make good doctors;
- Control the total number of doctors in the medical workforce for cost reasons;

<table>
<thead>
<tr>
<th>Country</th>
<th>Cap?*</th>
<th>Medical Student commissioning policy (2006**)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Yes</td>
<td>Medical school intake is capped by the national Government through the funding of university places. Cap applies to domestic medical students only.</td>
</tr>
<tr>
<td>Austria</td>
<td>No</td>
<td>Government does not restrict the number of medical students.</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>Government determines the numbers, which are allocated to 60% Flemish-speaking and 40% French-speaking students.</td>
</tr>
<tr>
<td>Canada</td>
<td>Yes</td>
<td>Places in medical school are limited.</td>
</tr>
<tr>
<td>France</td>
<td>Yes</td>
<td>France has employed a numerus clausus for admission in the second year of undergraduate medical school since 1971. The number has been varied between approx 3000 and 5000 due to over and then undersupply.</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>The Government does not restrict the number of students admitted to medical school. Intake is determined by the number of places available at medical schools.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Government determines the number of places, but Colleges have discretion to take in more students.</td>
</tr>
<tr>
<td>Japan</td>
<td>Yes</td>
<td>Numbers are controlled by government and have been varied between approximately 4000 and 9000 in the last generation.</td>
</tr>
<tr>
<td>South Korea</td>
<td>No</td>
<td>No explicit policy about constraining or expanding the number of medical school admissions.</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Yes</td>
<td>Medical school intake is subject to a numerus clausus.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Yes</td>
<td>Enrolment into medical school is capped at 285 nationally.</td>
</tr>
<tr>
<td>Norway</td>
<td>Yes</td>
<td>The number of students entering medical school is limited to 594.</td>
</tr>
<tr>
<td>Spain</td>
<td>Yes</td>
<td>Medical school intake is agreed by Government and Universities.</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes</td>
<td>Medical school intake is controlled by Government and has varied between 431 and 1026 since 1960.</td>
</tr>
<tr>
<td>Switzerland</td>
<td>No</td>
<td>The Government does not restrict the number of students admitted to medical school.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>Numbers are controlled by Government and have varied between approx 4000 and 6000.</td>
</tr>
<tr>
<td>United States</td>
<td>No</td>
<td>The US federal government does not impose any limitation on the number of medical school enrolments, although it does invest in medical education.</td>
</tr>
</tbody>
</table>

Source: Adapted from Simoens and Hurst 2006. * ‘Yes’ means some sort of cap is imposed directly or indirectly by Government (rather than the market). ** Many of the figures have obviously changed since 2006, although the basic policies remain largely unchanged.
• Ensure that all domestic graduates are able to obtain a postgraduate training post in their home country; and
• Balance the high cost of training medical students with other public expenditure.

2.2 Postgraduate training places

New healthcare graduates are generally recruited into the workforce directly from graduation, although education continues throughout the career. Training places are allocated to healthcare providers depending on regional and national need in particular areas of healthcare. Thus the commissioning of postgraduate training places is also a fundamental part of workforce planning and has its own geographical and specialty needs which may not be aligned with those of undergraduate education or the individual graduate. Health Workforce Australia is undertaking a review of postgraduate training which will ultimately lead to a ‘medical workforce scenario’ tool which accommodates these and other factors. This work is on-going and changes to the commissioning of postgraduate places are likely to result, with knock-on effects for PICT. Postgraduate Medical Education in Canada has been undergoing a similar review.17

2.3 Commissioning of nursing and midwifery education - common principles

There is a general, worldwide, chronic shortage of nurses and midwives, even in the most developed countries and this fact dominates all analyses of workforce planning and educational commissioning for nurses/midwives. Nevertheless, in most developed countries, commissioning of the nursing and midwifery workforce is moving in the same direction as that of the medical workforce, carried out at regional or federal basis, tied to regional workforce requirements. In Australia and New Zealand, health workforce organisations are also moving towards commissioning student numbers. Critically for PICT, both these countries are heavily reliant on immigration to maintain their nursing/midwifery workforce.8,7

Australia, in particular, is currently engaged in an extensive review of its entire healthcare workforce (18) and has identified nursing as a future area of potential crisis with a projected shortfall of 109,000 nurses (27% fewer than required) by 2025, although the midwifery workforce is not expected to suffer such shortages.8 The commissioning of nurse education is obviously fundamental to tackling this problem.

An emerging principle in nurse education, relevant to commissioning, is the role of the ‘Advanced Practitioner’. These are professionals from ‘non-medical’ backgrounds (usually nursing) who have received additional training to perform advanced roles.9 (For a full description of these see the companion paper in this series Extended and Expanded roles of Health Practitioners).

2.4 The costs and sources of funds for educating healthcare professionals

The cost of training healthcare professionals varies widely depending on the profession. Recently updated (2011) estimates from the UK are shown in Table 2. It can be seen that the costs of training a consultant doctor are almost 8 times that of training a nurse and almost 10 times that of training a therapist. Specific data from other countries are not easily available but it is estimated that the cost of training a doctor in the USA is approximately 1 million US dollars.10 Training doctors in ‘Western’ countries is clearly expensive. In contrast the estimated cost (in 2003) for training a doctor in Uganda is 25,000 US dollars (19) and in Malawi (in 2006) 53,385 US dollars.7 It is therefore also clear that recruiting doctors from overseas saves enormous amounts of money for countries like the US, Australia and the UK and this is reflected by the high percentage of overseas trained doctors in these countries. In contrast the economic costs are enormous to countries that lose a significant number of educated professionals to these western countries. Higher financial rewards and the quality of life available in these countries are the most significant drivers of emigration. A related complication to government funding of education is the subsequent loss of graduates to private practice within the same country, where, again, the financial rewards are likely to be greater.

“There is little benefit in educating adequate numbers of doctors or nurses, and then seeing them migrate to other countries because the labour market cannot integrate them, or because working conditions are not attractive enough”.1

2.5 Physical resources

University-based learning space requirements for healthcare education include lecture theatres, small group teaching rooms, seminar rooms, laboratories, clinical skills laboratories, libraries and facilities for e-learning. Depending on choices made on how anatomy will be learned, an anatomy dissection laboratory may also be required although these are being replaced by expensive simulation techniques.20

Universities use a variety of ways to ensure that students can learn and practice practical skills before they reach real patients, through simulation, models and mannequins, role play, peer learning and e-learning. Any programme will require that students have good access to learning through these methods and that they are available for postgraduate and continuing education.

Further information : http://www.equinetafrica.org/bibl/docs/CBP12HRpanulo.pdf
Table 2: Training costs of various healthcare professionals in the UK in 2011. Taken from³

<table>
<thead>
<tr>
<th>Professional</th>
<th>Pre-registration</th>
<th>Postgraduate training</th>
<th>Total investment</th>
<th>Expected annual cost at 1.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tuition</td>
<td>Living expenses/lost production costs</td>
<td>Clinical placement</td>
<td>Tuition and replacement costs</td>
</tr>
<tr>
<td>Scientific and professional</td>
<td>£24,441</td>
<td>£35,472</td>
<td>Not known</td>
<td>NA</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>£24,441</td>
<td>£35,472</td>
<td>Not known</td>
<td>NA</td>
</tr>
<tr>
<td>Occupational therapist</td>
<td>£24,441</td>
<td>£35,472</td>
<td>Not known</td>
<td>NA</td>
</tr>
<tr>
<td>Speech and language therapist</td>
<td>£24,441</td>
<td>£35,472</td>
<td>Not known</td>
<td>NA</td>
</tr>
<tr>
<td>Dietician</td>
<td>£24,441</td>
<td>£35,472</td>
<td>Not known</td>
<td>NA</td>
</tr>
<tr>
<td>Radiographer</td>
<td>£24,441</td>
<td>£35,472</td>
<td>Not known</td>
<td>NA</td>
</tr>
<tr>
<td>Hospital pharmacist</td>
<td>£25,536</td>
<td>£46,505</td>
<td>£11,381</td>
<td>NA</td>
</tr>
<tr>
<td>Community pharmacist</td>
<td>£25,536</td>
<td>£46,505</td>
<td>£25,807</td>
<td>NA</td>
</tr>
<tr>
<td>Nurses</td>
<td>£23,151</td>
<td>£47,296</td>
<td>£0</td>
<td>NA</td>
</tr>
<tr>
<td>Doctors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foundation officer 1</td>
<td>£55,987</td>
<td>£57,166</td>
<td>£147,791</td>
<td>£0</td>
</tr>
<tr>
<td>Foundation officer 2</td>
<td>£55,987</td>
<td>£57,166</td>
<td>£141,496</td>
<td>£31,231</td>
</tr>
<tr>
<td>Registrar group</td>
<td>£55,987</td>
<td>£57,166</td>
<td>£141,496</td>
<td>£73,664</td>
</tr>
<tr>
<td>Associate specialist</td>
<td>£55,987</td>
<td>£57,166</td>
<td>£141,496</td>
<td>£113,606</td>
</tr>
<tr>
<td>GP</td>
<td>£55,987</td>
<td>£57,166</td>
<td>£141,496</td>
<td>£227,786</td>
</tr>
<tr>
<td>Consultants</td>
<td>£55,987</td>
<td>£57,166</td>
<td>£141,496</td>
<td>£293,514</td>
</tr>
<tr>
<td>Social workers</td>
<td>£14,156</td>
<td>£36,822</td>
<td>£6,474</td>
<td>NA</td>
</tr>
</tbody>
</table>

However, the main context in which health professionals learn their practice is with patients in clinical settings and any commissioning system must take account of the ability for the education provider to provide high quality health education. This can be very difficult when clinical teaching is offered on a goodwill basis, when clinical teachers are unrewarded for their educational role and are not trained in clinical teaching skills. Establishing robust quality assurance mechanisms for monitoring clinical teaching is therefore essential.

2.6 Management systems and resources

The management and quality assurance systems required for the education of health professionals are usually more demanding than those required to run many other University-based education programmes as they require a good relationship with clinical placement providers and regulatory bodies. The AMC ‘Standards’ for undergraduate medical education²⁰ specify that clearly defined governance procedures, processes and structures are in place, both for internal governance and with external stakeholders.

2.7 Who pays? - student fees

A number of different models exist through which undergraduate tuition fees of healthcare professionals are funded most countries operate a mix of the various models. These are described below and are represented on a scale from fully publicly funded to fully privately funded. This area is undergoing significant review and change internationally.

2.7.1 State/taxpayer funds

This is a common model partly operated by many western countries, in partnership with private funding. In general, the costs of educating healthcare professionals are borne by government via public funds. The distribution of these funds is then to education providers, often via healthcare providers. An example from 2008 in the United Kingdom is summarised in Figure 2.

2.7.2 Aid/development agencies

Most OECD countries contribute to international aid and development agencies. These agencies will often support the costs of educating healthcare professionals for Low/Middle income countries.

2.7.3 Scholarships and Bursaries

Generally, these are awards made to individual students to fund their studies and possibly some living costs. They

do not normally have to be repaid. Scholarships are awarded on the basis of academic achievement, while bursaries are awarded on the basis of financial need. Both may target specific student groups (e.g. under-represented ethnic minorities) or a specific healthcare need (e.g. to study a certain specialty). Examples of bodies that award them include governments, the military, charities and aid agencies. The awards may be ‘bonded’, meaning that, by accepting the award, the awardee is entering into an arrangement where they agree to return to a particular geographical location and/or specialty after completing their education.

2.7.4 Loans
These are usually available at very low interest rates with very long repayment terms. The financial institution making the loan is usually government-backed to a large extent and the award of a loan is usually contingent on the applicant having been awarded a place on the educational course.

2.7.5 Private funding
In most western countries it is currently fairly uncommon for students to actually be able to pay their own tuition fees outright, although the USA is an exception to this principle.

2.8 Who pays? - Institutional costs
Like tuition fees, there is a mix of private and public funding for institutional costs associated with the education of healthcare professionals, with the latter being the predominant model but there being a global shift towards a greater contribution from private funding sources.

2.8.1 Government/public funding
Government funding for healthcare education, particularly medical education, is typically higher than funding for other students, reflecting the longer course of study, the need to cover a wider range of subjects, the need for supporting and offsetting costs to clinical providers and research departments, and the high salary requirements for clinical educators and resources.

Figure 2: Healthcare education funding in the United Kingdom 2008/9.
In most countries with publicly funded healthcare and healthcare education, government funding to support healthcare education is provided to tertiary education organisations based on student numbers (e.g. see Fig. 2 again). Some countries provide both per capita funding for each student (typically on entry, sometimes on exit, i.e. based on graduate outputs) and a block grant to the university/college for capital expenditure. However, very few countries provide funding direct to clinical education providers; with the UK being a notable exception (see Fig 2).

2.8.2 Private Funding

Education of healthcare professionals is supported by a number of means including private funds and this reflects the current picture in International Higher Education generally. These include outright ‘for-profit’ systems, common in the United States, where tuition fees are significantly higher and form the bulk of institutional income, supported by private endowments and grants as well as returns on investments and profit making activities such as the rental of facilities.\(^{21}\)

2.9 Governance in health workforce planning and commissioning

Workforce planning for healthcare is currently in a state of change, driven by increases in the international mobility of the workforce as well as financial considerations, the latter being exacerbated by the worldwide economic crisis which began in 2008. Many countries are responding by establishing independent bodies, with links to Government, which maintain oversight of workforce planning and collect high quality data to inform that planning. This process is far from complete, but the on-going development may be of relevance to PICT.

The United Kingdom has, after several reviews and false starts\(^{22-24}\) established ‘Health Education England’ (HEE) which will have responsibility (from April 2013) for the entire healthcare workforce. The purpose of HEE will be “to ensure that the health workforce has just the right skills, behaviours and training, available in the right numbers, to support the delivery of excellent healthcare and health improvement.” As part of this, HEE will be responsible for allocating and distributing the Multi Professional Education and Training (MPET) budget (see Fig 2). As described earlier, a significant issue in workforce planning is the availability of quality data. In this regard HEE will be significantly aided by the recent (2009) creation of the Centre for Workforce Intelligence (CFWI),\(^{25}\) whose role is to provide the long-term intelligence and forecasting to organisations like HEE.

Similar processes are underway in Australia, with the establishing of the National Clinical Education and Training Agency and in New Zealand with the Clinical Training Agency Board,\(^{26}\) although these are not as far advanced as those in the United Kingdom.

3 Commissioning of healthcare education in the Pacific

Health professional training institutions of the Pacific, their roles as national, regional or sub-regional providers and the sources of student fees revenues are listed in Table 3.

The commissioning of the education of health care professionals in the Pacific is undergoing a number of significant changes. These include the establishment of new universities in both the public and private sectors, the acceptance of large number of international scholarship offers for medical education, the move towards training for specific competencies, particularly in nursing and midwifery; all occurring in an environment of low workforce planning capacity. The companion papers in series provide information on the international trends and approaches to medical education, the accreditation of programs and the licensing and regulation of health professional in Pacific Island Countries (PIC) and for the Pacific region. (See companion papers in this series). Underlying all of these issues are those of workforce planning: commissioning educational programs and providing scholarship opportunities to create the workforce for addressing the changing health needs of Pacific populations.

Scholarships for undergraduate or postgraduate studies awarded by the Ministries of Heath in the region are obtained from various sources, as in the example of Fiji: the Ministry of Health (sponsoring its own staff), the Fijian Affairs Board, Public Service Commission, AusAID, WHO, and from relatively new organisations serving a regional purpose such as the Pacific Eye Institute.

Our findings suggest that there is little evidence of education and training being related to the population needs or an informed labour market analysis. The two most significant changes that have occurred in PICs is the introduction of private sector medical education providers and the large increase in the number of international scholarship offers. This appears to have moved away from a previously conservative approach of numerus clausus towards an apparent disconnect between workforce planning and commissioning and a more laissez faire approach to obtaining doctors, with the potential to compromise quality and raising the issues of program accreditation, internships, licensing and regulation addressed in the companion papers of his series.
Table 3. Health professional training institutions of the Pacific, their roles as national, regional or sub-regional providers and the sources of student fees revenues

<table>
<thead>
<tr>
<th>Sector established</th>
<th>National or Regional Role</th>
<th>Sources of student funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing</td>
<td>(public, private or faith based)</td>
<td></td>
</tr>
<tr>
<td>Cook Islands</td>
<td>Public</td>
<td>National</td>
</tr>
<tr>
<td>Federated States of Micronesia</td>
<td>Public</td>
<td>National</td>
</tr>
<tr>
<td>Fiji</td>
<td>Public</td>
<td>National and Regional</td>
</tr>
<tr>
<td>Fiji</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Kiribati</td>
<td>Public</td>
<td>National</td>
</tr>
<tr>
<td>Palau</td>
<td>Public</td>
<td>National</td>
</tr>
<tr>
<td>Tonga</td>
<td>Public</td>
<td>National</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>Public</td>
<td>National</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>Public</td>
<td>National (recent sub-regional support to Vanuatu)</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Public</td>
<td>National and Regional</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>Public</td>
<td>National</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>Public</td>
<td>National</td>
</tr>
</tbody>
</table>

Allied Health Sciences

<table>
<thead>
<tr>
<th>Sector established</th>
<th>National or Regional Role</th>
<th>Sources of student funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiji</td>
<td>Public</td>
<td>National and Regional</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Public</td>
<td>National and Regional</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>FB</td>
<td>National</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>Public</td>
<td>National</td>
</tr>
</tbody>
</table>
**Table 3 Continued**

<table>
<thead>
<tr>
<th>Country</th>
<th>University/Program</th>
<th>Type</th>
<th>Region</th>
<th>Funding Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoa</td>
<td>National University of Samoa</td>
<td>Public</td>
<td>National</td>
<td>Predominantly public scholarships (incl. international). Some private fee paying.</td>
</tr>
<tr>
<td>Federated States of Micronesia</td>
<td>College of Micronesia (Public Health)</td>
<td>Public</td>
<td>Sub Regional</td>
<td>Predominantly public scholarships</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>University of Goroka (health education and health teaching)</td>
<td>Public</td>
<td>National</td>
<td>Predominantly public scholarships</td>
</tr>
<tr>
<td><strong>Dental</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiji</td>
<td>FNU College of Medicine, Nursing &amp; Health Sciences</td>
<td>Public</td>
<td>National and Regional</td>
<td>Predominantly public scholarships (incl. international and donor). Some private fee paying.</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>UPNG School of Medicine and Health Sciences UPNG</td>
<td>Public</td>
<td>National and Regional</td>
<td>Predominantly public scholarships (incl. international and donor).</td>
</tr>
<tr>
<td><strong>Medical</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiji</td>
<td>FNU College of Medicine, Nursing &amp; Health Sciences</td>
<td>Public</td>
<td>National and Regional</td>
<td>Predominantly public scholarships (incl. international and donor). Some private fee paying.</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>UPNG School of Medicine and Health Sciences</td>
<td>Public</td>
<td>National and Regional</td>
<td>Predominantly public scholarships (incl. international and donor).</td>
</tr>
<tr>
<td>Fiji</td>
<td>UoF Umanand Prasad School of Medicine (UPSM)</td>
<td>Private</td>
<td>National and Regional</td>
<td>Mixed private fees and scholarships (incl. international)</td>
</tr>
<tr>
<td>Samoa</td>
<td>Oceania University of Medicine</td>
<td>Private – now public/private partnership</td>
<td>National and Regional</td>
<td>Mixed private fees (incl. international) and national scholarships</td>
</tr>
<tr>
<td>Fiji</td>
<td>The Pacific Eye Institute (Postgraduate Eye Care)</td>
<td>Private (NGO)</td>
<td>National and Regional</td>
<td>Predominantly public scholarships (incl. international and donor).</td>
</tr>
<tr>
<td>Palau</td>
<td>Palau Area Health Education Center (Postgraduate – General Practice)</td>
<td>Public</td>
<td>National</td>
<td>Predominantly public scholarships (incl. donor).</td>
</tr>
</tbody>
</table>

*Source Human Resources for Health Country profiles (unpublished)*

**Nursing:** Most nursing schools are publically funded, whether through a ministry of health or education, or a University (Fiji School of Nursing and, recently, the Solomon Islands University incorporating the Solomon Islands College of Higher Education’s nursing programs); or with a large proportion of their students funded through public sector scholarships, obtained according to their secondary school results. To address issues related to the geography of the region Kiribati protects places for students from outlying Islands and rural/remote areas where there is a need. In Fiji the MoH provides 120 scholarships for local students per annum and the Fiji School of Nursing reserves a minimum of 10 places per annum for regional students. QSSN in Tonga offers a small number of places to private students, some sponsored by churches and others paying fees to continue study after failing a year. These students are not considered public sector employees and do not qualify for automatic appointment to the public service. There are no private nursing students in Vanuatu or Kiribati Nursing Schools.

**Allied Health Sciences** training is provided both formally and informally. Most dental assistants, pharmacy assistants, laboratory, environmental health and health promotion staff are trained ‘on-the-job’ as few public or donor provided scholarships are available. Historically, in some PICs (e.g. Tonga) informally trained staff have outnumbered those formally trained. The CMNHS in Fiji offers formal courses for health scientists in: pharmacy, physiotherapy, medical imaging and laboratory technology. The SMHS at UPNG offers courses in pharmacy, medical imaging and laboratory technology. Health sciences courses in CMNHS have a relatively higher proportion of private fee paying students. There are some imbalances in the deployment of health scientists and laboratory technicians in the region; a surplus is produced in Fiji, many of whom emigrate, while there are shortages in the Solomon Islands, Vanuatu and elsewhere.

**Dentistry** in the Pacific is only available at UPNG or the Fiji National University, both of which offer bachelors for dental surgery. FNU offers courses in dental hygiene, dental therapy and dental technology. UPNG SMHS closed its BDS program in the 1990s due to difficulties in maintaining staff and deteriorating infrastructure and equipment but recommenced in 2003 with AusAID support. During the period of its closure several cohorts of PNG students were funded to study at the then FSMed at FNU. SMHS also offers a course in dental therapy...
The two major issues identified above are most relevant to medical education.

The Private Sector: The introduction of the private sector has been a response to the limited number of places in the two medical schools of the region, Fiji School of Medicine and the School of Medicine and Heath Sciences at the University of Papua New Guinea. The OUM in Samoa, in addition to training public sector funded students, has attracted fee paying international students although not in sufficient numbers to sustain it as a private university. OUM is now obtaining public sector funding support. (See companion paper on Medical Education). The majority of current OUM students are drawn from the domestic Samoan market. There were no Pacific regional students enrolled from 2006-12; although students from the United States, Australia and New Zealand have enrolled and, to date, comprise the majority of OUM’s 34 graduates. Non-Samoan graduates generally enter a medical workforce outside the Pacific by completing the necessary internship and/or licensure examinations.

The Umanad Prasad School of Medicine in Lautoka Fiji began in 2008 with a single private funder but is now managed by the TISI Sangam, a faith based organisation. The initial intake was of full fee-paying students however government has since provided scholarships for 27% of UPSM’s student body. Between 2009 and 2012, 135 students enrolled in UPSM’s medical program of 37 have received PSC scholarships. The Solomon Islands has funded 7 of their students to study at UPSM through public sector scholarships, in addition to the 90+ students studying in Cuba.

International medical training: The Escuela Latino-Americana de Medicina (ELAM; Latin American School of Medicine) in Cuba currently has 191 medical students from 8 PICs: Fiji (7), Kiribati (31), Nauru (7), Palau (6), Solomon Islands (90), Tonga (6), Tuvalu (19) and Vanuatu (25). The first batch of 18 I-Kiribati students will graduate in mid-2013, followed by 23 Solomon Islanders and one Nauruan in mid-2014. The first batch of 10 students from Tuvalu will graduate in 2015, along with 16 from Vanuatu. These students’ medical education is funded by a Cuban government scholarship. Students also receive travel support (return fares) and a subsistence allowance from their home country. In addition to students studying medicine in Cuba, Fiji has accepted offers of undergraduate medical scholarships from Georgia. Applications for these programs are selected in Cuba and Georgia respectively; the PSC having facilitated the process of advertisement, collection and forwarding. Many postgraduate educational opportunities are provided by a wide range of regional and international donors. The extent of PICs nationals studying in undergraduate medical programs overseas has been difficult to determine, signifying some disconnection between commissioning and workforce planning. (See the companion paper on Pacific Internships for numbers of Pacific nationals in medical training overseas).

4 Policy options for the Pacific

Based on the international trends, context-specific options need to be developed in PICs in relation to the following:

1. The introduction of a commissioning policy closely tied with projected population health care needs and national workforce planning – based on defined models of care and roles for different cadres of health worker – is strongly recommended for all PICs.

2. National workforce planning should be a collaborative activity between the national planning office, ministry of health, the public sector employer, the ministry of finance and donors.

3. It is recommended that the acceptance of donor-funded scholarships should be determined by health needs, workforce gaps and the ability to sustain recurrent costs (as defined in an actively managed national health workforce plan), rather than by diplomatic considerations that are disconnected from workforce planning.

4. PICs are now at the stage to commence identifying the fiscal space within the whole of government accounts to fund the sustained increases in the number of medical salaries, and associated equipment, housing, and laboratory and pharmaceutical support.

Table 4: Fiji Public Service Commission Scholarships for medical study 2007-12

<table>
<thead>
<tr>
<th>Year</th>
<th>M</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>2008</td>
<td>40</td>
<td>48</td>
</tr>
<tr>
<td>2009</td>
<td>30</td>
<td>51</td>
</tr>
<tr>
<td>2010</td>
<td>28</td>
<td>43</td>
</tr>
<tr>
<td>2011</td>
<td>27</td>
<td>39</td>
</tr>
<tr>
<td>2012</td>
<td>17</td>
<td>34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>M</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>93</td>
<td>88</td>
</tr>
<tr>
<td>UPSM</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

Original Papers Part 1 - The Series

Health Professionals Education in the Pacific Vol 18 No. 2 2012
Workforce planners should consider the adverse potential for generating imbalances in the workforce arising from uncoordinated commissioning (especially where that is biased towards just a single cadre within the overall health workforce).

PICs would benefit from conducting population health outcome studies related to their mix and availability of health professionals, with a view to identifying the workforce mix needed to achieve health outcomes, and to inform future commissioning decisions.

Conclusions

The Pacific Countries currently have a mixed model of determining the number of available places and resources for healthcare education and training. The mixed model has inherent inefficiencies unless it is closely tied with workforce planning. Institutions need to invest in facilities and commit to having resources and staff for their programs over periods of years, while the vagaries of national economies and labour market dynamics complicate the ability to project both needs and production. Nevertheless, there is a need for coherence among ministries of health and the central government agencies for national planning, public sector employment and finance.

The two most important changes occurring in the Pacific region are the introduction of the private sector into health professions training and the large number of scholarships available for medical study in international medical schools. The expansion of the private sector in the region will be limited by the size of the market, which in most PICs other than PNG, will remain quite small. Other limiting factors will be the capacity of the public sector to provide sufficient clinical training opportunities in its hospitals, and then to absorb graduates into internships and into employment.

The acceptance of large numbers of international scholarships for medical education may present an apparent saving in training costs and an opportunity to fill vacant post at the junior level, but the large influx of new medical graduates will require an increase in funding for internship programs and a significant increase in recurrent expenditure. PICs are now at the stage to commence identifying the fiscal space within the whole of government accounts to fund this sustained increase.

The introduction of a commissioning policy closely tied with projected population health care needs and national workforce planning is recommended for all PICs, in order to avoid pendulum swings of oversupply and undersupply and their associated service quality and cost implications.

The potential for a multi-country or regional commissioning policy could potentially be a cost-effective way of collectively utilising donor support to address specific needs. As examples arising from this series of papers; the costs of sustaining clinical supervision for a Central Pacific medical internship program (see companion paper on Internships); a system of specialist staff rotations, or a deployable pool of skilled health professionals willing to work in areas of skills need across the region.

References


The art of medicine consists of amusing the patient while nature cures the disease.

Voltaire
Accreditation of healthcare professional education programs: A review of international trends and current approaches in Pacific island countries

Judy McKimm\textsuperscript{a,b}  
Philip M. Newton\textsuperscript{a}  
Ana De Silva\textsuperscript{a}  
Jim Campbell\textsuperscript{b}  
Berlin Kafoa\textsuperscript{c}  
Revite Kiriton\textsuperscript{c}  
Sophia Lin\textsuperscript{d}  
Graham Roberts\textsuperscript{a,d}.

\textsuperscript{a}University of Swansea, United Kingdom. \textsuperscript{b}Instituto de Cooperación Social Integrare, Barcelona, Spain. \textsuperscript{c}College of Medicine Nursing and Health Sciences, Fiji National University, Fiji. \textsuperscript{d}PhD, Senior Visiting Fellow School of Public Health and Community Medicine, University of New South Wales, and Adjunct Associate Professor, Fiji National University. Corresponding Author: g.roberts@unsw.edu.au

Summary

This paper reviews international trends and approaches to the accreditation of education programs and pathways that prepare health professionals for entry to a professional register or to extend their scopes of practice. The paper provides examples from countries whose cultural and geographical background may be of relevance and interest to the future development and strengthening of accreditation in the Pacific Island Countries (PICs). Accreditation of healthcare professional education programs to international standards would enable Pacific Island countries to ensure that the training of midwives, nurses and physicians meets quality standards and allows for mutual recognition of degrees. (PHD 2012; Vol 18(2): p28-41)

1 Introduction

Three broad generic models of accrediting the education of healthcare professionals are in common use:
1) regional (i.e. state/province) approval with minimal interventions from professional bodies
2) single national agency accreditation by professional associations
3) multi agency accreditation by independent bodies
4) registration of education providers by government ministries (health or education).

In PICs, education program accreditation has generally taken the form of a combination of 2 and 4 above. Choices between them and their combinations are largely dependent on the complexity of a country’s geographical/regional relationships and political and administrative structures. However, regardless of the system adopted, accreditation aims to ensure that the national and/or international standards for healthcare professionals’ education are met both in terms of the quality of their training and educational practices and the quality of their outcomes.

Collaborations between geographically close countries, such as those within Europe or between the USA/Canada and Australia/ New Zealand offer examples of good practice and can result in positive savings of resources. Similar examples are provided by interstate collaborations within the United States and the Caribbean islands. In most countries, the accreditation of educational programs requires that the educational institution pay fees (which vary considerably) to the accrediting body, for each visit, program or institution. In general, the process of accrediting educational institutions or programs does not receive any direct financial support from governments.

The introduction of new medical schools and a recent increase in overseas scholarships offers to Pacific countries highlight the need for a common system of accreditation to ensure graduate competency and transferability between different national health systems. The review findings and analysis suggest that the accreditation model most relevant to the PICs would reflect collaboration between geographically distinct states/countries to facilitate common definition of standards and accreditation systems and intra-regional professional mobility and skills sharing.

This paper considers four inter-related aspects of accreditation:
1. The context within which health professions’ education is carried out.
2. International evidence and examples from North America, Australasia and Europe highlighting how governments define, establish, fund, implement and evaluate the accreditation of the education of doctors, nurses and midwives.
3. Consideration of two ‘regional’ models.
4. Some current practices and recommendations for establishing robust accreditation in the Pacific region.

2 Healthcare context and challenges

The healthcare workforce is fundamental to the provision of health services and wellbeing of populations; it is “the human link that connects the knowledge to the health action”. Developing a workforce empowered by knowledge and skills, as well as motivated and supported by adequate policies, is essential both at the national and global level in order to create effective, efficient, safe healthcare systems that are able to deal with the challenges presented today and in years to come. The World Health Organisation (WHO) estimates there are approximately 60 million full-paid health workers worldwide, including 26.8 million doctors, nurses and midwives. To maintain this workforce requires approximately 3,000 educational institutions, producing approximately 1 million new graduates each year (see Table 1).

Table 1: Estimated number of training institutions, graduates and workforce per geographical area.

<table>
<thead>
<tr>
<th>Region</th>
<th>Population (millions)</th>
<th>Estimated number of schools</th>
<th>Estimated graduates per year (thousands)</th>
<th>Workforce (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Medical</td>
<td>Public health</td>
<td>Doctors</td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>137.1</td>
<td>188</td>
<td>72</td>
<td>175</td>
</tr>
<tr>
<td>India</td>
<td>1230</td>
<td>300</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>Other</td>
<td>107.5</td>
<td>241</td>
<td>33</td>
<td>18</td>
</tr>
<tr>
<td>Central</td>
<td>82</td>
<td>51</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>High-income Asia-Pacific</td>
<td>277</td>
<td>168</td>
<td>26</td>
<td>10</td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>122</td>
<td>64</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>Eastern</td>
<td>212</td>
<td>100</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>Western</td>
<td>435</td>
<td>282</td>
<td>52</td>
<td>42</td>
</tr>
<tr>
<td>Americas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North America</td>
<td>361</td>
<td>173</td>
<td>65</td>
<td>19</td>
</tr>
<tr>
<td>Latin America/Caribbean</td>
<td>602</td>
<td>513</td>
<td>82</td>
<td>35</td>
</tr>
<tr>
<td>Africa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Africa/Middle East</td>
<td>450</td>
<td>206</td>
<td>46</td>
<td>17</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>868</td>
<td>134</td>
<td>51</td>
<td>6</td>
</tr>
<tr>
<td>World</td>
<td>7036</td>
<td>2420</td>
<td>467</td>
<td>389</td>
</tr>
</tbody>
</table>

Source: extracted from

In order to provide effective, safe healthcare, it is essential to ensure that the 1 million new doctors, nurses and midwives who graduate each year have achieved the required standards and competencies to practise. The ever-evolving nature of healthcare knowledge, bioscience and practice means that professionals need to continue learning throughout their careers. The postgraduate education of the aforementioned 60 million healthcare professionals also requires accreditation and evaluation. Additional levels of complexity are added by the diversity of curriculum types employed, diverse health needs, the growth of private healthcare education and, particularly relevant to PICs, the increased mobility of healthcare professionals who wish to practice in a country other than the one in which they were trained.

These represent challenges to the many institutions that provide education of healthcare professionals, and for the accreditation of education programs to meet graduates’ licensing and regulatory requirements. Meeting these challenges is essential to guarantee the quality of the healthcare workforce as well as the quality and safety of the care they provide. In line with these demands, the World Federation of Medical Education (WFME), in collaboration with the WHO, has developed several documents defining the global standards for medical education (basic, postgraduate and continuing professional development) and on accreditation of medical schools and international graduates. In the European Union, European Parliament Directive 2005/36/EC sets common standards for education and recognition of health professionals across member states.

Figure 1 below identifies where accreditation of programs and licensing of graduates occur in the continuum of healthcare professionals’ education. In regions where professional mobility occurs, licensing may be to a common standard or by a regional organisation, both of which are facilitated by a common process of program accreditation.
3 Accreditation models

Broadly speaking, accreditation of institutions (primarily universities) and undergraduate and postgraduate programs results from collaboration between educational institutions, government Ministries/Departments of Education and/or health, and professional/regulatory bodies.\(^4\) (See Box 1.)

Regardless of the system adopted, accreditation aims to ensure that national and international standards for health professionals’ education are met in terms of the quality of their education and training and the quality of their outcomes, thus ensuring that their graduates are equipped with the necessary attributes, skills and knowledge to provide safe and effective care to citizens.

Accreditation processes require substantial investment in time and resources, varying according to the number of candidates, institutions or individuals involved and the process itself. An analysis of the accrediting bodies’ publicly available Annual Reports identified that in most countries the educational institution pays fees to the assessing or accrediting body for program accreditation on a per-program or per-visit basis. In general, the process of accrediting educational institutions does not receive any direct financial support from governments.

In some cases, such as the USA and Canada, accreditation of institutions is by independent non-profit institutions, including representatives of governments, professional bodies, students and other stakeholders (such as public members). Professional or statutory bodies (whose regulatory powers are usually enshrined in legislation) are responsible for defining program standards and expected outcomes, which educational institutions and accreditation bodies then use to define, manage and evaluate the accreditation process.\(^4\) In other cases, such as the UK and Australia, the professional body (e.g. the UK General Medical Council and Australian

Box 1: Generic models of accreditation

- **Regional approval with minimal intervention from professional bodies.** The initial and continuing approval of education programs is largely the responsibility of individual regional authorities (e.g. states in the USA) with advice from the professional bodies. Professional bodies are then responsible for licensing professionals and guaranteeing the quality standards for licensing and graduation exams which candidates must pass before they can register. There is often a national organisation to provide support for the regional organisations.
  
  **Example:** The accreditation of nurses in the USA.

- **Single national agency accreditation and licensing.** Professional bodies, appointed by and accountable to the government, are responsible for accreditation of education and training of all healthcare professionals including undergraduate students. The professional body defines the national standards to be achieved in each part of the training process and then advises, assesses and approves institutions and individuals. All stages of the education process from entry requirements to licensing and revalidation are within the remit of the professional bodies.
  
  **Example:** General Medical Council in the UK, Australian Medical Council, Australia and New Zealand.

- **Multi-agency independent accreditation bodies.** Independent agencies, with the specific role of accrediting the education and training of health professionals, are formed with representation from governments, health professional bodies, universities and other stakeholders. These independent bodies collaborate closely with the professionals’ bodies in defining national standards and are responsible for carrying out comprehensive processes of accreditation and continuous processes of evaluation of the educational practices of the institutions. Professional bodies hold the responsibility for licensing the health professionals.
  
  **Example:** Liaison Committee on Medical Education (LCME) and the Accreditation Council for Graduate Medical Education (ACGME) in the USA and Canada.
Medical Council) assumes a central role, both defining the standards and managing the accreditation process.50 A relatively recent development in many countries is a ‘regulator for the regulator’. These are generally government-appointed independent bodies with varying powers and responsibilities. In Australia the Australian Health Practitioner Regulation Agency (AHPRA) oversees the registration and accreditation of all health practitioner programs, including nursing, midwifery and medicine, in implementing the ‘National Registration and Accreditation Scheme’ of 2010. Supporting the AHPRA, each discipline then has its own ‘board’, responsible for registration and decisions about accreditation. A similar model operates in the United Kingdom, where the government-appointed Council for Healthcare Regulatory Excellence (CHRE), established in 2003, regulates the professional ‘Councils’ for each profession.

In most countries, but not in the Pacific region, accreditation is mandatory for institutions to be able to offer medical, nursing or midwifery degrees. Although different countries deal in different ways with the challenges presented by these processes, generic models can be identified. In the Pacific, the South Pacific Board of Educational Assessment has embarked on an ambitious program to sort, classify and accredit not only institutions offering secondary education but also those offering tertiary qualifications (through to PhD). While this process specifically omits health training institutions in the region, it clearly has the potential to include them in future.

Membership of the Medical and Nursing Councils of the Pacific generally includes appointees of the Minister for Health, often the Permanent Secretary for Health. As an example, in Fiji the Medical Council consists of Permanent Secretary for Health, Deputy Secretary, registered practitioners elected by medical practitioners, vocational practitioners, representative of Fiji Medical Association, representative of the Fiji College of General Practitioners, and the Deans of the Fiji School of Medicine at FNU and the Umanand Prasad School of Medicine.51

4 Country examples

4.1 North America: United States and Canada

Context: North America (United States and Canada) has a total of 183 medical and 65 public health schools3 for a total population of approximately 350 million10 with 815,006 doctors and 3,275,49911 in practice. The North American example typifies accreditation processes in many developed countries.

In Canada and the USA, students usually complete either an undergraduate degree or a pre-medical course before enrolling in a medical school (although they are referred to as undergraduate medical students). Accredited universities award medical degrees providing an M.D. qualification, and 29 institutions grant Doctor of Osteopathic Medicine (DO) degrees. The USA has many private sector institutions (47.3%) whereas in Canada most are state controlled.12 “Accreditation is a voluntary, peer-review process designed to attest the educational quality of new and established programs”.13

Undergraduate Medical Education

Only students who have graduated from accredited programs can register directly for examinations that lead to licensing: the United States Medical Licensing Exam (USMLE) and Medical Council of Canada Evaluating Examination (MCCEE). Each country has a national committee for accreditation, responsible to and recognised by the national government: the Committee of Accreditation of Canadian Medical Schools (CACMS) established jointly by the former Canadian Medical Schools Association and the Canadian Medical Association14 and the US Liaison Committee on Medical Education (LCME), established jointly by the Association of American Medical Colleges (AAMC) and the American Medical Association (see Table 2). These committees

Table 2: Summary of organisations and processes involved in the accreditation and licensing of medical education in the United States

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full name</th>
<th>Role</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCME</td>
<td>Liaison Committee on Medical Education</td>
<td>Accreditation of Undergraduate Programs</td>
<td><a href="http://www.lcme.org/">http://www.lcme.org/</a></td>
</tr>
<tr>
<td>NBME</td>
<td>National Board of Medical Educators</td>
<td>Administers Licensing Exam</td>
<td><a href="http://www.nbme.org/">www.nbme.org/</a></td>
</tr>
<tr>
<td>USMLE</td>
<td>United States Medical Licensing Exam</td>
<td>Licensing Exam (3 steps)</td>
<td><a href="http://www.usmle.org/">http://www.usmle.org/</a></td>
</tr>
<tr>
<td>FSMB</td>
<td>Federation of State Medical Boards</td>
<td>Licensing decisions</td>
<td><a href="http://www.fsmb.org/">http://www.fsmb.org/</a></td>
</tr>
<tr>
<td>ACGME</td>
<td>Accreditation Council for Graduate Medical Education</td>
<td>Accreditation of Postgraduate Programs</td>
<td><a href="http://www.acgme.org/acWebsite/home/home.asp">http://www.acgme.org/acWebsite/home/home.asp</a></td>
</tr>
</tbody>
</table>
comprise members of the faculty of medical colleges, members of the medical associations, medical students and members of the public. From 1995, CACMS and the LCME have collaborated to accredit the MD programs in Canada. LCME and CAMCS share a common set of standards in five main areas: 1) Institutional setting, 2) Educational Program, 3) Medical Students, 4) Faculty and 5) Educational resources, subdivided into detailed guidelines and standards covering organisational and governance procedures, curriculum design and evaluation, appropriate teaching and learning practices, assessment policies and practices, student support policies and resource allocation and financial aspects.

These committees are not responsible for defining the national competencies of a graduate doctor. Instead, they are responsible for assessments that ensure that medical schools deliver. Undergraduate medical student outcomes in the USA and Canada are defined jointly by the AAMC, the Accreditation Council for Graduate Medical Education (ACGME), the American Board of Medical Specialties (ABMS) and the Royal College of Physicians and Surgeons of Canada.

The accreditation procedure encompasses three phases, all based around a survey: (1) pre-survey preparation, (2) the survey phase, which includes visits to the medical school, and (3) a survey report and report evaluation. The accreditation process is carried out by survey teams, appointed by the LCME from a pool of 200 medical practitioners, basic science and clinical educators, educational researchers and administrators. In Canadian medical schools, one member of the accreditation team is from the USA, in an effort to reinforce the common standards between countries. Accreditation can be preliminary, provisional and full. The first two are granted during the accreditation process allowing medical schools to start to advertise, recruit and accept students. Full accreditation is achieved once the accreditation process is completed.

Postgraduate Medical Education
Postgraduate medical education in the USA is accredited by the Accreditation Council for Graduate Medical Education (ACGME), a “non-governmental agency of peers” including members of professional bodies, universities and hospital representatives, the American Board of Medical Specialties, America Hospital Foundation, American Medical Association, Association of America Colleges and Council of Medical Specialists Societies.

The ACGME accredits 8,887 residency programs in a total of 133 specialties and sub-specialties that trained a total of 113,142 postgraduate medical students (residents) in 2010-2011. Programs seeking accreditation apply to the ACGME and are responsible for the payment of application and annual accreditation fees of $5,500 and up to $4,400 respectively, depending on the number of residents they want to admit.

The ACGME defines the professional and educational standards to be met by the programs, evaluates the institutional capacity to deliver them and support postgraduate students during postgraduate medical education, including dealing with complaint about training. Upon satisfactory completion of an accredited medical training postgraduate program students can register with specialty or sub-specialty boards/associations.

In Canada, the 17 postgraduate programs provided by Canadian medical schools are accredited by the Royal College of Physicians and Surgeons (RCPS) and/or by the specialty professional associations (e.g. Council on Education for Public Health, College of Family Physicians in Canada). The accreditation process is based on the CanMEDs framework and takes place on a six year cycle following a similar process to that of undergraduate education.
Undergraduate and continuing nursing education
In 2011 there were 4,503 nursing programs in the United States, 2056 of which were at the Bachelor level or above. In Canada, as at May 2012, 205 nursing programs existed, 114 of which at post Registered Nurse (RN) level.

Each of the 50 states of the USA has its own ‘nursing board’. Undergraduate nursing educa-tion regulations are diverse depending on each board’s rules and regulations. The large majority of the boards have authority over new and existing nursing programs of which there are 3 types: Licensed Practical Nurses (LPN), Registered Nurses (RN) and Advanced Practice Nurses (APN). The National Council of State Board of Nurses (NCSBN) aims to set the standards and guarantee the quality of nursing training and education in the USA (NCSBN) and has been working towards improving the approval/accreditation practices in nursing education.

The NCSBN has proposed an evidence-based model for pre-licensing nursing program approval to be introduced by 2020 in order to deal with the diversity of practices among the nursing boards and to guarantee the quality of the training provided to the nurse workforce. Accreditation of nursing programs would be a shared responsibility between the regional Boards of Nursing (BON) and national accrediting agencies. At regional level, the BON would be responsible for evaluation and enforcing standards and would take forward specific regional needs into national discussions and standards. At national level, agencies would be responsible for assessing quality and improvements, defining national standards, providing a global perspective, and sharing, with the BON, a national overview of nursing education. The model aims to ensure that education addresses local communities and contexts, whilst maintaining the national consistency of training standards and takes advantage of pre-existing structures and accrediting bodies.

In Canada, all provinces/territories require practising nurses to hold a bachelor’s in nursing degree (BN or BScN or Baccalaureate in Quebec). These programs are broad-based, therefore, as in the USA, there is a great degree of variability in rules and regulations between the states, and accreditation is a provincial responsibility.

Midwifery and nursing-midwifery
In the USA, the Accreditation Commission of Midwifery Education (ACME) accredits programs conferring the qualification of midwife or nurse-midwife. ACME is a financially independent committee of the American College of Nurses-Midwives (ACNM) responsible for the regulation of the profession. ACME program accreditation is conducted by a visiting panel and a board of review that “is responsible for review of an applicant’s Pre-accreditation Report or Self-Evaluation Report and the Site Visit Report (SVR), and for determination of accreditation status”. The ACME is the recognised institution for accreditation of midwifery programs, although programs can alternatively be accredited by the Midwifery Education Accreditation Council (MEAC), leading to a registration with North American Registry of Midwives (NARM).

In Canada, midwifery is a recognised profession in British Columbia, Alberta, Manitoba, Nova Scotia, Ontario and Quebec, licensed by the Canadian Association of Midwives (CAM). The education programs are a four-year baccalaureate and they work closely with the provinces for accreditation, therefore rules and regulations are province dependent.

4.2 United Kingdom

Context: The United Kingdom (UK) has 45 medical schools, 166,006 qualified doctors and 631,201 nurses and midwives (in 2010) for a total population of 62,262,000.

The Accreditation: General Medical Council (GMC) is responsible for the accreditation of undergraduate and postgraduate medical programs, licensing of newly qualified medical students and revalidation of medical professionals.

Undergraduate Medical Education
UK schools offer ‘traditional’ five-year university-based programs, typically for school leavers and four year graduate entry programs. Enrolment numbers are allocated and tightly controlled by the governments of the four devolved countries and schools have to be accredited by the GMC to award a PMQ (Primary Medical Qualification). The accreditation process, Quality Assurance of Basic Medical Education (QABME), aims to ensure the quality of education across all schools and that graduates meet graduate outcomes as defined in its outcomes and standards documents. The accreditation process is similar to that carried out by the LCME in the USA and includes reports from schools, visits and reports of findings from teams of experts and a final decision by the Council regarding accreditation. Additionally the GMC works with the Medical Schools Council to provide guidance to UK Medical Schools developing undergraduate medical programs overseas.

Postgraduate Medical Education - Foundation Program
The first two years of postgraduate training in the UK is known as the ‘Foundation Program’, after which graduates begin training for a particular medical specialty. The GMC defines standards for the Foundation Program and makes approval decisions about postgraduate education programs. Postgraduate specialty curricula are determined by Medical Royal Colleges whereas postgraduate training and continuing professional
development is managed and overseen by regional organisations, known as ‘Deaneries’ or Local Education and Training Boards (LETBs), depending in which of the four devolved countries of the UK training is carried out. These bodies ensure that postgraduate training posts provide the necessary learning and development opportunities for core and specialty trainees to acquire the expected outcomes.

<table>
<thead>
<tr>
<th>Box 2: Third-party management of the accreditation of nurse education in the UK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case Study: Third-party Management of the Approval and Monitoring of Undergraduate Nursing Education Programs in the UK</strong></td>
</tr>
<tr>
<td>A government-appointed regulator defines the standards/outcomes that graduates must meet in order for the program to become/remain accredited and the educational institution provides evidence that its program will generate graduates who meet those outcomes.</td>
</tr>
<tr>
<td>However, since 2006, the management of that process, including the appointment of external reviewers, management of site visits and gathering/management/preparing of evidence and reports, is devolved to a for-profit, third party consultancy firm which provides advice to both the educational institution and the regulator. The rationale for devolving accreditation to a third party included a desire for consistency and financial accountability, plus a desire for the regulator to take a more strategic and less operational role. It is too early to tell whether this model is more effective and efficient than traditional accreditation and monitoring models.</td>
</tr>
</tbody>
</table>

**Nursing**

The UK Government-appointed Nursing and Midwifery Council (NMC) is ultimately responsible for the approval and annual monitoring of nursing and midwifery education and training. However, the quality assurance process leading to accreditation of programs, and the on-going review of those programs, has recently been changed and is now managed in a partnership between the NMC and an independent, for-profit third party (see Case Study below).

**4.3. Australia and New Zealand**

**Context:** Australia has 19 medical schools registered in the IMED database, 62,800 qualified doctors and 201,300 nurses and midwives (in 2009) for a total population of 22,893,487. Australian schools offer programs at entry level for people who have just completed secondary education and graduate entry programs. New Zealand has 2 medical schools registered in the IMED database, 11,412 qualified doctors (in 2010) and 44,491 nurses and midwives (in 2007) for a total population of 4,433,890. New Zealand does not currently offer graduate entry medical programs.

**Accreditation:** The Australian Medical Council (AMC) is responsible for the accreditation of all medical programs, allowing students who successfully complete them to seek registration. In cooperation with the Medical Council of New Zealand (MCNZ), the AMC also assesses medical schools in New Zealand, although the decisions on accreditation are made upon the evaluation of the AMC reports by the MCNZ.

**Undergraduate Medical Education**

The AMC is also responsible for developing guidelines and standards for accreditation and overseeing their application by medical schools and for recognising and assessing medical specialties and specialist training.

**Postgraduate Medical Education**

Postgraduate medical education positions in Australia are assessed by regional Postgraduate Medical Councils (PMCs), and then approved by the Medical Board of Australia. Since 2010, completion of accredited specialist training has been a mandatory requirement for registration as a medical specialist. In New Zealand the Education Committee of the Medical Council of New Zealand assumes those responsibilities.

**Nursing and Midwifery Education**

Similar to medicine, the Nursing and Midwifery Board of Australia (NMBA) is “responsible for accrediting education providers and programs of study for the nursing and midwifery profession” in Australia. It does not carry out accreditation but decides whether to approve programs that have been accredited. The Australian Nursing and Midwifery Accreditation Council (ANMAC) is the “independent accrediting authority for nursing and midwifery under the National Registration and Accreditation Scheme. It sets standards for accreditation and accredits nursing and midwifery courses and providers.” The accreditation process follows the same generic scheme, including reports from institutions, visits from experts and a final report sent from ANMAC to the NMBA for decision on approval of accreditation.

In New Zealand, the Nursing Council of New Zealand (NCNZ) has a similar role to the NMBA. It provides accreditation for nursing programs jointly with either the Tertiary Education Quality Validation Agency, the Council for University Academic Process (CUAP, for universities), the New Zealand Qualifications Authority (NZQA) or the Institute of Technology and Polytechnics of New Zealand Quality (ITPNZ), for polytechnics and institutes of technology. The accreditation process is similar to the processes described previously, encompassing reports and visits for both the undergraduate and the postgraduate education programs.
5 Cooperation between countries

Some models of cooperation between countries exist to develop and standardise accreditation and licensing. Two examples are provided below.

Europe: automatic mutual recognition
The European Economic Area (EEA) was established on 1 January 1994 and in 1999, 29 European countries signed ‘the Bologna declaration’ to create and adopt a system leading to more comparable degrees within these countries, including health professional degree programs. Since then, efforts have been made to change existing models to fit the new standards and models defined by the Bologna declaration, so that the mobility of qualified professionals in Europe could be made easier for practitioners and regulators.\(^4\) Having comparable degrees with automatic recognition of qualifications between countries, thus removing the need for further costly assessment procedures has clear financial benefits. The European Parliament and Council of the European Union subsequently approved Directive 2005/36/EC to allow recognition of professionals across borders in the EU/EEA zone.

However, this directive not only established the principle of mutual recognition of professionals’ qualifications but also set the standards for basic and advanced training of doctors, nurses and midwives across European countries, providing a list of accredited institutions and programs. Licensing continues to be under the remit of professional bodies, however, this directive provides a legal framework for the recognition of EU/EEA zone doctors, nurses and midwives within Europe. Following concerns about the poor communication skills of professionals practising in a second language, proof of language proficiency is becoming part of the procedure for licensing individuals.\(^4\)

Caribbean: medical education
The Caribbean is a group of island nations, each with distinct cultural and political identities. There are two major types of medical school in the Caribbean - ‘regional’ and ‘offshore’. Regional schools train graduates for the country in which they are located (and for the wider Caribbean). Offshore schools are effectively satellite campuses for foreign Universities, usually from the USA.

Registration to practice medicine in the Caribbean Community (CARICOM) has, historically, varied from country to country, with most countries having their own Medical Board. Graduates from accredited schools in the UK, USA and Canada from accredited programs are able to register for a licence to practice in the Caribbean, while some Caribbean countries had their own licensing exams. The Caribbean Association of Medical Councils (CAMC) has proposed that all graduates, including those from the University of the West Indies (UWI) and the Cuban medical programs, should pass the CAMC exam before being licensed to practise. CAMC was formed in 2003 to bring some consistency to the registration process and facilitate movement of doctors across the region. CAMC examinations are administered by the UWI. The formation of the CAMC presented issues of establishing cross government agreements, establishing itself as a legally constituted body able to issue licenses, defining its roles relative to the sovereignty of the National Medical Councils, and of the allocation of sufficient resources for administering the examination.\(^\text{43}\) The Caribbean Accreditation Authority for Education in Medicine and other Health Professions (CAAM-HP) performs a similar role to that performed by the CAMC with licensing and registration, bringing consistency and unity to accreditation.

6 Accreditation of health professional education programs in the Pacific

Recent changes in medical education arising from the provision and acceptance of many international scholarships from new donors; the impending influx of overseas medical graduates (including those from the 8 PICs studying in Cuba) and the intra-regional mobility of nursing staff have brought issues of accreditation and licensing to the fore in the interests of service quality.

Medical education
International accreditation of Pacific health professions’ training institutions applies to the medical programs and the colleges in the American Associated States of Micronesia. The Association for Medical Education in the Western Pacific Region has conducted World Federation of Medical Education (WFME) pilot accreditation visits to two medical schools in the region- The Papua New Guinea School of Medicine and Health Sciences in 2004 and the Umanand Prasad School of Medicine (UPSM) in 2009. In July 2011 an external review team headed by Tokyo University was asked to assess UPSM’s progress towards achieving WFME standards for Quality Improvement in Medical Education and gave a report consistent with the ‘embryonic development’ of the school and its inaugural curriculum roll-out. The first students from UPSM will graduate at the end of 2015 and seek registration and licensure by the Fiji Medical and Dental Council.

The oldest and most established medical school in the region, the Fiji School of Medicine at FNU was assessed by external reviewers against WFME standards in 2012. Nationally the MBBS program is accredited by the Ministry of Education on recommendation of the Academic Board of the University of the South Pacific, which will award the MBBS degree until the first FNU intake of medical students graduate in 2015. Oceania School of Medicine (OUM) program was accredited in 2010 by the Philippines Accrediting Association of Schools Colleges and Universities (PAASCU), which in turn, is recognised
<table>
<thead>
<tr>
<th>Country</th>
<th>Institution</th>
<th>Program</th>
<th>Students</th>
<th>Accreditation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook Islands</td>
<td>Cook Islands School of Nursing</td>
<td>Diploma in Nursing</td>
<td>National</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td></td>
<td>In-country dental worker training</td>
<td>Certificates in Dental Therapy</td>
<td>National</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>Fiji</td>
<td>Fiji National University</td>
<td>Undergraduate Medicine</td>
<td>National and Regional</td>
<td>Undergraduate Medicine assessed against WFME standards in 2012. Accredited by Ministry of Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dental Nursing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dental Health Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Postgraduate Medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Umanand Prasad School of Medicine (Private)</td>
<td>Undergraduate Medicine</td>
<td>National and Regional</td>
<td>Preliminary WFME standards assessment 2011. Accredited by Ministry of Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diploma in Nursing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Postgrad Certificate, Diploma and Master in Eye Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Postgrad Diploma and Masters in Ophthalmology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pacific Eye Institute</td>
<td>Postgrad Certificate, Diploma and Master in Eye Care</td>
<td>Regional</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diploma in Nursing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiribati</td>
<td>Kiribati School of Nursing</td>
<td>Diploma in Nursing</td>
<td>National</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>College of the Marshall Islands</td>
<td>Diploma in Nursing</td>
<td>Regional</td>
<td>Western Association of Schools and Colleges (US).</td>
</tr>
<tr>
<td>Micronesia</td>
<td>College of Micronesia</td>
<td>Diploma in Nursing</td>
<td>National</td>
<td>Accrediting Commission for Community and Junior Colleges of the Western Association (US).</td>
</tr>
<tr>
<td>Nauru</td>
<td>In-country training programs</td>
<td>Nurse aides, district public health workers</td>
<td>National</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>Niue</td>
<td>No health worker training in the country</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palau</td>
<td>Palau Community College</td>
<td>Associate Degrees and Certificates</td>
<td>Sub-Regional</td>
<td>Western Association of Schools and Colleges (US)</td>
</tr>
<tr>
<td></td>
<td>Palau Area Health Education Center</td>
<td>Postgraduate Diploma in Medical Sciences</td>
<td>Sub-regional</td>
<td>Joint program between PCC, Palau MOH, Uni of Hawaii and Uni of Auckland. Part of UH AHEC program.</td>
</tr>
<tr>
<td></td>
<td>University of Papua New Guinea</td>
<td>Undergraduate Medicine</td>
<td>National and Regional</td>
<td>Undergraduate Medicine assessed on WFME standards 1996. All accredited by Ministry of Higher Education.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dental Health Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Postgraduate Medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Divine Word University</td>
<td>Bachelor Health Management</td>
<td>National</td>
<td>Ministry of Higher Education</td>
</tr>
<tr>
<td></td>
<td>University of Goroka</td>
<td>Diplomas in teaching health and health education</td>
<td>National</td>
<td>Ministry of Higher Education</td>
</tr>
<tr>
<td></td>
<td>Pacific Adventist University</td>
<td>Bachelor Nursing</td>
<td>National</td>
<td>Ministry of Higher Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bachelor of Midwifery</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7 nursing schools: Highlands Regional College of Nursing Mendi (public), St Barnabas; Lae, St Mary's Vunapope, Lutheran, Nazarene (Church)</td>
<td>Certificates in Nursing</td>
<td>National</td>
<td>Nursing Council for Papua New Guinea</td>
</tr>
<tr>
<td></td>
<td>12 CHW schools: Kapuna; Raihu; Rumginae; Lemakot; Salamo; St Gerard's; Tinsley; St Margaret's; Braun; Kumin; Onamuga; Gaubin.</td>
<td>Certificate in Community Health Work</td>
<td>National</td>
<td>Nursing Council for Papua New Guinea</td>
</tr>
</tbody>
</table>
Table 3. Continued

<table>
<thead>
<tr>
<th>Country</th>
<th>Institution/Program</th>
<th>Accreditation Level</th>
<th>Accrediting Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoa</td>
<td>National University of Samoa Diploma and Bachelors of Nursing Bachelor of Health Science</td>
<td>National</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td></td>
<td>Oceania University of Medicine (Commenced private now public) Undergraduate Medicine</td>
<td>National and Regional</td>
<td>Philippines Accrediting Association of Schools, Colleges and Universities (PAASCU) in 2010. PAASCU is recognised by the United States National Committee on Foreign Medical Education and Accreditation (NCFMEA).</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>Solomon Islands College of Higher Education Diploma of Nursing, Midwifery (3yrs) Diploma of Community base Rehabilitation (2yrs) Diploma of Public Health Awareness (2yrs) Bachelor of Nursing (18 months In-service)</td>
<td>National and Regional</td>
<td>Ministry of Health and Medical Services Institutional accreditation from EDU, a treaty-based Intergovernmental Organisation for Accreditation and Promotion of Global Education Nursing Council</td>
</tr>
<tr>
<td></td>
<td>Helena Goldie College of Nursing Diploma in Nursing</td>
<td>National</td>
<td>Nursing Council Ministry of Health and Medical Services</td>
</tr>
<tr>
<td></td>
<td>Atofii Nursing School Diploma in Nursing</td>
<td>National</td>
<td>Nursing Council Ministry of Health and Medical Services</td>
</tr>
<tr>
<td>Tokelau</td>
<td>No health worker training in the country</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tonga</td>
<td>Queen Salote School of Nursing Diploma in Nursing</td>
<td>National</td>
<td>Nurses Board</td>
</tr>
<tr>
<td></td>
<td>In-country training health assistant, pharmacy assistant dental therapist environmental health workers lab technicians</td>
<td>National</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>No health worker training in the country</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanuatu</td>
<td>Vanuatu College of Nursing Education Diploma in Nursing Diploma in Midwifery Nurse Practitioner</td>
<td>National</td>
<td>Vanuatu Nurses Council Ministry of Health</td>
</tr>
<tr>
<td></td>
<td>Vanuatu Health Training Institute Postgraduate training for nurse practitioners and midwives</td>
<td>National</td>
<td></td>
</tr>
</tbody>
</table>


by the United States National Committee on Foreign Medical Education and Accreditation (NCFMEA).

Achieving common accreditation in the Pacific region is clearly some way off. The current variable accreditation status of the two ‘traditional’ regional medical schools (FSMed and UPNG) and the two new medical schools (UPSM and OUM) is further confounded by the growing number of international donors offering scholarships for PIC national to study in the donor country. Pacific institutions and licensing authorities are yet to address the complex issues of quality assurance associated with integrating significant numbers of new graduates of diverse training programs into their national health systems.

**Nursing and midwifery education**

Nursing programs are accredited by national Nursing Councils while a multiplicity of essentially national regulations and authorities and informal arrangements have facilitated training in the region over many years. The common requirement is that graduates hold a qualification from a government recognised training provider.

The USA affiliated PICs have achieved accreditation with US agencies, such as the Western Association of Schools and Colleges. The Solomon Islands has an educational accreditation for its college of Higher Education (SICHE) through the Organisation for Accreditation and Promotion of Global Education but this is not specific to their nursing program. There is generally no international accreditation of nursing schools in the Pacific region, nor a regional approach to accreditation. An inter-government arrangement exists between Vanuatu and the Solomon Islands for Solomon Islander nurses to be employed for contracted periods in Vanuatu, and some informal intraregional mobility occurs. Most PICs
have Nursing Councils, a Nursing and Midwifery Board or a combined function such as a Board or Council for Health Professions. In recent years the Pacific nursing schools have begun addressing the need for defined and shared competencies based on the agreed Western Pacific and South East Asia Region (WPSEAR, 2003) common competencies, although progress has been slow and applications have been variable, as countries contextualise the competencies for their particular social needs (47).

**Allied health professionals**

Apart from the American associated sub-region of Micronesia there are no international or regional accreditation of courses for allied health professionals, however registration requirements for pharmacists in Fiji refer to having passed an examination in an approved Commonwealth country, while both Solomon Islands and Kiribati refer specifically to The Pharmaceutical Society of Great Britain and Northern Ireland. In Samoa, standards and competencies have been identified for all health professionals, including biomedical scientists.

Achieving common accreditation standards across the Pacific region may now be best achieved through the South Pacific Board of Educational Assessment (SPBEA) a regional coordinating and advisory body of the Secretariat of the Pacific Community (SPC), currently extending its role from secondary to tertiary education (46). Developing specific standards for university based medical and health professions’ education under this umbrella would provide the opportunity for PICs to identify and agree generic standards for the Pacific doctor, nurse and midwife. Agreeing common requirements for program accreditation while maintaining the sovereignty of national systems is one step towards ensuring that Pacific graduates are trained to common standards in preparation for what is increasingly becoming a regional career.

7 **Policy options for the Pacific**

Based on the international trends presented, context-specific options need to be developed in PICs in relation to the following:

**Educational programs**

1. Good practice entails regularly reviewing educational programs to ensure graduates can meet a population’s health needs.
2. Evidence suggests a beneficial accreditation process includes consensus on acceptable graduate learning outcomes, curriculum design, teaching/learning methods, assessment and the learning environment which can be adapted to meet specific needs.
3. With the diversity of existing educational programs, there is merit in mapping these against existing global standards for health professionals’ education (basic/undergraduate, postgraduate and continuing professional development) for benchmarking purposes.
4. There is value in defining common competencies required for health professionals across cadres and sectors in the Pacific context, detailing key knowledge, skills and attitudes and taking regional and local specific needs into account.
5. Program accreditation can be aligned with licensing and registration processes so that only graduates of accredited programs are eligible for registration.
6. The South Pacific Board of Educational Assessment has the potential to become the Pacific agency coordinating regional program accreditation across health professions’ training organisations.

**Accreditation Process**

7. International comparison shows common accreditation systems allow for multi-country comparison of qualifications to facilitate professional mobility and skills sharing.
8. A lack of common accreditation systems in the Pacific is evident and could benefit from multi-country collaboration to ensure a comparable level of education and training across all cadres and sectors.
9. Clear guidance regarding implementation and enforcement of the accreditation process is valuable to promote clarity and accountability for education and training institutions.
10. There is value in establishing and maintaining partnerships with existing national accreditation bodies, in order to share information on context and examples of best practices.

**Health Workforce Planning**

11. Thorough investigation and review of the existing informal arrangements in health workforce planning and deployment would inform improved governance and stewardship in future accreditation mechanisms.
12. Leadership is needed to adopt an overarching framework that links common sets of standards for health professionals’ education programs with accreditation processes and regulatory and licensing mechanisms.
13. PICs may wish to commit to standardisation of program accreditation in order to facilitate intraregional skills sharing and multilateral investments from development partners.

8 **Conclusions**

The review of international trends and approaches suggests there are a number of areas with potential relevance to PICs, although current arrangements across the region also suggest that achieving a common regional accreditation system will require commitment from PICs to regional outcomes related to intra-regional professional mobility and regional skills retention.}

When comparing the situation in the Pacific with international accreditation models, it is clear that
current arrangements require further development to accommodate the influx of new graduates from diverse programs both within and outside the Pacific region. The most robust systems provide clear structural links between a defined, common set of standards used to accredit programs and the regulatory and licensing processes for graduate health professionals to work in a specific profession and geographic context. In order to provide a Pacific health workforce with geographic mobility across the region medical, nursing and allied health graduates need to have measurable, comparable knowledge and skills. This will require collaboration between sovereign countries to facilitate a common definition of standards and the use of comparable or the same accreditation systems.

It is suggested that the unique standards and competencies required of a Pacific doctor, Pacific midwife and Pacific nurse should be developed and agreed as a starting point to underpin the development of a common approach to education and training and accreditation standards. Such standards would be developed to meet current and future population needs specific to the region, (in particular the ‘epidemics’ of non-communicable diseases that threatens many PICs) while remaining mindful of international education, licensing and continuing professional development (CPD) standards, and the need for compatibility with future career choices and vocational training.

It is essential that the process of donor scholarship for overseas training is reviewed to limit the extent of diversity in medical and other health professionals’ training, by awarding places only on courses that meet international accreditation standards. A shift towards focussing on graduate outcomes rather than graduate intake will greatly facilitate health workforce planning across the region and contribute to regional skills retention by facilitating professional mobility as an alternative to migration.

References

1. WHO. The world health report: working together for health. [Internet]. Geneva, Switzerland; 2006. Available from: http://www.who.int/health为主题/article._asconverted?issn=0972-2327;year=2006;volume=9;issue=3;spage=135;eppage=136;aulast=Thomas

2. Foundation for Advancement of International Medical Education and Research. Mapping the World’s Medical Schools [Internet]. Data Resources 2011 [2012 April 28]. Available from: www.faimer.org/resources/mapping.html


12. Shenhaz, S.I. Privatisation of Medical Education. Sultan Qaboos University Medical Sciences Journal. 2010; 10February.: 6-11.

13. LCME. Functions and Structures of a Medical School: Standards for Accreditation of Medical Education Programs Leading to the M.D. Degree. 2011


23. Canadian Association of Schools of Nursing, http://www.casn.ca/vm/newvisual/attachments/856/Media/MemberPrograms-1.pdf


28. ACME. Accreditation Commission for Midwifery Education. 2007.


40. AMC. Procedures for Assessment and Accreditation of Medical Schools by the Australian Medical Council 2011.


43. CRE. The Bologna Declaration on the European space for higher education: an explanation. 1999.


46. Pacific Register of Qualifications and Standards, Secretary of the Pacific Community, 2011 ISBN: 978-982-00-0500-6

47. Usher K., MacManus M. et al, Enhancing the Quality of Nursing and Midwifery Educational Programs and Services in the Pacific, Pacific Project Newsletter, 4th August 2011, James Cook University and Auckland University of Technology


51. Fiji Medical and Dental Secretariat, http://www.fijimdc.com/viewcontent/10/medical-council.html

52. Doyle J. & Roberts G. Migration and mobility of skilled health workers from selected Pacific Island countries, Human Resources for Health Knowledge Hub, School of Public Health and Community Medicine, University of New South Wales, February 2013

“Always laugh when you can, it is cheap medicine.”
George Gordon Byron
Medical Internship Programs in the Pacific: Current Situation and Future Challenges

Rob Condon
Robbert Duvivier
Berlin Kafoa
Revite Kiriton
Judy McKimm
Graham Roberts

Summary

This review describes international trends and approaches to the planning and delivery of medical internship programs relevant to the future development and strengthening of medical education in Pacific Island countries (PIC). It also describes the current situation in the Pacific regarding increased admissions to undergraduate medical study in the region and internationally, and the likely impact on existing internship programs. It examines policy options for addressing these evolving challenges through improved capacity and alignment of internship programs and the development of regional competency standards for new medical graduates as they prepare to enter the Pacific’s medical workforce. (PHD 2012; Vol 18(2): p42-52)

1 Introduction

The traditional sources of undergraduate medical education for candidates from PICs have been the Fiji School of Medicine (FSMed) – now part of the College of Medicine, Nursing and Health Sciences (CMNHS) at Fiji National University (FNU) – and the School of Medicine and Health Sciences at the University of Papua New Guinea (UPNG). A small number of students have being awarded scholarship support to study at medical schools in Australia, France, New Zealand or Chinese Taipei.

Over the last 8 years, medical education in the Pacific has become more complex. First, private medical schools have been established in Fiji (the Umanand Prasad School of Medicine [UPSM], a private university in Lautoka) and in Samoa (the Oceania University of Medicine [OUM], which is in transition from private management to the public sector). Second, Pacific students have started to access international scholarships to study medicine in countries including China, Cuba, Georgia, Kazakhstan, Morocco and Russia. Third, there has been increasing mobility of doctors within and between PICs.

As a result, there is growing interest in monitoring the quality and improvement of medical education in the region, including the development of regional competencies and standards for entry-level medical practitioners. This paper considers the predominant internship models, internationally and in the Pacific, for training doctors for entry-level roles in their health system, and the policies, organizational systems and structures (at regional and national levels) that need to be in place.

The term “internship” describes the first phase of postgraduate (i.e. after graduation, but generally not associated with a postgraduate academic degree) medical education during which newly graduated doctors typically develop generic competencies and experience.

The internship is part of the continuum of learning in medicine, which includes a transition into postgraduate and specialty medical education, Continuing Medical Education (CME) or Continuing Professional Development (CPD). Although commonly used in relation to learning programs that begin after completion of undergraduate training, the CME/CPD concept relates to the concept of a career-long commitment to self-directed learning throughout a continuum of practice, rather than a discrete period of supervised training. Undergraduate medical education, specialty training and CME/CPD are discussed in the companion paper Medical education: A review of international trends and current approaches in Pacific island countries.

Table 1 defines various terms used internationally to describe the internship period. Interns have completed basic medical training and hold a university medical degree. There is variation between countries (and even sub-national jurisdictions) as to the length of training and whether interns have a full license to practise or provisional or limited scope registration, but in all countries interns practise under supervision.
Table 1: Terms used internationally and in the Pacific to describe the first phase of medical education and training between completion of Medical School and entry into the general medical workforce and/or commencement of specialist training

<table>
<thead>
<tr>
<th>Term</th>
<th>Description (International)</th>
<th>Description (Pacific)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internship</td>
<td>The first postgraduate year of structured practical training after completing medical school and before achieving full registration. The term may be used interchangeably with the first year of a longer, structured residency program (see below)</td>
<td>The first period of structured postgraduate training after graduation. It varies in duration between countries; it lasts for a minimum of one year, and may extend across two years or more.</td>
</tr>
<tr>
<td>Residency</td>
<td>The first postgraduate year in the United States. In Australia or New Zealand, the term may also be used to describe a second or subsequent service year that may be (but is generally not) associated with a postgraduate or specialty training program</td>
<td>—</td>
</tr>
<tr>
<td>Medical Internship and Residency Program</td>
<td>—</td>
<td>The initial period of postgraduate training in some US-affiliated Pacific jurisdictions; it may extend across two years</td>
</tr>
<tr>
<td>House Officer</td>
<td>Period of practice between medical school and full registration in several countries. Also called: medical officer or ‘housemanship’.</td>
<td>—</td>
</tr>
<tr>
<td>Foundation Program</td>
<td>A two-year, general postgraduate medical training program in the UK; it forms the bridge between medical school and specialist training.</td>
<td>—</td>
</tr>
</tbody>
</table>

An internship usually lasts 1-2 years, and is typically structured around clinical placements in a small range of core clinical specialties: medicine, surgery and, in many programs, primary care. The overall purpose of the internship is to help new graduates to consolidate and apply their clinical knowledge and skills, and to learn to take increasing responsibility for the provision of safe and effective patient care (1). Because doctors need skills in assessing and managing patients with acute, undifferentiated presentation, many internship programs also include an emergency medicine rotation. Other rotations are highly variable between programs and jurisdictions, and may include pediatrics, reproductive health, mental health, various subspecialties (e.g. anaesthesia; ear, nose and throat [ENT] surgery; ophthalmology) and community placements. To progress from the internship stage normally requires a sign off by educational and clinical supervisors and the completion of formal assessments, often with a strong emphasis on workplace-based assessment (see Medical education: A review of international trends and current approaches in Pacific island countries).

In addition to the practical, clinical aspects of internship programs, further theoretical learning is often required. This can be organised in various ways, either closely connected with the clinical training, or through regional, national or international courses or CPD programs. Such programs may be managed by universities, specialist boards, professional colleges or medical societies, or institutes for postgraduate medical education.

2 International Approaches to Internship Training

In general, there are 6 distinct educational pathways through undergraduate training to general, pre-specialist registration; these are summarized in Medical education: A review of international trends and current approaches in Pacific island countries.

In several countries, no formal internship period exists and medical school graduates apply immediately for a residency position (e.g. in Canada). In others, a period of clinical experience before residency is optional (e.g. in the Netherlands). In other countries still, a period of mandatory service is required either immediately after completing medical school (e.g. in Colombia) or between an internship and a formal residency program (e.g. in Indonesia). Some countries designate the final year of undergraduate medical studies as a “student internship” (e.g. Fiji, New Zealand) or “rotational internship” (e.g. Cuba). As these programs lead to an undergraduate qualification but not to general medical registration, they are not considered in this paper.

2.1 United Kingdom

In the UK, the General Medical Council (GMC) sets the standards and outcomes for undergraduate and postgraduate education and training. (See: Accreditation of healthcare professional education programs: A review of international trends and current approaches in Pacific island countries). It functions independently of government. The first two years of postgraduate training and education are called the “Foundation Program”.2
These programs are funded, commissioned and managed by regional postgraduate deaneries, which have the responsibility to ensure that systems and resources are in place to enable GMC training standards to be met. The learning objectives and standards are set out by the GMC in a publication titled The Trainee Doctor.\(^3\)

The Foundation Program provides a fixed number of full time, paid employed positions in hospitals and primary care matched to subsequent specialty training and consultant posts and not to the number of graduates. The curriculum enables trainees to demonstrate that they are competent in a number of areas, including communication and consultation skills, patient safety and team work, and with a focus on managing the acutely ill patient, as well as the more traditional elements of medical training. The framework for the structured 2 year program exposes trainees to clinical placements in a broad range of specialties including medicine, surgery, accident and emergency (A&E), obstetrics and gynaecology (O&G), and anaesthetics. They typically move between different hospitals. Foundation doctors are assessed against the outcomes in the curriculum through a range of workplace based assessments and supervisors reports.

### 2.2 United States

Historically, postgraduate medical education in the US began with a one-year internship. The Accreditation Council for Graduate Medical Education (ACGME) officially dropped the term “intern” in 1975, instead referring to individuals in their first year of graduate medical education as “residents”. However, the American Osteopathic Association (AOA) continues to require osteopathic physicians (DO) to complete an internship before residency.

The one-year “traditional rotating internship” continues to exist. Some residency training programs (e.g. neurology or ophthalmology) begin after completion of an internship or transitional year. Some medical graduates use an internship year to re-apply to programs into which they were not accepted, while others use it as a year to decide upon a specialty. However, the majority of doctors start a specialty track medical residency immediately after graduation and successful completion of the US Medical Licensing Exams. In most states, the minimum training requirement for obtaining a general license to practice medicine consists of completion of the first year of specialty training, or the “transitional internship”.

### 2.3 Australia

Medical graduates in Australia are required to complete a one-year internship under provisional registration before full registration is obtained (4). Generally, at least a second postgraduate year is required before entering a specialist training program; this may be predominantly aligned with the intended field of specialisation.

Interns in Australia undertake rotations through a variety of specialties, and rotations may differ between states. Most states require three core rotations to be completed – general or internal medicine, general surgery and emergency medicine. In some states, a rotation in general practice or community settings is offered instead of, or in conjunction with, emergency medicine.

To provide a common framework for training and education of junior doctors, which previously differed between Australian states, since 2010 the Commonwealth and State Governments have introduced a national registration scheme, with the Medical Board of Australia now under the Australian Health Practitioners’ Regulatory Authority (AHPRA). This move towards centralization was supported by the production of the Australian Curriculum Framework for Junior Doctors by the Confederation of Postgraduate Medical Councils (CPMEC).\(^5\)

### 2.4 New Zealand

New medical graduates in New Zealand receive provisional registration with the Medical Council of New Zealand (MCNZ) to work as interns. Since medical schools in New Zealand are accredited under bilateral agreements with Australia, medical graduates may be registered and work in both countries, and are eligible to apply for internships in Australia. They receive general registration after successful completion of the first intern year. A second residency (see Table 1) year may comprise the first year of specialty training.

### 3 The Pacific context

The term “internship” is used almost universally in the Pacific to describe the period of training after medical school that precedes general registration. Formal specialty or residency training programs beyond the internship year are uncommon. On successful completion of the internship, doctors usually enter the general medical workforce where they may continue to work under ongoing supervision in a referral hospital in a major centre, or work more autonomously in a sub-national centre, or a remote rural or outer island setting.

Pacific internships vary considerably in duration, but are usually within the range of 1-2 years. They also vary considerably in structure and clinical rotations, which are often determined not only by the intended scope of practice but also by the availability of specialist supervision. For example, a country may include an ophthalmology rotation in its internship program because entry level medical officers may be posted to
remote settings where they may need to manage acute eye conditions with limited access to specialist advice, or they may include it simply because a specialist ophthalmologist is available for supervision.

In general, clinical placements during internship programs in the Pacific are geared towards development as an independent and more autonomous practitioner, but with limited access to supervision than those in higher income settings and larger health systems. Interns also take on roles that carry increasing decision-making and management responsibilities, and the programs provide experiences to inform future career choices. Assessments are typically through written supervisor assessment of clinical competencies, log books and workplace-based assessment. Completion of an internship program is generally a prerequisite when applying for postgraduate training in a clinical specialty through FSMed or UPNG or an advanced specialist training rotation in Australia or New Zealand.

Table 2: Population and physician density, PICs hosting internship programs

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Doctors per 10,000 Population</th>
<th>Doctors with postgraduate qualifications per 10,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiji</td>
<td>837,271</td>
<td>4.5</td>
<td>0.47</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>515,870</td>
<td>1.9</td>
<td>0.35</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>234,023</td>
<td>1.2</td>
<td>0.30</td>
</tr>
<tr>
<td>Samoa</td>
<td>180,741</td>
<td>4.8</td>
<td>0.72</td>
</tr>
<tr>
<td>Tonga</td>
<td>101,991</td>
<td>2.9</td>
<td>0.78</td>
</tr>
<tr>
<td>Palau</td>
<td>19,907</td>
<td>13.0</td>
<td>2.51</td>
</tr>
<tr>
<td>Under development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiribati</td>
<td>103,105</td>
<td>3.0</td>
<td>1.07</td>
</tr>
</tbody>
</table>

Sources: Population data from SPC [2011]; physician data from WHO World Health Statistics [2012], and SSCSIP [2012].

4. Internship Programs in the Pacific

Methods: Data for this section of the paper were obtained as part of a study to document Pacific internship programs and their capacity (6): This was undertaken by the Strengthening Specialised Clinical Services in the Pacific (SSCSiP) Program, a donor-funded capacity development program based at FSMed. Gaps in information were addressed through key informant interviews conducted directly with Directors of Clinical Services, medical educators and health workforce managers in those PICs with internship programs.

4.1 Overview

Six PICs currently run their own distinct internship program – Fiji, Palau, Samoa, Solomon Islands, Tonga and Vanuatu. With the exception of Palau, all are larger countries with populations greater than 100,000 (Table 2), and therefore more likely to have sufficient case loads, case mix and the supervisory capacity to meet the educational needs of a junior medical workforce.

Although Palau has a relatively smaller population than the other countries with internship programs, the number of Palauan medical graduates each year is small and the doctor- and specialist-to-population ratios are among the highest in the Pacific. Consequently, competition for clinical cases is minimal and supervisor-to-intern ratios are extremely good in comparison with other PICs (Table 2).

Countries and territories without internship programs include Cook Islands, Federated States of Micronesia (FSM), Kiribati, Republic of the Marshall Islands (RMI), Nauru, Niue, Tokelau and Tuvalu. These countries have traditionally sought to negotiate internship placements in the country of graduation of their medical students (usually Fiji; or New Zealand for the occasional graduates from Niue and Tokelau who have trained there). However, demand for internship places in Fiji is about to rise steeply with the imminent graduation of the first cohort of medical students through UPSM. The Fiji Ministry of Health (MOH) has now closed its internship program to applicants from other PICs in order to protect the availability of places for its own citizens.

Kiribati is in the process of developing a new internship program to accommodate the anticipated return of up to 31 new I-Kiribati medical graduates from Cuba (commencing in August 2013), another 8 from FSMed, and four who joined the Kiribati medical workforce under provisional registration after they graduated from FSMed in 2011 and 2012 but have not been able to undertake an internship. Nauru and Tuvalu have expressed interest in their graduates from international medical schools undertaking internships in Kiribati if they are unable to secure places in an established program.
4.2 Management and supervision of country internship programs

Only Tonga has a formal management structure for its internship program – called the Internship Supervisory Committee. Kiribati has proposed forming a supervisory body to be called the Internship Training Committee. In Fiji, Samoa, Solomon Islands and Vanuatu, the internship program is managed by the Director of Clinical Services (or equivalent) in collaboration with the heads of clinical departments. Unlike Tonga, none has a formal structure (e.g. a committee) with specific terms of reference.

Due to the small number of medical graduates undertaking internship in Palau, the program has merged with a broader Medical Workforce Building Program and CPD program that has its own management structure.

4.3 Duration and areas of internship

The duration of Pacific internship programs ranges from 12 months in Fiji to 24 months in Solomon Islands. Information relating to the clinical rotations and their duration for internship programs from all 6 countries plus the evolving program in Kiribati is detailed in Figure 1.

Table 3. Management structure for internship programs in PICs.

<table>
<thead>
<tr>
<th>Country</th>
<th>Management structure of the internship program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiji</td>
<td>Deputy Secretary – Clinical Services, in collaboration with the medical superintendents of each divisional hospital.</td>
</tr>
<tr>
<td>Kiribati (proposed)</td>
<td>An Internship Training Committee will be co-chaired by the Directors of Clinical Services and Public Health; program to be coordinated by a contracted expatriate specialist, the heads of all clinical departments and principal public health programs as members.</td>
</tr>
<tr>
<td>Palau</td>
<td>Director of Clinical Services as part the Medical Workforce Building Program, in consultation with the heads of clinical departments at the national hospital.</td>
</tr>
<tr>
<td>Samoa</td>
<td>Manager, Clinical Services together with the heads of each clinical specialty unit under the National Health Service.</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>Under-Secretary for Health Care; interns’ activities coordinated by Medical Superintendent of the National Referral Hospital in Honiara, with the support of clinical consultants and heads of departments.</td>
</tr>
<tr>
<td>Tonga</td>
<td>Internship Supervisory Committee chaired and coordinated by the Medical Superintendent of Vaiola Hospital.</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>Director of Curative Services, in consultation with the heads of clinical departments at the Vila Central Hospital.</td>
</tr>
</tbody>
</table>

Figure 1. Areas and duration of internship, in months
The Solomon Island internship program covers more specialty areas (10 in total), and allocates longer times for each block. In 5 countries (Fiji, Palau, Samoa, Tonga and Vanuatu) and in the proposed Kiribati program, the principal and equal focus is on the four core specialty areas – Internal Medicine, General Surgery, Paediatrics and O&G. By contrast, interns in the Solomon Islands spend more time in three of these specialty areas – 4 months each in Medicine, Surgery and Paediatrics – and only two months in each of the other blocks. Three countries (Palau, Samoa and Tonga) require their interns to go through an integrative community placement towards the end of their program; as is also proposed for the Kiribati program.

Tonga and Palau have a psychiatry component (Kiribati will include this as a rostered part-time placement within the general medicine attachment). Only the Solomon Islands and Palau have specific orthopaedics rotations. In Samoa and Fiji, the surgical subspecialties (e.g. orthopaedics, urology) are included in the general surgery block. Accident and Emergency (A&E) placements may be rostered simultaneously with other components of the program (e.g. as in Palau) or may be a discrete requirement within the program (e.g. Solomon Islands, Vanuatu).

The proposal for Kiribati adopts an integrated clinical and public health model, with trainees rostered to relevant public health units during their core rotations (e.g. to the tuberculosis, non-communicable disease [NCD] and leprosy programs during the internal medicine block; the Family Planning Unit during O&G; and the immunization and under-fives clinics during paediatrics). Rostered A&E attachments will be included as part of the surgical block. Interns will complete a short course in altitude physiology and transport medicine during the anaesthesia placement; this will be the only intern program in the Pacific to offer such a course – a clear recognition of an important knowledge and skill-set for doctors practising in an island nation where referral hospitals are widely dispersed and patients with more complex or acute conditions generally need to be evacuated by air.

4.4 Induction

In Samoa, new medical graduates starting off the internship program go through induction courses which cover topics and issues such as code of practice, medical professional standards and employment conditions, and relevant legislation, policies and procedures. Interns are also required to participate in a structured CME program, and CME points form part of the appraisal. These structures are also included in the draft Kiribati program.

In the Solomon Islands, new medical graduates are required to report to the Under Secretary for Health Care for registration and induction into the internship program.

4.5 Assessment

In five countries (Fiji, Palau, Samoa, Solomon Islands and Tonga), interns are required to meet competency-based log book requirements; a log book has also been prepared for the commencement of the program in Kiribati. Supervisors’ judgments of the capabilities and attitudes of interns also play an important part of the assessment of each rotation. No PIC currently requires interns to complete an exit or licensure examination.

Recent review of the competencies in the Solomon Islands internship log book and the development de novo of a core set of competencies on which to base the Kiribati intern log book represent an early move towards a competency-based standard for entry level medical practitioners applicable across the Pacific. However, there is currently no regional mechanism or body that is mandated to certify or introduce such a standard beyond the undergraduate level.

5. Future Internship numbers and demand for placements

Figure 2 summarises the expected number of graduates from the FSMed, the Escuela Latino-Americana de Medicina (ELAM; Latin American Medical School) in Cuba, the UPSM in Lautoka and the OUM in Samoa, all of whom will require internship placements over the coming 6 years.

As it is impossible to predict attrition rates with any certainty, the projection assumes that all current medical students enrolled at each of these medical schools will complete their training and proceed to internship.

FSMed accepts undergraduates from across the region; it currently has 430 medical student enrolments in all years, drawn from most PICs.

ELAM currently has 191 medical students from 8 PICs: Fiji (7), Kiribati (31), Nauru (7), Palau (6), Solomon Islands (90), Tonga (6), Tuvalu (19) and Vanuatu (25). The first batch of 18 I-Kiribati students will enter the intern workforce in mid-2013, followed by 23 Solomon Islanders and one Nauruan in mid-2014. The first batch of 10 students from Tuvalu will enter the internship in 2015, along with 16 from Vanuatu.

UPSM currently has 176 fee-paying undergraduates enrolled; apart from 7 Solomon Islanders, all are from Fiji. The first batch of 34 Fijians will graduate in 2014; the first Solomon Islands student will graduate in 2015.
The majority of current OUM students are drawn from the domestic Samoan market, with occasional enrolments from other PICs; students from the United States, Australia and New Zealand are also enrolled and, to date, comprise the majority of OUM’s 34 graduates. Samoan graduates are able to enter their country’s national internship program, while other candidates generally enter a medical workforce outside the Pacific by completing the necessary internship and/or licensure examinations.

6 Capacity for clinical supervision and mentoring

The two largest PICs, Fiji and the Solomon Islands, have well trained practising clinicians in almost all of the clinical specialty areas. However, current clinical demands in the Solomon Islands suggest that the existing specialist workforce may struggle to meet the supervision requirements of several consecutive, large intakes of interns over the next 5 years.

Without external support, the proposed new program in Kiribati is likely to place heavy demands on the existing internal medicine and paediatrics specialist teams. It is proposed to engage two expatriate specialists in each of these areas pending the return of trainees currently undertaking postgraduate study in Fiji, while additional support will be provided by FSMed faculty on a fly-in fly-out basis during the establishment phase (i.e. the first two cohorts). Members of the 12 international specialist teams that visit Kiribati each year from Australia, New Zealand and Chinese Taipei will also be engaged in training activities, as will resident expatriate specialists from Cuba and Chinese Taipei.

Some countries have expressed an interest in expanding their internship programs to cover more specialty areas but were constrained by the lack of qualified clinicians in the area of psychiatry, ENT and ophthalmology. Tonga has ENT as part of its internship program despite the lack of a qualified ENT specialist practicing in-country.

It should be noted that very few clinicians, although experienced in their clinical specialty, have been formally trained in teaching, supervision and assessment.

7 Future Challenges

7.1 Volume of graduates and capacity of internship programs

The anticipated increased number of medical graduates currently training through FSMed, ELAM and UPSM will enable many PICs to back-fill vacancies in their medical workforce over a relatively short period of time. The strong emphasis on community medicine in the Cuban program is also well-aligned with the needs of Pacific health systems, which are strongly focused on primary health care. However, these factors also represent the principal challenges to the capacity of internship programs in the region, which must ensure that the medical workforce is “fit for purpose” and “fit to practise”.

The sharp increase in the number of Fijian medical graduates will see the need for internship places increase to an anticipated 120 by 2018; this includes the need to cater for small annual cohorts of Fijian foreign trained medical graduates currently training outside of Fiji. As a result, the Fiji MOH has closed access to its internship program for applicants from other PICs.
The number of new medical graduates in countries which have historically depended on Fiji to absorb their interns will also increase over the next several years, when medical graduates start to return from Cuba. Kiribati will see the return of its first batch of 18 Cuban-trained doctors in 2013, while in 2015 Tuvalu and Nauru will receive their first batches of 10 and 7 Cuban-trained doctors, respectively. These demands have created the imperative to develop additional places. Although centred on Kiribati for core specialty rotations, the new program will most likely serve as a sub-regional program for the Central Pacific with community and some sub-specialty placements being undertaken in Nauru and Tuvalu for candidates from those countries.

Solomon Islands and Vanuatu will each see a large increase in their junior medical workforces as their graduates return from Cuba. Solomon Islands will receive its first batch of 23 ELAM graduates in 2013, rising to an expected total of 90 by 2018 – more than twice the number of FSMed graduates requiring internship over the same period. Vanuatu currently has 25 medical students in Cuba and 12 at FSMed.

Samoa does not currently send medical students to Cuba, but looks to OUM to meet its pre-registration medical training needs. Palau and Tonga each has 6 students currently studying in Cuba and have planned to absorb them into their domestic internship program on graduation. It is unlikely that the internship programs in these three countries will have major challenges meeting demand over the next six years, and may even be able to contribute to absorbing overflow demands from other PICs.

The Cook Islands has historically looked to Fiji to provide internship places for its FSMed-trained medical graduates, and may have to re-consider where it would send its future trainees (1 in 2014 and 1 in 2018) if it is unable to negotiate continued access to places on the Fiji program. Historic cultural links and a shared geo-political alignment with New Zealand may create opportunities for Cook Islands graduates to participate in the Samoa program.

RMI is expecting 4 graduates from FSMed in 2018 and, in the absence of a national internship program (and with limited capacity to develop one), may need to look to Palau or Kiribati for intern places.

8. Policy considerations and risks

8.1 Commissioning of medical education and future medical student intakes

The growing role of Cuba in Pacific health sectors – since 2003 in Nauru and 2008 in many other PICs – has occurred under bilateral arrangements between the Cuban and PIC Governments. These arrangements are generally negotiated at the level of the respective Ministries of Foreign Affairs or even higher levels of government. The absence of health workforce plans in many PICs means there have been few documentary standards to guide the forward projections of doctor requirements and medical student intakes.

The de-coupling of medical training from national workforce planning needs to be addressed decisively, and country resolutions about the following policy options are needed if FTMGs are to be successfully re-assimilated into national health systems. Ideally, countries that have engaged most strongly with international undergraduate medical scholarship schemes should address these policy issues before considering adding to the number of medical students already in training.

8.2 Medical workforce structure and placement of doctors in training

Faced with sharp increases in their numbers of doctors requiring internship and specialty training (including assimilating international medical graduates into the workforce), many PICs will need to make policy decisions related to a potential transition to a doctor-centred primary care workforce. Ongoing supervisory outreach mechanisms will need to be developed for new graduates placed in inland rural areas or the outer islands.

Countries like the Solomon Islands (which has the largest number of students training in foreign medical programs) and Fiji (where there are uncertainties about the alignment between the UPMS and FSMed curricula) are also faced with important policy decisions about their workforce structure.

The principal choice is whether to:

a) require all medical graduates to complete their national internship program, irrespective of where they undertook their medical degree;

b) establish licensing examinations for all graduates on completion of an internship program to assure standards; or,

c) consider establishing a two-tier medical workforce in which graduates from medical schools with primary care-focused curricula are engaged as a separate cadre of “community practitioners” while those from more traditional courses, e.g. those offered at FSMed and UPNG, are absorbed into the hospital system and more conventional medical career pathways.

Kiribati and Tuvalu have chosen to support the entry of all medical graduates into their workforces under the same category, and the Kiribati internship program has been designed to standardise competencies and quality with
a view to all graduates potentially being able to achieve general medical registration.

Development of a two-tier workforce risks isolating “community practitioners” from the usual medical career pathways – particularly their eligibility to pursue future training in clinical specialties. Countries that adopt a two-tier system may need to consider developing bridging programs for “community practitioners” who may have had a vision of a career as a fully-registered “doctor” and are considering proceeding to clinical specialisation after completing a period of community service. This approach has previously been piloted in Fiji under a scheme that developed a cadre of community practitioners distinct from the broader medical workforce.

The adoption of regional competency standards and accreditation of internship programs would facilitate both the eligibility of trainees from the new internship programs in the region to apply for postgraduate training in clinical specialties at FSMed and the re-entry of “community practitioners” into the mainstream medical workforce.

Many PICs have well-established cadres of medical assistants and nurse practitioners working in community settings (see: Expanded and extended health practitioner roles: a review of international practice). Placing junior medical staff in those same settings will require clear definitions of roles and scopes of practice, without which there is a risk of displacement, marginalisation or even redundancy of non-medically qualified community practitioners.

8.3 Implications for internship program structure

The Solomon Islands and Vanuatu are among a group of 5 PICs that currently have the greatest per capita exposure to undergraduate medical training schemes, both within and outside the region’s usual pathways (the others being Kiribati, Nauru and Tuvalu). The current Solomon Islands and Vanuatu internship programs have longer durations than other programs in the region, mainly because all graduates are expected to be competent across a range of practice – including the core clinical specialties and anaesthetics – to prepare them for more autonomous roles in resource-limited areas. Successive large groups of interns entering the two-year programs in both countries will create a one-year overlap between cohorts and place significant demands on supervisory capacity and access to the case numbers and clinical mix of patients necessary to ensure adequate experience.

Given the likelihood that several new graduates will be co-located in provincial centers after completing their internship, both countries will need to analyse their models of care and referral patterns to determine whether all graduates need to be competent in all areas covered by the current programs. A more generalist core internship program might potentially lead on to a second residency year with a choice of different sub-specialty attachments; this might be designed to prepare different sub-groups for a generalist role, but with responsibility at a pre-specialist level in the procedural disciplines (i.e. surgery, anaesthesia and O&G).

8.4 Direct and indirect costs

Finally, a large increase in the number of doctors may saturate available positions within the medical workforce establishment and consume recurrent budgets. Many PICs offer doctor salaries that are low by comparison within the region and, in particular, with more developed Pacific Rim countries like Australia and New Zealand or the United States and French Pacific territories. However, those same PIC economies have limited fiscal space to expand their health workforce. Direct costs like doctor salaries, accommodation allowances and participation in CPD may place health budgets under increased stress, to the point where not all new graduates can be employed.

Indirect costs associated with an expanding medical workforce will include increased prescribing of pharmaceuticals, increased use of medical imaging and laboratory services, and a risk of an increase in referrals from remote and outer island settings where cases are beyond the capability of junior medical staff to manage. These risks may be partially – but not completely – mitigated by improved standards of mentoring and supervision (including through outreach from referral centres) and the increased use of internet-based technologies for CPD and tele-medicine support.

The PICs that are likely to experience the greatest expansion in their junior doctor workforces will need to undertake careful modeling and projections of the impact on their health budgets and forward estimates of health expenditure.

9. Policy implications and recommendations for the Pacific

Commissioning of future medical student intakes

1. The provision of many international scholarships has disconnected medical training from national workforce planning. Countries that have accepted international undergraduate medical scholarship should address this policy issue before adding to the number of medical students in training.
Medical workforce structure and placement of doctors

The large number of medical students currently training in Cuba and the strong focus of the curriculum on community health may push some countries to a more doctor-centred primary care workforce.

2. Where uncertainties exist about the alignment between health service requirements and undergraduate curricula or internship programs at overseas and “new” training institutions, countries may need to decide whether to:
   a) require all medical graduates to complete their national internship program, irrespective of where they undertook their medical degree;
   b) establish licensing examinations for all graduates on completion of an internship program to assure standards; or,
   c) consider establishing a two-tier medical workforce in which graduates from medical schools with primary care-focused curricula are engaged as a separate cadre of “community practitioners”.

Shared access to established internship programs

3. PICs that may struggle to absorb and train their incoming interns may need to develop partnership schemes with other PICs with established schemes (e.g. Tonga, Samoa).

Implications for internship program structure

The 24-month programs aim to prepare graduates for more autonomous roles. Overlapping annual cohorts and increased numbers will place demands on supervisory capacity and access to the case mix necessary to acquire appropriate competencies.

4. To meet demands for doctors in provincial or outlying centres, countries with longer internship programs may consider a shorter, more generalist core program followed by a second, more community focussed residency year and/or a choice of elective sub-specialty attachments.

Lack of standardisation of internship program requirements

The wide variation in program duration and structure reflects a lack of common regional standards for entry level medical officers.

5. The establishment of competency standards for entry-level medical practitioners in the Pacific would help to align new internship programs with existing ones and ensure access to postgraduate clinical training.

6. As there is no regional body that is currently mandated to introduce or certify such a standard beyond the undergraduate level, countries would need to agree on a suitable accreditation mechanism for internship programs.

Direct and indirect costs

Establishing new and more structured internship programs will require more resources, including salaries and allowances for training posts and training and support for clinical supervisors.

7. Mechanisms will be needed for cost containment and to ensure sustainability of such programs over the long term.

8. Collaborative arrangements (such as the proposed program for three Central Pacific countries based in Kiribati) may help to contain costs through sharing resources.

10 Conclusions

Completion of a structured, supervised medical internship allows new medical graduates to consolidate and apply their clinical knowledge and skills, to learn to take increasing responsibility for the provision of safe, high quality patient care, and to develop a sound, professional approach to managing a range of clinical conditions and situations.

The number of medical graduates entering Pacific health systems over the next 7 years presents an opportunity for many countries to back-fill long-standing vacancies in their medical workforces. In particular, the strong focus of the Cuban curriculum on primary and preventive health care and community practice is clearly aligned with the priorities articulated in all PIC national health strategic plans; PICs can capitalize on this to improve access for communities to primary medical care.

Capacity constraints in existing internship programs will challenge the ability of many countries to manage the assimilation of international medical graduates into their workforces in a way that both ensures quality standards and is phased to meet the timing of graduation of successive cohorts of medical students.

Policy decisions are also needed to guide the future development of medical workforces in a way that provides adequate support for doctors in training, prevents displacement of existing cadres of community practitioners, and protects the future career choices of new medical graduates. Careful analysis of direct and indirect costs and financing options is also required.

The establishment of regional competency standards for entry-level medical practitioners would help to align new internship programs with existing ones and ensure access to postgraduate clinical training.
**References:**


4. Prideaux D. *Medical education in Australia: much has changed but what remains?* Med Teach 2009; 31: 96–100


7. Secretariat of the Pacific Community. *Pacific Island Populations - Estimates and projections of demographic indicators for selected years*. Available from URL [http://www.spc.int/sdp](http://www.spc.int/sdp)


---

“To do what nobody else will do, a way that nobody else can do, in spite of all we go through; that is to be a nurse.”

*Rawsi Williams*
Regulation and licensing of healthcare professionals: A review of international trends and current approaches in Pacific island countries

Judy McKim\textsuperscript{a,b}  
Philip M. Newtown\textsuperscript{a}  
Ana De Silva\textsuperscript{a}  
Jim Campbell\textsuperscript{b}  
Berlin Kafo\textsuperscript{a}  
Revite Kirito\textsuperscript{c}  
Graham Roberts\textsuperscript{a, d}.

\textsuperscript{a}University of Swansea, United Kingdom. \textsuperscript{b}Instituto de Cooperación Social Integrare, Barcelona, Spain. \textsuperscript{c} College of Medicine, Nursing and Health Sciences, Fiji National University, Fiji. \textsuperscript{d} PhD, Senior Visiting Fellow School of Public Health and Community Medicine, University of New South Wales, and Adjunct Associate Professor, Fiji National University. \textbf{Corresponding Author: g.roberts@unsw.edu.au}

Summary

This paper reviews international trends and approaches to regulatory and licensing systems and the integration of overseas trained healthcare professionals, including international medical graduates. It draws upon examples from countries whose cultural and geographical background may be of relevance and interest to the future development and strengthening of accreditation and licensing in the Pacific Island Countries (PICs). (PHD 2012; Vol 18(2): p53-64)

1 Introduction

Two broad models/types of licensing/registration are in common use:

1) based on education certification by the training institution
2) based on national or regional examination.

Choices between them are largely dependent on a country’s geographical/regional affiliations and political and administrative structures.

Most countries have clearly defined standards or competencies that professionals wishing to be admitted to the register (or part of it) have to achieve, and many countries have reciprocal agreements that allow for the free movement of doctors and other health professionals from other countries provided they have graduated from a government registered education provider. Outside of these reciprocal agreements, overseas-trained healthcare professionals are typically required to take specific licensing examinations prior to being admitted to the register, or to take modified versions of the same licensing examinations as domestic graduates. The licensing of qualified healthcare professionals is usually associated with fees, payable by the individual. Most countries operate a graded system whereby payment is required for each step along the career/registration process. Where licensing exams are required, fees are associated with each sitting of these. Where separate fee-paying arrangements exist for overseas-trained graduates, the fees required are generally higher than for locally trained graduates.

Current practices in PICs vary, but most countries have their own registration and licensing system for doctors, nurses and midwives co-ordinated by the relevant Councils (typically a Medical and Dental Council and a Nursing and Midwifery Council) and some have additional Councils for pharmacists, scientists and allied health professions, but these are in the minority.

This paper considers five inter-related aspects of licensing and regulating health professionals.

1. An overview of challenges in regulating and licensing healthcare professionals.
2. The international evidence from North America, Australasia and Europe highlighting how governments define, establish, fund, implement and evaluate regulatory and licensing systems for doctors, nurses and midwives including how overseas-trained healthcare professionals are licensed.
3. Consideration of two ‘regional’ models.
5. Recommendations and options for future regulatory and licensing mechanisms in PICs and the Pacific region.
2 Context and challenges

In order to provide effective, safe healthcare, all health professionals need to be regulated; typically through the initial awarding and subsequent extending and/or renewal of a licence to practice. Particularly relevant to PICs, the increased mobility of healthcare professionals who wish to practice in a country other than the one in which they were trained gives additional challenges, as resources and standards vary considerably. Meeting these challenges is essential to guarantee the ongoing quality of the healthcare workforce (fitness for purpose) as well as the quality and safety of the care they provide (fitness for practice).\textsuperscript{2,4}

Figure 1: Pipeline to generate and recruit the health workforce

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{pipeline.png}
\caption{Pipeline to generate and recruit the health workforce}
\end{figure}

In line with these demands, some international and regional standardisation is emerging. For example, the World Federation of Medical Education (WFME), in collaboration with the World Health Organisation (WHO) has developed global standards for medical education (basic, postgraduate and continuing professional development) and for accreditation of medical schools and international graduates.\textsuperscript{5,6} Figure 1 below sets out the processes and responsibilities of different organisations at various stages of education and training of the health workforce in relation to licensing/registration.

3 Models of Licensing and Registration

The final decision on the licensing of healthcare professionals is the responsibility of the professional bodies and their councils, although in some cases, for example in the United States, independent agencies can be responsible for developing and dealing with the logistics of national examinations. Two models of licensing can be identified from our review:

1. Based on education certification: Countries in which the certification of completion of an accredited program is sufficient to register with the professional body e.g. UK and other European countries, Australia and New Zealand.

2. Based on national examinations: Professional bodies, or independent agencies, run national examinations; and licensing can only take place after successful completion of those examinations e.g. Canada, USA.

In addition to licensing requirements, two general systems for licensing and registration exist that depend largely on geography. In some countries, registration is with a central regulatory body, usually government appointed. Examples from medicine include the UK (General Medical Council), Ireland, India, Pakistan, South Africa and Egypt and the Pacific countries. In other countries, registration is with a regional (provincial or state) regulatory body, with varying input from a national professional organisation. Examples from medicine include the USA and Canada, both of which have national licensing exams that must be passed in order to obtain a (regional) license to practice. This is also the case in Germany, Spain, Poland, Italy and Greece.

All developed countries considered in this report have requirements for qualified practitioners to maintain their licence to practice clinically, typically requiring a minimum amount of time of clinical practice each year, plus evidence of continuing appropriate professional development. This is usually submitted via a portfolio comprising evidence, rather than a practical or written examination.
Requirements vary for registering undergraduate students. In the UK, students do not register with a professional body until they graduate and are about to obtain either a provisional or full license (varies with the profession). In the USA, undergraduate medical students are required to register in order to sit the national licensing exams. In Australia all students of healthcare professions register with AHPRA ‘to protect public safety’.  

Regulation and licensing processes require a substantial amount of investment in time and resources. The financial costs are largely dependent on the number of candidates, institution or individuals that apply for regulation and licensing, but also on the organisational processes and requirements. Making informed decisions on which licensing systems to adopt requires an understanding of the costs associated with different modalities.

An analysis of the Annual Reports (where available) of a range of licensing bodies identified that the licensing of qualified healthcare professionals usually involves fees being paid by the individual, typically at each step along the career/registration process. Where licensing exams are required, fees are associated with each sitting of these. Where separate fee-paying arrangements exist for overseas-trained graduates, the fees required are generally higher than for locally trained graduates.

4 Country examples

4.1 North America: United States and Canada

The USA and Canada have a total of 183 medical and 65 public health schools for a total population of approximately 350 million with 815,006 registered doctors and 3,275,499 midwives and nurses. The structures and processes in North America typify licensing and regulation processes in many developed countries.

Medicine

Licensing of doctors in the USA and Canada requires successful completion of a three-part examination that can only be taken by students enrolled in accredited medical programs. However exceptions may be made for students from unaccredited medical schools in the USA or Canada, who might be eligible for the United States Medical Licensing Exam (USMLE) process if they are sponsored by a licensing authority (state medical board) and meet all the criteria requirements for licensing apart from the examination.

To be able to practice medicine in the USA students must pass all three stages of the USMLE. The Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners (NBME) sponsor this exam. USMLE step 1 is usually taken within the first three years of the medical degree and has an emphasis on knowledge of the basic biomedical sciences and the application of this knowledge to explain principles and mechanisms of health, disease and therapy. Step 2 assesses knowledge application to clinical practice, clinical sciences, patient-centred care and clinical skills. This exam is designed to test that the candidate has the skills necessary to provide safe care to patients under supervision. Step 3 tests the ability to apply biomedical and clinical knowledge, use appropriate skills to provide unsupervised care to patients, with a special focus on ambulatory settings. The USMLE program recommends the third step to be taken after completion of at least one year of postgraduate medical training, however, requirements and regulations related with this step vary between State Medical Boards.

The USMLE system does not automatically award a licence to practice. The system only provides the different regional (state) licensing boards with a standard assessment of students’ knowledge and skills at a national and regional level. The USMLE results are reported to those authorities and it is their responsibility to define the rules, regulations and required scores to pass the USMLE steps in order to obtain a license in their jurisdiction. This is equally valid for Canada. Alternatively, US and Canadian medical students who wish to obtain a Licentiate of the Medical Council of Canada (LMCC) can sit the Medical Council Canada Evaluating Examination (MCCEE), and the Council’s Qualifying Examination (MCQE) part I and part II. The MCCEE is a generic test of knowledge and basic principles of medicine, similar to USMLE step 1. Part I is a one-day computer-based assessment of graduates for entry into supervised practice and postgraduate education. Part II is an Objective Structured Clinical Examination (OSCE) aimed at medical licensing and ability to practice independently.

Nursing

After successful completion of a state-recognised nursing program graduates are required to pass one of two exams by the National Council of State Board of Nurses (NCSBN), the Licensure Examination for Registered Nurses (NCLEX-RN) or the Licensure Examination for Practical Nurses (NCLEX-PN). These national examinations ensure that the graduates from nursing schools have the necessary knowledge and skills to enter the nursing profession and are used by the regional BON to make decisions on licensing of professionals. Although these decisions are currently made on a regional basis, a tendency towards a definition of national standards is emerging regarding a new model to be implemented for accreditation of undergraduate programs by 2020. (See HRH Hub companion paper on program accreditation).

In Canada, the process is similar, each province or territory licenses nurses within each individual jurisdiction. As in the USA the Canada Nurses Association (CNA) developed
and manages a national exam, Canadian Registered Nurse Examination (CRNE), to help the different authorities make decisions on licensing.24

**Box 1: Nurse Licensure Compact**

*Case Study: Nurse Licensure Compact (NLC)*

Historically, the 50 states comprising the United States of America have had strong separate political and cultural identities. This has meant that the accreditation and licensing of healthcare professionals has included significant state-specific elements, limiting their mobility between states. A recent innovation which could provide useful guidance for PICs has been the development, in the USA, of the ‘Nurse Licensure Compact (NLC), a process which allows for ‘mutual recognition’ of nursing licenses between member states. 24 states are currently part of the program and nurses who obtain a license to practice in a member state are automatically able to practice in other member states, providing they are a resident of the state in which they obtained the license.


**Midwifery and nursing-midwifery**

As in nursing, graduates must sit an examination prior to licensing, administered by the American Midwifery Certification Board (AMCB).15 The board runs two exams, a nursing-midwifery and a midwifery exam, which provide a certification of quality for those entering practice, and all approved individuals are automatically enrolled in a certificate maintenance program (CMP). If the CMP requirements are not completed by the end of the five-year cycle, certification lapses, and no new certificate is issued. As in nursing education, although the exam is national, the criteria for licensing decisions are variable according to the state of registration.16 Additionally for midwives it is possible to register with the North American Registry of Midwives (NARM).17

Seven midwifery education programs are available in Canada, each program administers exams recognised by their respective provincial regulatory bodies.18 Additionally, the Canadian Midwifery Regulators Consortium (CMRC), a network of midwifery regulatory authorities, works as the advisory body for the local authorities, defining national standards, models of practice, advising government on legal issues, facilitating communication between different authorities and midwife mobility between provinces.19 Also it is the responsibility of the CMRC to develop and administer a Canadian Midwifery Registration Examination (CMRE), which is the national examination for entry to practice, recognised in some of the provinces.

**Overseas-trained doctors**

Overseas-trained doctors or international medical graduates (IMGs) comprise ~25% of the physician workforce in the USA (20). Graduates from universities other than those in the USA or Canada can apply for licensing in either of these countries. Two credentialing pathways exist:

1) Graduates may apply for certification by the Educational Commission for Foreign Medical Graduates (ECFMG), which will confirm their identity, personal details and enrolment in/graduation from a medical school listed in the International Medical School Directory (IMED). Candidates must pass the USMLE Steps 1 and 2, after which a certificate is issued to allow the candidate to apply for postgraduate training in the USA (which includes the USMLE Step 3) (20).

2) Graduates may have their credentials approved by the Medical Council Canada, successfully complete the MCCEE and MCQE part I and then register for postgraduate medical training.

**Box 2: Educational Commission for Foreign Medical Graduates (ECFMG) Acculturation Program.21**

*Case Study: Educational Commission for Foreign Medical Graduates (ECFMG) Acculturation Programme*

Accreditation, Licensing and Registration are only one part of the transition process for overseas doctors. There are often enormous cultural differences to adjust to and these may have a significant impact on the practice of overseas doctors - obvious examples include cultural differences in attitudes towards gender, sexual orientation, mental health, contraception and end-of-life arrangements. Cultural differences may impact the life of doctors outside of their practice and so provide an additional barrier to their successful assimilation into the workforce. In the USA, the body responsible for the management of International Medical Graduates (the ECFMG) also runs an acculturation programme, providing resources to facilitate cultural accclimation and thereby address these issues.
**Overseas-trained nurses and midwives**

In the USA, eligibility for the National Council of State Board of Nurses exams and subsequent registration is defined state by state by the BON. Both overseas-trained nurses and midwives are advised to contact the BON, provide proof of credentials and seek advice. If they are considered eligible then they take the NCLEX-RN/PN to become registered or practical nurses. Overseas-trained midwives can then apply for retraining in an ACNM accredited program. In Canada, a program has been created to help international midwives register for practice in the country. The Multi-jurisdictional Midwifery Bridging Project (MMBP) is a nine-month program based on the International Midwifery Pre-registration Program (IMPP) provided by Ryerson University’s (Toronto) G. Raymond Chan School of Continuing Education.

4.2 United Kingdom

The United Kingdom (UK) has 45 medical schools, 166,006 qualified doctors and 631,201 nurses and midwives (in 2010) for a total population of 62,262,000.

**Medicine**

The General Medical Council (GMC) is responsible for the accreditation of undergraduate and postgraduate medical programs, licensing of newly qualified medical students and revalidation of medical professionals. Registration is a two-part process. Graduates are granted ‘provisional registration’ (Primary Medical Qualification – PMQ) on successful completion of a GMC accredited medical program which includes passing a national situational judgement test (SJT) and prescribing examination. After satisfactory completion of the first year (the F1 year) of the 2-year Foundation program they are eligible for full registration. The GMC is both the licensing/registration body and the accreditation body of medical schools in the UK. As it serves both roles, consistency between standards for medical school education/outcomes and national requirements for entering the professions can more easily be achieved.

A 2012 GMC consultation has suggested that a three-year time limit be imposed for Foundation trainees, with a ‘stop the clock’ mechanism for trainees with domestic or health issues. However, the license does limit the type of activities and employment that the holder can apply for (only locum posts, approved by the medical school as part of the foundation training program) and a fee is required to hold the provisional license after two years.

After the first year of postgraduate medical education, medical trainees must complete a certificate of experience and submit this, via the medical school or deanery, along with a form that certifies achievement of F1 competencies to the GMC. This supplements the candidate’s online application for full registration which includes questions regarding their own conduct and health (‘fitness to practice’). In 2012, the GMC introduced a new revalidation process under which all currently registered doctors must regularly demonstrate their fitness to practice and that they are up to date in all areas in which they work (clinical practice, education, leadership/management and research). The revalidation process is closely tied to annual formal appraisal processes which are carried out by the employing organisations.

**Nursing and Midwifery**

All students graduating from a UK Nursing and Midwifery accredited program can register with the NMC by submitting an application form. Comprehensive standards are defined by the NMC for all scopes of practice and stages of education and training which have to be met. The NMC will then carry out a credentialing check of the information provided prior to registration. Nurses and midwives are required to maintain registration by engagement in the ‘Prep’ process which requires 450 hours of registered practice and 35 hours of learning activity (Continuing Professional Development) in the previous three years. The practice standard can be met through administrative, supervisory, teaching, research and managerial roles as well as providing direct patient care.

**Overseas-trained doctors**

Overseas-trained doctors have to register with the GMC. Evidence of qualifications has to be provided. Based on European Union Directive 2005/36/EC almost all European qualifications will be eligible for an equivalent certification in the UK. For non-European Union doctors there are three possible routes into licensing for practicing in the UK: (1) the Professional and Linguistic Assessments Board (PLAB) test, (2) acceptable postgraduate qualifications from a UK medical Royal (Specialty) College or (3) 12-months work in an approved practice which agrees to sponsor the candidate through the process of licensing. In the latter case the candidates can only practice in that specific setting and not anywhere else until they are given a full registration with license to practice in the UK.

**Overseas-trained nurses and midwives**

For all EU/EEA-qualified nurses and midwives, automatic registration is possible only if the candidate holds a qualification listed under the same category from their training country.

For all other candidates, including from non-EU/EEA countries, a registration pack must be filled in and returned for assessment by the NMC.
4.3 Australia and New Zealand

Australia has 19 medical schools registered in the IMED database, 22,893,487.

Medicine

The Australian Medical Board (AMB) awards five types of registration: (1) General, (2) Specialist, (3) Provisional, (4) Limited, and (5) Non-Practising:

1. General registration certifies that individuals have the necessary knowledge and skills to practice autonomously in Australia. It requires the completion of both undergraduate and postgraduate training.

2. Specialist registration is awarded to those who have been assessed by an AMC accredited specialist college. Limited registration can be awarded to those who qualify from a medical school outside Australia or New Zealand.

3. Provisional registration is awarded to a graduate of an approved undergraduate medical degree in Australia or New Zealand. This license, similar to that given to UK graduates by the GMC, allows graduates to proceed with postgraduate medical training, working only in approved training positions (intern). This license is also given to international medical graduates holding AMC certification, allowing them to work for a period of 12 months in supervised training position until they qualify for full registration.

4. Limited registration is the type usually awarded to international medical graduates and is broken down further into four sub-types dependent on purpose: Postgraduate training or supervised practice; Area of Need; Public interest, and; Teaching or research. The ‘Area of Need’ category, as the name suggests, allows for individuals to practise in areas of need if they have the necessary expertise in that particular area but not in all areas required for general or specialist registration. This licensing category is particularly used to fill workforce gaps in rural or remote areas and is associated with requirements for supervision and development.

5. Non Practising registration is for those who are not currently practising in Australia but might want to keep their registration.

It also offers a ‘student registration’ which is automatic if the students are enrolled in an Australian Medical Council (AMC) approved program.

The Medical Council of New Zealand (MCNZ) is responsible for granting licenses to practice in New Zealand. Its functions and responsibilities and types of registration awarded are similar to those of the AMC.

Nursing and Midwifery

In Australia, the Nursing and Midwifery Board of Australia (NMBA) is responsible for licensing nurses and midwives who wish to practice in those countries, for developing standards for the profession, assessing overseas professionals and accrediting courses. The NMBA works at the national level, defining policies and standards, while State and Territory Boards make decisions about the registration of nurses and midwives in their specific regions. The NMBA grants four types of registration - general; limited; non-practicing; and; student registration.

The Nursing Council of New Zealand (NCNZ) has similar responsibilities to the NMBA. Registering as a nurse in New Zealand involves a letter of support from the head of school of nursing at the institution at which an applicant studied, two references and a declaration of communication skills and motivation.

Overseas-trained doctors

The AMC is responsible for assessing the knowledge, skills and quality of previous training of doctors trained in other countries who wish to practice in Australia. This process can follow three alternative routes to certification depending on whether the undergraduate medical training took place, whether or not the institution of training has similar standards (AMC-approved) and the level of training (graduate, specialist) of the candidate.

Competent authority pathway, for those who qualified from a university listed in the IMED or an AMC-approved authority. Candidates must have been approved and provide evidence of qualifications. Successful applicants are then required to work under supervision in an AMC accredited training placement (provider) while undertaking a workplace-based assessment. After this period, and following a recommendation from the supervisor, an AMC certificate can be awarded to the candidate allowing for registration with the Australian Medical Board.

Standard pathway is for non-specialist international medical graduates who do not qualify for the competency authority pathway. It requires the candidate to be assessed by a multiple choice question (MCQ) examination and a clinical examination or a workplace-based assessment (CAT and AMC clinical examination) with one of the AMC accredited authorities.

Specialist pathway: Specialists from other countries can apply for certification choosing one of three options: Specialist recognition; ‘Areas of need’ or Specialist-in-training application.

In New Zealand several options exist for registering overseas-trained doctors depending on how long they wish to practise in the country. For those wishing to develop a long-term career in the country and wishing...
to have a specialist registration a vocational pathway is available with four licensing options. Those wishing to enter general practice also have four available options. For short-term practice, special purpose pathways encompass seven possible types of license according to the purpose of the visit.29

**Overseas-trained nurses and midwives**

Registration with the NMBA can be achieved by internationally qualified nurses and midwives on the bases of five criteria: (1) Proof of identify, (2) English language proficiency (3) meeting current Australian nursing and midwifery education standards, (4) evidence of having practiced as a nurse and/or midwife within period of time close to the application, and (5) demonstration that there are no health or conduct (‘fitness to practise’) issues which may affect their ability to practise nursing and/or midwifery in Australia.31

5 Cooperation between countries

Some models of cooperation between countries exist to develop and standardise regulation and licensing. Two examples are provided below.

The Bologna declaration32 and Directive 2005/36/EC gives comparable degrees automatic recognition of qualifications between countries, facilitates the mobility of qualified professionals in the EU/EEA zone and sets standards for basic and advanced training of doctors, nurses and midwives across European countries, providing a list of accredited institutions and programs. This has clear financial benefits for individuals and regulators. Licensing continues to be under the remit of professional bodies within countries/member states and concerns for ensuring competency in the language of clinical practice is increasingly being included as part of regulation.

The Caribbean region comprises a group of island nations, each with distinct cultural and political identities. There are two major types of medical school in the Caribbean - ‘regional’ and ‘offshore’. Regional schools train graduates for the country in which they are located (and for the wider Caribbean). Offshore schools are effectively satellite campuses for foreign Universities, usually from the USA. Registration to practice medicine in the Caribbean Community (CARICOM) has, historically, varied from country to country, with most countries having their own Medical Board. Graduates from accredited schools in the UK, USA and Canada were able to register for a licence, while some Caribbean countries had their own licensing exams.

The Caribbean Association of Medical Councils (CAMC) was formed in 2003 to bring some consistency to the registration process and facilitate movement of doctors across, and into, the region. CAMC examinations were introduced to “assess for registration purposes, the general body of medical knowledge and clinical skills of trained doctors whose basic medical qualifications are not recognized by the regional Medical Councils, i.e. doctors trained in medical schools that have not been formally reviewed and accredited by the CAMC”. The examinations are conducted bi-annually in April and November by the Medical Council of Jamaica and administered by the Faculty of Medical Sciences at the University of the West Indies (UWI). There is a current proposal by CAMC that all graduates (i.e. including those from accredited medical schools) should pass the exam before being licensed to practice.

CAMC has noted a number of issues with both implementing and administering the examinations and registration of foreign-trained doctors across CARICOM that are of relevance to PICs and the Pacific region. Issues include establishing the association as a legally constituted body, clearly defining the roles of CAMC and the separate National Medical Councils and clarifying the sovereignty of the latter, establishing an intergovernmental agreement to legalise CAMC’s licensing role, allocating sufficient resources to the program and issues relating to the establishment of the secretariat.

The Caribbean Accreditation Authority for Education in Medicine and other Health Professions performs a similar role to that performed by the CAMC with licensing and registration, bringing consistency and unity to accreditation.

6 Regulation and Licensing in the Pacific

Current practices in PICs are variable, but most countries have their own registration and licensing system for doctors, nurses and midwives co-ordinated by the relevant Councils (typically a Medical and Dental Council and a Nursing and Midwifery Council). Some PICs have additional councils for pharmacists, scientists and allied health professions but these are in the minority. Table 1 lists the registration bodies in each PIC, the workers covered, and the frequency and requirements of re-registration.

Many PIC have been working in relative isolation (although often donor-funded) to develop and establish more robust regulation and licensing systems. For those countries with established training programs for health professionals, there is a clear link between program approval/accreditation and initial registration and licensing.

Regional and in-country systems for accrediting programs and approving tertiary qualifications are beginning to be agreed, which will provide benchmarks for performance standards on graduation. For example, recent developments by the South Pacific Board of
<table>
<thead>
<tr>
<th>Country</th>
<th>Registration Bodies</th>
<th>Health Workers Covered</th>
<th>Frequency of Registration / Licensing</th>
<th>Requirements of Registration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook Islands</td>
<td>Medical and Dental Council</td>
<td>Medical and Dental Practitioners.</td>
<td>Conditional registration for 2 years and then full registration</td>
<td>Conditional registration- Holds a qualification from Australia, Fiji, New Zealand, the Republic of Ireland or the United Kingdom, or a country with an equivalent standard. Full Registration-Conditionally registered or practiced as a medical or dental practitioner for not less than 2 years.</td>
</tr>
<tr>
<td></td>
<td>Nursing Council</td>
<td>Registered Nurses, Community Nurses, Nurse Aides, Midwives, Nurse trainees.</td>
<td>Annual</td>
<td>Holds a nursing qualification from a recognised training institution.</td>
</tr>
<tr>
<td>Fiji</td>
<td>Medical and Dental Council</td>
<td>Medical, dental practitioners; dental therapist; all medical and dental students.</td>
<td>Annual</td>
<td>Holds a medical or dental qualification from recognised training institution. Conditional registration on graduation leading to full after internship. Annual licensing includes a CPD requirement.</td>
</tr>
<tr>
<td></td>
<td>Nursing Council</td>
<td>Nurses midwives, Nurse Specialist, Nurse Practitioners and Nursing Students</td>
<td>Annual</td>
<td>Holds a nursing qualification from a recognised training institution.</td>
</tr>
<tr>
<td></td>
<td>Medical and Dental Council</td>
<td>Medical Assistants (no longer in production)</td>
<td>Annual</td>
<td>Holds an accepted Certificate from Fiji School of Medicine. Although registered by the MDC there is no specific mention of the MA cadre MDC Decree of 2010.</td>
</tr>
<tr>
<td></td>
<td>Pharmacy and Poisons Board</td>
<td>Pharmacists</td>
<td>Annual</td>
<td>Passed the final examination of an Institution of an approved Commonwealth country. May be asked to sit an additional examination for the Board.</td>
</tr>
<tr>
<td></td>
<td>Fiji Radiation Health Board</td>
<td>Medical imaging technologists</td>
<td>Full registration-on-going; Provisional registration- 3 months; Temporary registration- 24 months</td>
<td>Holds a recognised certificate in medical imaging science from an approved training institution, passed any examination or training if required has proven ability to use relevant equipment. License issues by the Fiji Society for Medical Imaging Technologists Council.</td>
</tr>
<tr>
<td>Kiribati</td>
<td>Kiribati Medical Council</td>
<td>Medical Officers</td>
<td>Not specified</td>
<td>Successfully completion of a university course in medical and surgical study at a university or institution approved by the Medical Council and has completed one year's training as an intern or resident at a hospital</td>
</tr>
<tr>
<td></td>
<td>Kiribati Nursing Council</td>
<td>Nurses and midwives</td>
<td>Not specified</td>
<td>Holds a recognised qualification by an approved institution, is a registered nurse or midwife in another country with an equal or higher training standard, has an approved special qualification.</td>
</tr>
<tr>
<td></td>
<td>Pharmacy and Poisons Board</td>
<td>Pharmacists</td>
<td>Not specified</td>
<td>Passed the final examination of an institution of Great Britain or Northern Ireland, or another approved state</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>Board of Health Professions:</td>
<td>All health workers</td>
<td>Biennial.</td>
<td>Registration for nurses: Complete a nursing course from CMI or approved institution, pass a skills checklist, pass a Board-set examination, reference letter from a nursing school instructor. No available information for medical practitioners or other.</td>
</tr>
<tr>
<td>Federated States of Micronesia</td>
<td>MOH Committee headed by Secretary Health</td>
<td>All health workers</td>
<td>On-going</td>
<td>Approval of qualification and experience endorsed by Secretary of Health.</td>
</tr>
<tr>
<td>Nauru</td>
<td>Health Practitioners Registration Board</td>
<td>Medical practitioners, dentists and nurses.</td>
<td>On-going</td>
<td>Holds approved qualification or experience, will practice in Nauru to the benefit of the Nauru community</td>
</tr>
<tr>
<td>Niue</td>
<td></td>
<td></td>
<td></td>
<td>There is no specific legislation for registration of health workers and no registration councils.</td>
</tr>
<tr>
<td>Palau</td>
<td>Board of Health Professions</td>
<td>Doctors, allied health and environmental health workers.</td>
<td>Annual</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Medical Board</td>
<td>Nursing Council</td>
<td>Allied Health Professional Council</td>
<td>Solomon Islands</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------</td>
<td>-------------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Medical Practitioners, Dental Practitioners and Allied Health Staff.</td>
<td>Registered nurses, enrolled nurses and nurse aides.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 years provisional, then full registration. Annual licensing</td>
<td>Annual</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provisional registration-Completed a medical/dental Degree from UPNG or recognised university. Full registration- held provisional registration for 2 years, practiced full time at a hospital or health facility, completed medical/dental degree at a recognised overseas university.</td>
<td>Provisional registration – Completed a training program from UPNG or a recognised university. Full registration- completed a Council approved program, held provisional registration and proved qualifications to practice.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samoa</td>
<td>Medical Council Medical Practitioners Annual</td>
<td>Hold a qualification from a recognised institution, good character, has practical experience as required by the Council.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nursing and Midwifery Council Registered nurses, enrolled nurses, specialist nurses and midwives. Annual</td>
<td>Hold a qualification from a recognised institution, good character, has practical experience as required by the Council.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allied Health Professional Council Allied Health Professional Council Annual</td>
<td>Holds a practicing certificate, holds minimum competencies set by the council. Required to maintain and upgrade competence by participating in ongoing professional education.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>Medical and Dental Board Medical and Dental Practitioners Annual</td>
<td>Holds recognised qualifications, good character, fit and proper person to practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nursing Council Registered nurses, midwives and auxiliary nurses 12 month probation, then full registration for life</td>
<td></td>
<td>2 step process: Part A- Complete Diploma in Nursing from SICHE, 12 month probation program. Part B- Full registration upon completion of probation program.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacy and Poisons Board Pharmacists Passed final examination of the Pharmaceutical Society of Great Britain or Northern Ireland or another qualification approved by the Board, above the age of 21 years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tokelau</td>
<td>No Councils exist</td>
<td>There is no specific legislation for registration of health workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tonga</td>
<td>Medical and Dental Practice Board Medical and Dental Practitioners, Health Officers, Dental therapists. Annual</td>
<td>Hold a qualification from a recognised institution, good character, has practical experience as required by the Council.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nurses Board Registered nurses, midwives, nurse practitioners. Annual</td>
<td>Hold a qualification from a recognised institution, good character, has practical experience as required by the Council.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pharmacy Board Pharmacists Pharmacy Assistants. Annual</td>
<td>Hold a qualification from a recognised institution, good character, has practical experience as required by the Council.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuvalu</td>
<td>Medical and Dental Register Medical and Dental Practitioners, Nurses Midwives. Annual</td>
<td>Hold a qualification from a recognised institution, good character, has practical experience as required by the Council.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Register of Pharmacists Pharmacists</td>
<td>Professional registration-Completed a medical/dental Degree from UPNG or recognised university. Full registration- held provisional registration for 2 years, practiced full time at a hospital or health facility, completed medical/dental degree at a recognised overseas university.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vanuatu Health Practitioners Board Dentists, Pharmacists Physiotherapists Radiographers, Osteopaths Laboratory Technicians</td>
<td>Hold a qualification by an approved institution and entitled to practice in the country that the qualification was gained.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Compiled from Human Resources for Health Knowledge Hub Country profiles (unpublished)
Educational Assessment (SPBEA) in the preparing a regional qualifications framework offers the potential for standardisation across the region.

The majority of PICs tend to formally recognise initial qualifications from medical schools listed on IMED and training/qualifications from Medical Royal Colleges and nursing schools from Australasia, the UK/Ireland, US and Canada. Systems for registration and regulation at post-registration level are less consistent than those of initial licensing, particularly for nursing/midwifery, allied health professions and advanced practitioners.

8 Policy implications for the Pacific

The review suggests a number of areas with potential relevance to PICs and to Pacific regional organizations:

Registration and licensing for all health professionals working in PICs
1. Commonly agreed registration and licensing requirements and processes in the Pacific could result from multi-country collaboration to guarantee the quality of health workers and to facilitate regional professional mobility, while also retaining the sovereignty of national councils or registration bodies.
2. Defining common competencies for each profession, contextualized specifically for PICs’ needs, would enable benchmarking of health professionals wishing to obtain licensing or registration in the region.
3. Mapping the competencies of the Pacific Island graduates attained through the diversity of medical education programs now available will assist in identifying areas for supplementary training or orientation to contextualize their education to the Pacific region’s health needs.
4. The international experience of countries with regional affiliations suggests the potential for regional examination(s) and/or an internship based on agreed, common competency standards to provide assessment of all graduates before entering practice or a common internship assessment, and to identify areas for supplementary training.

Overseas trained health professionals
5. International comparison provides examples for enabling automatic/simplified registration and visa requirements for healthcare professionals who currently have a licence to practise in countries with well-established education and regulatory systems.
6. Licensing and registration of overseas trained health professionals from countries without well-established systems of program accreditation, licensing and registration may include requirements to work within a defined/limited scope-of-practice, or a specific length of service, and/or require training to address areas of need/deficiencies. Similar considerations apply to medical graduates who have completed undergraduate training overseas but have not completed formal registration requirements before returning to the Pacific.
7. Good practice for the registration for overseas trained healthcare professionals entails establishing a health systems orientation program including a cultural assimilation component, and which includes a test of competency in the relevant language.

Health workforce planning
8. A review of existing formal and informal arrangements between the PICs in health workforce production, planning and deployment would identify areas for improved governance and stewardship in future licensing and registration mechanisms.
9. Leadership is needed to adopt a regional overarching framework that links commonly agreed sets of standards for accrediting health professionals’ education programs with processes for licensing and with regulation mechanisms.
10. PICs may wish to commit to sustained political and financial support to establish regionally agreed standards in order to guarantee health professionals’ competence to practice in the region, and to attract independent investment from development partners.

9 Conclusions

The objective of establishing a Pacific health workforce, rather than many national workforces, will require agreement by sovereign states on common quality standards, common international accreditation standards, complementary licensing arrangements and comparable terms and conditions of employment. It can reasonably be expected that when Pacific doctors and other health professions trained internationally return home, they will also look for opportunities for intra-regional professional mobility, as have their FNU and UPNG predecessors, thereby assisting to fill professional skills gaps in the region. Achieving such common approaches to allow intraregional health worker mobility would require commitment and cooperation of national medical, nursing, midwifery and health professional councils where they exist, and public sector employers.

The Pacific Island Countries Health Ministers’ meeting in 2011 recommended that a “regional framework for regional professional competencies, accreditation & standards for various health workforce cadres” be developed [WHO 2011].The current large scale-up of the medical workforce consequent to Cuban and other international scholarship offerings will begin to place strain on MOH budgets, commencing in 2014, as they absorb new medical graduates into national health systems.
The need for establishing transparent and robust processes for assimilating many interna-tional medical school graduates provides a significant driver and opportunity to develop and establish standards and processes for initial licensing, intern training and competency assessment for defined scopes of practice. This forthcoming imperative could be the catalyst for developing the regional framework for professional competencies, accreditation & standards that the PIC Health Ministers recommended in 2011.

References


“Every time you smile at someone, it is an action of love, a gift to that person, a beautiful thing.”

Mother Theresa
Expanded and extended health practitioner roles: a review of international practice

Judy McKim\textsuperscript{a,b}
Philip M. Newtown\textsuperscript{a}
Ana De Silva\textsuperscript{a}
Jim Campbell\textsuperscript{b}
Berlin Kafo\textsuperscript{a}
Revite Kirito\textsuperscript{a}
Graham Roberts\textsuperscript{a,d}

\textsuperscript{a}University of Swansea, United Kingdom. \textsuperscript{b}Instituto de Cooperación Social Integrare, Barcelona, Spain. \textsuperscript{c}College of Medicine, Nursing and Health Sciences, Fiji National University, Fiji. \textsuperscript{d}PhD, Senior Visiting Fellow School of Public Health and Community Medicine, University of New South Wales, and Adjunct Associate Professor, Fiji National University. \textbf{Corresponding Author:} g.roberts@unsw.edu.au

\begin{quote}
\textbf{Summary}

This international review considers categories of health practitioners whose roles are complementary to those of conventional health workers, focusing on extended and expanded scopes of practice. It describes international trends and approaches to the planning and delivery of health workforce that move away from a traditional ‘siloed’ structure based on customary roles and scopes of practice (e.g., doctors, midwives, and nurses). Such healthcare practitioner roles have emerged either because they represent a better or more effective model of care or because they represent a quicker way of addressing gaps in the health workforce. The review also explores current and recent Pacific data on the training and roles of expanded practitioners, and factors that may impact on those roles. (PHD 2012; Vol 18(2): p65-77)
\end{quote}

\begin{itemize}
\item [(a)] those who have been developed as new roles, complementary to existing health professions
\item [(b)] those who are already professionally qualified but who have taken additional qualifications (usually at master or postgraduate diploma level) to equip them for an advanced practitioner role.
\end{itemize}

Nomenclature varies between countries; examples of the former roles include ‘assistants’, such as physician, surgical, medical, and anaesthetic assistants, while the latter roles are usually termed advanced or nurse (or other health professional) practitioner, nurse consultants, or nurse specialists.

1. Introduction

The review finds that these roles have been introduced either to substitute for doctors in certain specific roles or contexts, or as complementary practitioners in supplementary roles. Planning the integration of assistants or advanced practitioners needs to be part of a whole health workforce strategy, based on service need and workforce planning, not for cost savings. These roles can be of particular benefit in rural and remote areas, to meet local service needs and where there is existing or projected under-supply of doctors or nurses. To ensure that advanced and extended practitioners can become an integral part of the workforce, registration, regulatory, and training schemes must be considered and planned for.

The development and integration of new or extended health professional roles needs to be considered in the current Pacific human resources for health context, but many models of successful implementation of these roles exist throughout the world. Since 2007, several PICs have sent medical students to train in Cuba and elsewhere outside the Pacific region’s traditional sources of medical education, in numbers that will at least double their existing medical workforce between 2014 and 2019. The return and re-integration of those medical graduates will shift the balance within national health workforces and risk displacement of existing advanced practitioners, whose role in remote and outer island communities is generally already well-established. The returning graduates’ roles and placement will need to be planned and managed very carefully—especially if they do not initially meet Pacific medical registration requirements.

The structure, composition, and competencies of a health workforce that is fit for its purpose, have dramatically changed over the last few decades in response to technical and social-political factors including demographic trends (of both patients and health workers), the introduction of new technologies and patient expectations, and a highly fluctuating economic and health financing environment. The ‘traditional’ health professions of medicine and dentistry have been subject to increasing standards and regulation in education, training, and licensing, (see:
An international Review of Medical Education: Trends and approaches and are increasingly specialised in a range of medical disciplines; for example, the medical workforce in high income countries typically includes over 60 medical specialities and sub-specialties.

Nursing and midwifery have also become more professionalised with an increasing emphasis on graduate degree programmes as the initial qualification and evidence of continuing professional development (CPD) in order to remain on the professional register. In parallel, a more regulated approach for the allied health workforce is also occurring, with further clarification and professionalisation of roles and scopes of practice. The range of allied health professionals (AHPs) currently includes: laboratory scientists, dental therapists and hygienists, dieticians and nutritionists, occupational therapists, pharmacists, physiotherapists and radiographers.

Additionally, many countries have introduced new health worker roles or extended the scope of practice (through training and registration) of existing health workers to meet specific healthcare needs.

The development of expanded and extended roles is generally driven by one of two aims:

1) to substitute for doctors in certain, specific roles or geographical areas as these health workers are generally cheaper due to differences in salary and training costs, and quicker to mobilise due to the shorter duration of their basic and/or post-basic training.

2) to develop new, supplementary roles arising from advances in medicine, for example new technologies, procedures and knowledge.

Examples include: addressing service priorities in rural and remote areas (e.g. Australia); the introduction or expansion of primary care (e.g. Canada, Cuba); and new service configurations (e.g. ambulatory care services in the United Kingdom). The roles and nomenclature for these new and different types of ‘mid-level’ health worker vary between countries and have generated much debate. This short paper draws from key papers in this field1 and provides a broad overview and examples of the different roles in various countries. It provides examples of why and how these have been implemented and highlights issues of potential relevance to Pacific Island countries (PIC).

Table 1 captures the primary distinctions between the new roles and the extended scope of practice which are further described in the paper.

Table 1: Primary distinctions between new health worker roles and extended/advanced scope of practice

<table>
<thead>
<tr>
<th>Rationale for alteration in scope of practice</th>
<th>New health worker roles</th>
<th>Extended/advanced scope of practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service needs or changes</td>
<td>Designed to meet service needs (e.g. physician assistants) – usually in specific contexts (e.g. ambulatory care).</td>
<td>Designed to meet service needs in specific contexts, or clinical specialities/client groups (e.g. diabetes, dialysis, primary care, perioperative care, eye care, ear care, basic anaesthesia)</td>
</tr>
<tr>
<td>Scope of practice</td>
<td>Entirely new roles for which individuals are directly trained, usually by completing a Bachelors-level degree with the option of further development/specialisation to Masters’ level</td>
<td>Extended roles can refer to narrow or broad scopes, e.g. nurses with prescribing rights or the right to provide advanced care in a specialty, service</td>
</tr>
<tr>
<td>Previous qualifications</td>
<td>Often from non-health backgrounds, such as bioscience</td>
<td>Always drawn from existing practitioners, predominantly nurses, but also from other AHPs (e.g. prescribing pharmacists, interventionist radiographers)</td>
</tr>
<tr>
<td>Supervisory and reporting relationships</td>
<td>Designed to act as generic assistants to physicians and to surgeons and anaesthetists in specific contexts. Always perform under medical supervision with the doctor taking responsibility for the assistant’s activities</td>
<td>Usually autonomous practitioners with a defined scope of practice (and registered as such) and who often work independently in parallel with doctors, referring only to a doctor when needed (e.g. out of hours care)</td>
</tr>
<tr>
<td></td>
<td>Have primarily been developed to support doctors and perform routine tasks whilst under the supervision of a medical practitioner, thus freeing up the doctor to perform more specialised work.</td>
<td>Advanced practitioners are registered and regulated by their professional body / council with a defined scope of practice (e.g. nursing councils)</td>
</tr>
<tr>
<td>Training requirements</td>
<td>Formal training programmes and regulatory frameworks exist in some countries, in others the Assistant roles are not yet formally defined and regulated</td>
<td>Advanced practice roles require postgraduate qualifications (typically at postgraduate diploma [PGDiploma] or master level)</td>
</tr>
</tbody>
</table>
2. **Physician and medical assistants**

Physician Assistants (PAs) perform more advanced tasks than other non-medically-qualified health practitioners and often have a Master’s degree of 2-3 years’ duration or a Post Graduate Diploma of one year. Their tasks are similar to those of Nurse Practitioners, such as providing health check-ups and preventive care, diagnosing and treating minor illness, providing prenatal care and performing routine follow-up for illness or after surgery. The PA role was originally developed in the United States (US) in the late 1960s and has been rolled out in other countries, primarily as a response to medical workforce shortages. It is a more recent development in Canada, Ghana, Ireland, Kenya, the Netherlans, Nicaragua, South Africa and the UK. In the Pacific, practitioners in these roles are trained for four years as the Health Extension Officers of Papua New Guinea and for three years for the Primary Care Practitioner and Medical Assistant (MA) cadres of Fiji.

In the US and Germany, MAs perform routine clinical and clerical tasks. In other contexts and countries, other roles such as surgical and anaesthetic assistants have been implemented. In this paper, we use the term ‘physician assistant’ as an umbrella term for all these roles.

More than 200 studies to date have examined the quality and safety of patient care provided by PAs and have collectively demonstrated that they provide safe, high quality care that is comparable to that of medical practitioners while working within the framework of their delegated responsibilities. Between 1974 and 2000, at least 10 studies also concluded that physician assistants are well accepted by patients. A large study published in 2004 surveyed 150,000 patients and found there was no significant difference in patient acceptance of physicians, PAs or nurse practitioners (NPs).

PAs have been utilised within both military and civilian settings with significant impact on service provision. Over 85,000 individuals are eligible to practice as PAs in the US, with 75,000 currently in clinical practice; by 2015, total numbers are projected to exceed 100,000. Hooker proposes two primary factors that have impacted the growth of the PA profession: change in both society and models of health care delivery; and the growing complexity and volume of medical activities that he believes “will necessitate the inclusion of additional trained personnel who share the domains of doctors but who remain dependent on doctors for directing care.” The profession’s initial growth was predominantly in primary care, although other medical specialties are increasingly utilising PAs (see summarised in Table 2), including anaesthesia and peri-operative medicine e.g. in the US, UK and Australia where anaesthesia and respiratory technicians have well-established roles in operating theatres and intensive care units.

Table 2: 2009 American Academy of Physician Assistants (AAPA) Census Respondents, by Area of Specialty

<table>
<thead>
<tr>
<th>PA Area of Specialty</th>
<th>Respondents (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Care</td>
<td>35.7%</td>
</tr>
<tr>
<td>General Surgery</td>
<td>2.7%</td>
</tr>
<tr>
<td>Surgical Subspecialties</td>
<td>22.4%</td>
</tr>
<tr>
<td>Internal Medicine Subspecialties</td>
<td>10.8%</td>
</tr>
<tr>
<td>Paediatric Subspecialties</td>
<td>1.9%</td>
</tr>
<tr>
<td>Emergency Medicine</td>
<td>10.3%</td>
</tr>
<tr>
<td>Other</td>
<td>16.3%</td>
</tr>
</tbody>
</table>

**Physician assistant training**

PA training programmes have grown steadily within various universities in the US, and more recently in the UK and Australia. At the end of 2009, over 140 PA training programmes existed in the US. Training programmes are typically of between 24 and 30 months duration, the majority of which are at postgraduate level (see Table 3). Access to training is through competitive entry, with prospective students requiring a health and/or science undergraduate degree often in association with clinical experience in the health sector prior to commencement. Training is undertaken initially in areas such as clinical examination and advanced assessment techniques, anatomy, pathophysiology and pharmacology. Basic medical science classes are often run concurrently with clinical programmes.

Training programmes are generalist in nature and, after initial theoretical subjects have been completed, programmes take on a balance of theory and practical clinical placements in areas such as primary care, internal medicine, obstetrics and gynaecology, paediatrics, general surgery, emergency medicine, anaesthesia and psychiatry. In total, students undertake approximately 2000 hours of supervised clinical practice prior to graduation.

**Physician assistant implementation**

Worldwide, PA workforces and education programmes are at different stages of development reflecting different levels of both medical workforce shortage and political will. In recent years, the global spread of the PA workforce has been described in both scientific literature and professional commentary. Studies indicate a general shift towards developing an expanded health workforce which includes a mix of traditional roles as well as new roles in an ever-increasing range of specialities and sub-specialities. For example, a 2011 report from Health Workforce Australia indicated a broad endorsement of the widespread introduction of PAs as part of an integrated workforce, providing
<table>
<thead>
<tr>
<th>Programme</th>
<th>Terminology used to describe PA role</th>
<th>USA</th>
<th>UK (NHS)</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Physiotherapist (PA)</td>
<td>Physician Assistant (PA, or specialised in Anaesthesia PA(A)); Medical Care Practitioner (MCP); Anaesthetic Practitioner (AP)</td>
<td>Physician Assistant (PA)</td>
</tr>
<tr>
<td>Entry Criteria</td>
<td></td>
<td>• Minimum of 2 years fulltime clinical experience (director patient care); and • An undergraduate degree including: o Min 10 quarters human anatomy and physiology and Min 15 quarters other medical sciences (min 'B' grades in all)</td>
<td>• Registered health professional with 3 years fulltime clinical experience or a degree in a health-related subject; or • New-entrants to health with a biological science or biomedical science background (pref with second-class honours or better)</td>
<td>• Min 1 year fulltime clinical experience (director patient care); and Undergrad degree in Bioscience /health sciences with a min GPA of 4.0; or • Graduate Certificate in PA Studies with minimum GPA of 5.0</td>
</tr>
<tr>
<td>Duration</td>
<td></td>
<td>Total 27 months fulltime (9 x 3 month quarters)</td>
<td>27 months fulltime (12 x 2 month blocks plus 3-month pre-registration work experience)</td>
<td>18 months fulltime (or 36 months part-time)</td>
</tr>
<tr>
<td>Non-clinical</td>
<td></td>
<td>11 months (hours unspecified)</td>
<td>- 840 hours self-directed study</td>
<td>- Unspecified</td>
</tr>
<tr>
<td>Clinical</td>
<td></td>
<td>- 26 weeks medical &amp; surgical subspecialties</td>
<td>- 1680 hours workplace experience</td>
<td>- Rotations in General Practice, Internal Medicine, Aged Care, Surgical &amp; Emergency and Elective (duration not specified)</td>
</tr>
<tr>
<td>Areas of Training</td>
<td></td>
<td>- Anatomy &amp; physiology</td>
<td>--pathophysiology</td>
<td>- Adult medicine and maternal child health</td>
</tr>
<tr>
<td>Examination</td>
<td></td>
<td>Objective Structured Clinical Examination (OSCE)</td>
<td>Physician Assistant Clinical Knowledge Rating and Assessment Tool (PACKRAT) examinations.</td>
<td>At time of study no students had graduated from PA courses in Australia. No information on proposed assessment was available.</td>
</tr>
<tr>
<td>Registration &amp; Regulation</td>
<td></td>
<td>PA National Certifying Examination (PANCE). Then complete 100 hours CME every 2 years and take re-certification examination every 6 years</td>
<td>At time of study PAs were not a regulated profession within the NHS</td>
<td>At time of study PAs were not a regulated profession within Australia</td>
</tr>
</tbody>
</table>

*Sources: The University of Queensland, 2010a; United States Department of Labour, 2010; University of Washington, 2010a-c; University of Birmingham 2010a+b; University of Queensland, 2010b; University of Washington, 2010a-c; University of Washington, 2010a-c.*
complementary health services to those of doctors and nurses. The need for recruiting and training PAs, and nurse practitioners was felt to be driven particularly in rural and remote areas and to address the future under-supply of doctors and nurses.

Table 4: International examples of the introduction of PA roles and activities

<table>
<thead>
<tr>
<th>State of development</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civilian PA training programme in place</td>
<td>USA, England, The Netherlands, Canada, South Africa, Scotland, Taiwan, Australia</td>
</tr>
<tr>
<td>PA-like profession in place</td>
<td>India, Liberia, Haiti, Malaysia, Papua New Guinea</td>
</tr>
<tr>
<td>Participation of US-trained PAs in other national health systems</td>
<td>The Netherlands, England, Germany, South Africa, Taiwan, China, Ghana, Australia, New Zealand</td>
</tr>
<tr>
<td>Developing and establishing formal affiliation agreements with US PA programmes for PA student rotation (i.e. from the US training institution to institutions in the partner country)</td>
<td>Brazil, Estonia, United Kingdom, Ghana, Thailand, Honduras, Ecuador, China, Costa Rica</td>
</tr>
<tr>
<td>Seeking information on PA profession</td>
<td>Ghana, Ireland, Jamaica, South Africa, Wales</td>
</tr>
</tbody>
</table>

A range of studies indicate that generic PAs are cost effective, in part because training expenditures and salaries are less than that of doctors. Some studies have also concluded that PAs in the US are of significant economic benefit to practices that employ them, which may be related to their more limited use of prescribing, ordering clinical investigations and related indirect costs of care. Cost containment is not typically built into PA job descriptions or role definitions.

Some difficulties have been reported in estimating the economic benefits of PAs because different stakeholders perceive the value differently and it depends on whether PAs are seen as a doctor substitute (in which case they would be economically more efficient) or as a complementary role, which in turn depends on scope of practice and autonomy. For example, deploying PAs to the rural and remote areas of the Pacific might provide medical services in places where they may otherwise not exist, but the relative increases in costs of patient referrals to higher level services (which may be available in the PIC itself or overseas) has not been quantified.

3. Advanced Practitioners

Advanced practitioners (APs) are health professionals (often nurses, although they can be from a range of allied health professions or other subject disciplines) who have been trained in and, in most high income countries, granted registration in an extended or discrete scope of practice. The professional generally trains for and retains all of the competencies required for basic qualification (e.g. in nursing) but has an advanced level of practice in a particular area (e.g. management of long term conditions, community mental health). This usually requires completion of a master level or other postgraduate qualification which provides advanced clinical expertise and knowledge in that area (which may or may not be reflected in a separate or additional category of registration).

Advanced practice roles are found throughout healthcare and, in the Pacific, include the present cadres of MAs in Kiribati and Tuvalu. The enhanced knowledge and skills of these practitioners “complements those of medicine and therefore increases both access to and the availability of healthcare.”

APs work at the interface of medicine and their profession and this has posed problems (e.g. in the US, Canada and the UK) including refusals by doctors to provide training for APs and lack of recognition of the roles and scope of practice by the regulating or licensing body. Conflicts may also arise when nursing staff wish to maintain a focus on nursing (i.e. advanced nursing practice) or the medical community requires APs to work under the direction of doctors, rather than working as autonomous practitioners within nursing but on an equal level.25

The International Council of Nurses (www.icn-apnetwork.org) has established guidelines, standards and core competencies for the regulation, education and socio-economic welfare of nurses in advanced practice roles. These are intended to assist countries during times of expansion of advanced roles. Some extended scopes of practice are open to all nurses. For example in the UK, all nurses can now take an additional short course on prescribing which allows them to prescribe drugs from a defined list and for specific medical indications.

In the US, the Advanced Practice Registered Nurse role enables nurses to advance in their level of patient care management and involvement, gain skills in physical assessment, knowledge of pharmacological and therapeutic interventions, and work collaboratively with physicians and other members of the healthcare team to promote best practice for patients and family members. Four sub-registration roles are identified; each with its own agreed scope of practice and competencies: Certified Registered Nurse Anaesthetist (CRNA); Certified Nurse-Midwife (CNM); Clinical Nurse Specialist; and Certified Nurse Practitioner (CNP).26
Nurse Practitioners

Nurse Practitioners are generalist clinicians who make patient assessments and diagnoses in undifferentiated conditions and who usually work in a family medicine/general practice/primary care role.27 NPs have responsibility for a range of activities that may otherwise be performed by physicians/doctors, including radiological or laboratory diagnostics, screenings, prescribing drugs or ordering investigations, activities in the fields of prevention and health education, the monitoring of patients with chronic illnesses, and a general role in care coordination (alone or together with doctors).28

Characteristics of the advanced NP include:29

- Professional autonomy and accountability over a caseload
- Diagnostic skills that include the ability and authority to initiate investigations and referrals to other agencies
- Collaborative working with patients, other professionals and disciplines
- Extended knowledge and skill base for providing treatment and care
- Counselling and health education
- Clinical and professional leadership

The NP role will usually have either a generalist or a specialist focus based upon particular primary care needs. If the focus is generalist, the NP sees patients with routine, undifferentiated conditions in place of a doctor; if the focus is specialist (e.g. mental health, paediatrics, geriatrics, etc), the NP sees patients that fall within the area of specialisation – either for clinical follow-up or by referral after triage. Although the roles are often used to ease pressure on the demand for doctors, there is usually still a referral point to a doctor where needed.

Clinical Nurse Specialists or Nurse Consultants

The roles of clinical nurse specialists (CNS) or nurse consultants are similar to the NP (and in many countries the titles are used interchangeably), but are usually based in a secondary care/hospital setting. CNSs provide care where an initial diagnosis has already been made (as opposed to carrying out diagnostic functions). They typically have their own patient case load, run outpatient (ambulatory care) clinics and work with patients, families and other health workers on wards, emergency departments, secondary and primary care, bridging the gaps between services and helping to reduce overall healthcare costs. They also help improve patient access to care, especially for remote and vulnerable populations. These nurses generally have a specialist qualification in a particular speciality or area of work (e.g. haemodialysis, paediatric surgery, cardiology, intensive care).

In Canada the role has been established for almost fifty years and is working well. CNSs are registered nurses with postgraduate nursing education and expertise in a clinical speciality. They “contribute to three important aims for transforming the Canadian health system – better care for individuals, better health for populations and lower healthcare costs through their ability to initiate, implement and support innovation to improve the delivery of nursing and healthcare services.”30 CNSs reduce hospital admissions and visits to the emergency department, shorten hospital lengths of stay and decrease the use of diagnostic tests. This occurs through improved case management of patients with high risk and complex conditions.30

Allied health professions

As the roles and skills mix of the health workforce changes, consultant, specialist and advanced practice roles have emerged in other health professions. The pattern of emergence has been slow and relatively unsystematic, relating more to local needs and individual practitioners’ desire and abilities in developing and extending their scope of practice. Most of the literature relating to this role development is case-based and very little is published, particularly in some of the professions.

Professions that have developed extended advanced practice roles (albeit for small numbers) include radiography, dietetics, physiotherapy and occupational therapy.25 Work is also being developed to define advanced practice roles in integrated care of the individual in workplace settings, such as occupational health and wellbeing, in which practitioners can be drawn from psychology, physiotherapy, occupational health and nursing.

Issues relating to regulation and registration are still to be fully resolved and the scopes of practice are yet to be defined and agreed in many countries. Doctors and other health professionals are unsure as to role boundaries and responsibilities and this can lead to difficulties in managing patient care. However, each of the different health professions has started to define and agree role descriptors and competencies, largely based on those established in nursing.

4. Expanded and extended practitioner roles in the Pacific

A comprehensive WHO review carried out in 200131 identified that mid-level and nurse practitioners in the Pacific provided essential clinical (both curative and preventive) primary care in community-based health facilities in many PICs. Where access to health care and doctors is difficult, either because of geography, culture or vulnerability of population, such practitioners play a vital role in meeting healthcare needs. However, in common with issues in other countries identified above, various inconsistent titles were in use, training programmes and the level and quality of care provided
also varied considerably. WHO and other agencies have provided long term support to the development and training of mid-level practitioners in many PICs, including Kiribati, Tuvalu, Marshall Islands, Solomon Islands, Fiji, Federated States of Micronesia, Cook Islands, Samoa, Vanuatu and Tonga, and more recently in Timor-Leste.

Graduates of mid-level training programmes are given titles including Physician Assistant, Medex, Medical Assistant, Health Assistant, Health Officer and Health Extension Officer, with some practitioners undertaking very similar roles and training but with different titles in different countries (see Figure 2 and Table 5). Nurses who undertake advanced training are often called Nurse Practitioners, but not always; for example a Medical Assistant in Kiribati is a nurse with advanced training whereas a Medical Assistant in Fiji does not have a nursing background. The Medical Assistant program in Fiji is no longer offered.

In common with international trends, the two main models in the Pacific for training mid-level practitioners are those associated with nursing (Nurse Practitioners; Nursing Assistants, Community Health Workers and Health Assistants) and those that are not (Medex, Health Extension Officer, Medical Assistants, Health Assistants) - see Figure 2 below. Some workers do not have a primary nursing qualification, but instead undergo a one or two year training programme and work with and under the supervision of nurses (e.g. nurses aides, health assistants). In addition, many nurses or midwives working in remote settings in rural areas or on outer islands function as nurse practitioners but have not undergone an advanced training programme or acquired a formal qualification. “Nurses with Advanced Skills” represent a large and poorly defined group of practitioners with a range of on-the-job training and informal or formal qualifications.

Specialised and tertiary services such as ophthalmic and ear, nose and throat surgery are often provided by visiting specialist teams from Australia, New Zealand and Taiwan, and these teams often provide advanced training to nurses in advanced primary ear and eye care (including minor procedures and the management of emergencies). However, most nurses working in specialised settings such as paediatrics, midwifery, anaesthesia or operating theatre have generally completed an accredited, certified course of postgraduate or post-basic training (e.g. at the Fiji School of Nursing, now part of the College of Medicine, Nursing and Health Sciences (CMNHS) at Fiji National University; FNU).

The Fiji School of Medicine (FSMed; also now part of the CMNHS at FNU) previously offered a one-year combined certificate in laboratory and X-Ray technology. This was introduced specifically to address the skills needed by nurses working in smaller hospitals in remote or outer island settings with basic laboratory and radiology equipment, but with a modest case load that was insufficient to justify the placement of a full-time laboratory worker or radiographer.

The evolving epidemic of non-communicable diseases (NCD) in the Pacific brings the need for a new, expanded set of skills among community nurses and other cadres of health worker. Through training (generally informal and provided through donor-funded projects), such health workers can now provide point-of-care tests for the detection of latent NCDs, monitoring of disease progression or control, and the management of end-organ complications.
<table>
<thead>
<tr>
<th>Year Programme Initiated</th>
<th>Programme Duration (Years)</th>
<th>% of Graduates Currently Employed</th>
<th>Total # of Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1967</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1979</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1983</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Advanced Practitioner Titles, Training Programmes and Retention in the Pacific

Key:
- HA = Health assistant; MA = Medical assistant; NP = Nurse practitioner

- Mid-level Practitioner title: Nurse Practitioner
- Medical Assistant
- Clinical Nurse Consultant
- Medical Assistant
- Nurse Practitioner

Notes:
- * Inclusive of graduates of overseas (regional or international) nurse practitioner training programmes
- Data may be incomplete or unavailable
- a Nurse practitioner training in 1990 only
- b MA training ceased in 1984
- (NP unless stated)

The high prevalence of NCDs in PICs means that all health workers in a primary care role in the community will need to master these skills and functions.

AP cadres with specialised skills may (or may not) have a specific formal or informal title (e.g. community-based NCD workers in Tonga are now informally called “NCD Angels” or conditions of employment (e.g. medical assistant). Generally only medical assistants have a specific category of registration.

The 2001 WHO report suggests that no one model can be adopted in the Pacific, but that models should be developed to suit PIC demography, geography, health needs, resources and workforce mix. Where a nurse practitioner model can be most effective is in countries where:

- Nurses are an established category of the workforce: this gives career development opportunities for nurses and means that a new category of health worker does not have to be developed;
- There is a large pool of nurses as part of the health workforce;
- Nurses are already living and working in underserved areas;
- Nurses are providing a wide range of curative and preventive services;
- Training for nurses encourages them to be flexible and multi-skilled.

A model that introduces non-nursing practitioners might be used where there has been (or is) a shortage of nurses or where other training provision is on offer. For example, the Micronesian countries benefited from the Pacific Basin Medical Officer Training Programme for some time, and the Marshall Islands developed its own cadre of mid-level health workers from military corpsmen (similar to the Canadian model), which later developed into the Medex training programme with the University of Hawaii. These practitioners run out-patient clinics and provide basic primary healthcare facilities in the outer islands. Other PICs have adopted both models. However, this has led to difficulties regarding line management, accountability and allocation of responsibilities and tasks and careful attention needs to be paid to clarifying the roles, career structure, training and compensation of all mid-level practitioners.

The WHO report set out the essential features of practitioner training programmes as follows:

1. Training programme of at least 12 months
2. Core clinical competencies and core content defined
3. Early introduction of practical clinical experience
4. Adequate clinical teaching and supervision
5. Robust assessment of performance against defined competencies
6. Doctors involved in teaching and assessment
7. Teachers need faculty development to maintain skills in curative primary care

To maintain the workforce, the WHO report identified the importance of legal protection and defining equitable conditions of service and practice (such as safe accommodation and working conditions and good supply of equipment); adoption of standard treatment guidelines or protocols; ongoing clinical and professional supervision and performance review; CPD and training (including upgrading skills by short periods working in hospitals); and a defined career structure. These recommendations and strategies are still relevant today in delivering healthcare to underserved populations with a shortage of doctors across the Pacific. The 2006 Strategic Action Plan for Nursing and Midwifery Development in the Western Pacific Region identified the importance of maintaining and further developing the role of mid-level practitioners as a key part of not only the nursing and midwifery workforce, but of the total health workforce in the Pacific. It notes:

“In the Pacific island countries, advanced practice nurses and other non-physician primary health care providers meet the health needs of widely dispersed populations living in small island communities spread over enormous expanses of the Pacific Ocean. These primary health care providers have received further advanced education and skill-development to function as primary health care providers in rural and remote communities, providing the full range of community-based services, including community development activities; health promotion and disease prevention; the diagnosis and management of acute and chronic diseases; the performance of minor surgeries; prenatal, post-natal care as well as deliveries, in addition to 24-hour emergency care.”

An emerging priority is the imminent return of more than 200 medical graduates who have been sponsored to study at the Escuela Latino-Americano de Medicina (ELAM; Latin American Medical School) in Cuba under bilateral arrangements with PIC governments. This trend will see the medical workforce at least double in Kiribati, Nauru, Solomon Islands, Tuvalu and Vanuatu between 2014 and 2019. This will enable many countries to fill vacant community medical officer positions in community settings or provincial or outer island hubs.

The Cuban curriculum and style of medical training is strongly aligned with a medically-implemented system of primary health care functions that, in Pacific communities, are currently often filled by community nurses or health practitioners with expanded or extended primary care roles. Two of the PICs that have engaged most strongly with the Cuban system (Kiribati and Tuvalu) have indicated an intention to eventually absorb the new graduates into their medical workforce (rather than engaging them as advanced practitioners) – including...
through systems for assessing knowledge and skills and enhancing the capacity of internship programmes, as necessary; others are yet to work through the policy options and their workforce implications. This is where co-ordinated work across the Pacific on standards, registration and licensing will be highly beneficial. Planning for the re-integration of the new graduates from ELAM into Pacific health systems will need to take particular care to avoid the displacement or substitution of advanced practitioners who are well established in their communities; in fact, there is a potentially important role for experienced advanced practitioners to advise, mentor and co-supervise junior medical officers as they enter community practice.

Implications for registered nurses and midwives arise from their poorly defined scope of practice, “better defined in some countries than others”. For example, Solomon Islands recognises nurse practitioners but has no defined scope of practice or registration. In the Cook Islands, nurse practitioners are defined in education programmes but they are not legislated for or registered. In Samoa, progress has been made on the development of new roles; and the definition of the scope of practice for advanced specialist nurses is also in progress. However, in other PICs, there is no distinction between the scope of practice for nurses and midwives.

5. Policy issues for the Pacific

Based on the international experience and regional trends presented, Pacific Island countries using advanced practitioner models would also benefit from specific policies on:

- Adoption of standard scope of practice guidelines including treatment and referral protocols, responsibilities and tasks, including in relation to the medical workforce.
- Career structures that allow progression in public service, clinical education roles or graduate entry into medical training.
- Clinical supervision, performance review and CPD (including opportunities for maintaining and upgrading skills through short in-country or overseas hospital placements).
- Medico-legal protections and defining equitable service and practice conditions (e.g. safe accommodation and working conditions, minimum equipment supplies).

6. Conclusions

Physician Assistant roles are well established in Canada and the US, and to a lesser extent in the Pacific, although the nomenclature used varies. Advanced practice roles (specifically those of nurses) have been established for many years in some countries (e.g. the UK, Canada and the US) initially in the primary care sector, but more recently in hospitals. This is also the case in the Pacific region. In many other countries, the roles are relatively new, responding to reconfiguration of services and doctor shortages. Assistant roles can also help support more extensive utilisation of services with less reliance on doctors, e.g. surgeon and anaesthetic assistants or nurses with specialised skills. As services are reconfigured, opportunities may arise to develop new roles that support new ways of working and delivering services. The 2001 WHO report on mid-level roles suggests that roles should be tailored to meet PICs specific needs, and that a ‘one-size fits all’ approach will not be appropriate; the NCD epidemic in the Pacific presents particular challenges and skill needs for nurses and other health practitioners in the community.

Many of the benefits of introducing PAs, highlighted in the 2011 Health Workforce Australia Report on PAs, are very relevant to the Pacific context:

- supporting and extending the career span of the existing rural and remote medical workforce
- providing medical services in regional, rural and remote areas where it is difficult to attract and retain local doctors
- supporting health services for Indigenous peoples, through multidisciplinary teams, that include local health practitioners for whom the PA profession may be an advanced practice career option
- slowing clinical health workforce attrition among experienced paramedics, allied health workers, and nurses and midwives for whom the challenge of a career as a medically trained PA may be attractive
- reducing emergency department waiting times by adding another staffing option for both fast-track services for low acuity patients and experienced paramedics in PA roles for trauma patients
- reducing elective surgery waiting lists by enhancing the productivity of surgeons and medical practitioners
- reducing escalating health care costs by providing a new workforce group who can provide safe and effective services at lower cost
- increasing the productivity of other health professionals and doctors by releasing them from routine and repetitive tasks to allow them to work at the top of their licence.

Using APs can also be seen as a way of containing costs, as tasks can be carried out by less expensive professionals than doctors and lower utilisation of diagnostic and pharmaceutical services may help to contain indirect costs to the health system. Current thinking is that cost reduction alone should not be a primary driver, but that these new and expanded roles should be introduced to meet service and healthcare needs. In the Pacific, the development and extension of these roles could help to substitute for the lack of general practitioners in the workforce, especially in rural and remote areas.
A number of barriers to introducing and expanding new roles have been identified relating to (often competing) professional interests; care organisation and funding; legislation, regulation and licensing; and education organisations’ capacity to educate and train. In order to overcome these barriers, adopting and implementing advanced practice and new roles needs to involve high level stakeholders from ministries, educational organisations, regulation and licensing bodies and professional groups as, to be successful, this needs to be carried out at a ‘whole system’ level.

Scope of practice, competencies and roles need to be made clear and agreed and specific training and education programmes (which ideally should be at Postgraduate Diploma or Master level for advanced practitioners and Bachelors level for Assistants) developed. Funding also needs to be provided to incentivise health care organisations to develop and introduce these roles, partly because in the short term, the benefits may not be apparent and there will be costs associated with the development of the role and then to support (through networks or other mechanisms) practitioners working in these new roles. Such support includes a safe living and working environment, sufficient medicines and other resources, supervisory outreach and mentoring, and career development. Regular up-skilling through return to larger healthcare centres will also be required.

Consideration of how these roles could fit into the next stages of developing the Pacific health workforce (particularly in rural, remote and underserved areas) is warranted. This includes the integration of medical graduates trained outside the Pacific’s usual sources of medical education (who may not immediately meet medical registration requirements in the Pacific unless they have access to suitable internship programs) and the need to maintain an effective nursing and allied health workforce to support existing secondary and primary care services.

References

1. Delamaire M, Lafortune G. Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries, OECD Health Working Papers, No. 54 [Internet]. OECD Publishing; 2010. Available from: http://dx.doi.org/10.1787/5kmbrcms5g7-en


27. Read S, Roberts-Davis M. Preparing nurse practitioners for the 21st century Executive summary; from the report of the project ‘Realising specialist and advanced nursing practice: establishing the parameters of and identifying the competencies for nurse practitioner roles and eva [Internet]. Sheffield; 2001 p. 15. Available from: http://www.opengrey.eu/item/display/10068/543660


35. Usher K, Lindsay D, Stewart L et al. Enhancing the Quality of Nursing and Midwifery: Educational Programs and Services in the Pacific. Auckland University of Technology and James Cook University, 2012.
“Our job as nurses is to cushion the sorrow and celebrate the joy everyday while we are just doing our jobs”

Christine Belle
Universal Coverage and Incentives to Work in Rural and Remote Areas of the Pacific.

Graham Roberts a
Sophia Lin a
Larisa Asimus a

aHuman Resources for Health Knowledge Hub, School of Public Health and Community Medicine, University of New South Wales. Corresponding Author: Graham Roberts, Level 2, Samuels Building, University of New South Wales, UNSW Sydney NSW 2052, Australia. T: +61(2) 9385 8659. F: +61(2) 9385 1104. Corresponding Author: g.roberts@unsw.edu.au

Abstract
We address issues related to the two most significant human resources factors that impact on universal health coverage in Pacific Island Countries: maintaining health staff in remote areas and the migration of health staff from the region. Providing universal health coverage in the Pacific requires the deployment of Primary Health Care staff to remote areas and also of clinical staff to district level facilities or lower. We reviewed the literature on the use of retention incentives and allowances, Pacific skilled health worker migration and the public service manuals of 8 Pacific countries, to identify the range of incentives and allowances available, in which housing and financial incentives feature most, and the areas where policy review could assist in attracting to and retaining health staff in rural and remote areas and in the countries of the region. (PHD 2012; Vol 18(2): p78-87)

Introduction
The demography of the Pacific is unique, with small populations dispersed across geographically large areas. Maintaining health services and the professional skills needed in remote locations, or small island states, depends on systems of staff production, recruitment and deployment on conditions of service that encourage their retention in the workforce, and, where conditions are difficult, provides further incentives. This paper reviews the range of incentives and allowances currently offered to health workers (HW) in public sector health services in Fiji, Samoa, Tonga, Vanuatu, Kiribati, Tokelau, Solomon Islands and the Marshall Islands, with a view to identifying the current range of retention policies applied in the region, and to open this issue for discussion on retention policy options to further incentivise rural and country level retention, and/or to facilitate intra-regional professional mobility.

Background
Shortages of health staff in many developing countries is a global reality and one of the biggest constraints to achieving universal health coverage. Migration of health workers from Pacific Islands Countries (PIC) to the wealthier countries of the Pacific Rim and beyond is now well documented, while the issues of maldistribution of health staff and resultant inequalities of health outcomes within countries has gained attention more recently. Along with the Pacific’s limited production of new health workers, these issues are at the core of service provision that begins to approximate equitable access and provides universal health coverage.

Incentives are globally recognised to be effective in improving rural health worker retention. The WHO recommendations in this areas fall under four broad themes: Educational (e.g. target rural student admission to HW programs, locate training schools outside major cities, expose students to rural experiences in curricula); Regulatory (e.g. enhance scope of practice in rural or remote areas, increase types of HW, ensure compulsory rural service requirements are accompanied by appropriate support); Financial (e.g. allowances, free or subsidised housing, transportation, paid vacations); and Personal and professional support (e.g. improve living conditions for HW and their families, provide safe working environments, career development programs and pathways, support professional networks, adopt public recognition measures).

Examples of the application of incentives come from across the developing world, from Africa to Asia. However, there are few ‘success stories,’ few studies have evaluated the effectiveness of incentives and allowances, and little evidence emerges that they help retention. The lack of evaluation studies is due to several complexities including: mixed terminologies, complex interventions, difficulty in assessing context, lack of baseline information and the need for multi-method and multi-disciplinary approaches for effective monitoring and evaluation.
The Caribbean Community (CARICOM) provides an example for the Pacific to consider as it experiences the scale up of the medical workforce over the next 5-7 years. The Road Map for Strengthening the Caribbean Workforce 2012–2017 focuses on strengthening human resources as part of a strategic approach to address the health and developmental issues of the region. Intra-regional movement of HW in the Pacific is occurring but on an informal and individual level. The development of similar conditions of employment across the region could present a method of supporting universal coverage.

**Pacific Migration**

Doyle et al attempted to gather information on HRH migration from Cook Islands, Fiji, Papua New Guinea (PNG), Samoa, Solomon Islands and Vanuatu, but found that none had adequate data collection procedures to characterise the phenomenon. In February 2011, the Pacific Human Resources for Health Alliance (PHRHA) met in Nadi, Fiji, where representatives from 13 PICs discussed issues and challenges in Human Resources for Health (HRH). Five challenges emerged from their presentations: health workforce issues (skills shortages, retention, recruitment and workforce ageing); the lack of effective HRH policy, management and information systems; education and training for HRH production; public sector working conditions, and the migration of health personnel, both internally and internationally. While these issues are perceived as important challenges, the systems required to gather relevant information to quantify or characterise them are not available.

HW migration in the Pacific is a component of wider migration flows, where there has been consistent outflow of people for many decades. Some countries have high rates of HW emigration (Fiji, Cook Islands, Samoa, American Samoa, Niue and Tonga); others are heavily reliant on recruiting expatriate workers to fill shortages (Palau, Marshall Islands, Nauru, Northern Marianas Islands and the Federated States of Micronesia). The Pacific has a ‘culture of migration,’ as many as one third of all HW in Tonga, Samoa and Fiji think about migrating as soon as they enter the profession. For many Pacific Islanders, working overseas is viewed as an increase in community status, as their remittances support relatives at home. As a result of this ‘culture of migration’ and the importance placed on remittances, policies to encourage retention in the country workforce are not evident.

Negin demonstrated that the most readily accessible information on professional migration from PICs was available in recipient country census data, although with the limitation of not identifying whether they are actively employed in the health sector. Doyle and Roberts found by analysis of data from the Database on Immigrants in OECD and non-OECD Countries (DIOC-E, Release 3) that around the year 2000 approximately 3282 professional health workers from Cook Islands, Fiji, PNG, Samoa, Solomon Islands and Vanuatu were working in an overseas country. Around two thirds were from Fiji, 22% from PNG and 10% from Samoa. Australia was the destination for more than half of the total, followed by New Zealand and the United States; and close to 75% of the total overseas Pacific health workforce was female.

**Pacific Rural and Remote Retention**

In comparison to urban areas, rural areas are underserved in most PICs (Table 1). In all eight countries reviewed the proportions of health workers in rural areas were well below the proportions of the population in rural areas, and health worker densities were also lower, in part reflecting concentrations of health workers in higher level services in urban areas, but also indicating vacant positions (Table 3).

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>% Population in Rural Areas</th>
<th>% HW in Rural Areas</th>
<th>HW Density (per 1,000 population)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rural</td>
</tr>
<tr>
<td>Fiji</td>
<td>2011</td>
<td>46.6</td>
<td>16.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Samoa</td>
<td>2011</td>
<td>80.1</td>
<td>18.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Tonga*</td>
<td>2013</td>
<td>27.1</td>
<td>19.9</td>
<td>5.8</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>2012</td>
<td>75.1</td>
<td>57.7</td>
<td>3.9</td>
</tr>
<tr>
<td>Kiribati</td>
<td>2010</td>
<td>48.3</td>
<td>-</td>
<td>No data available</td>
</tr>
<tr>
<td>Tokelau†</td>
<td>2012</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>2012</td>
<td>81.4</td>
<td>46.0</td>
<td>1.8</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>2012</td>
<td>26.0</td>
<td>8.8</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: Human Resources for Health Knowledge Hub

* Urban-rural boundaries in Tonga are unclear. It is assumed for this table that populations on the main island of Tonga are urban and other islands are rural.
† There are no urban-rural boundaries.
Table 2. Doctor and nurse to population ratios in urban and rural areas by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Ratio of 1 Doctor to Population</th>
<th>Ratio of 1 Nurse to Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Urban</td>
<td>Rural</td>
</tr>
<tr>
<td>Fiji</td>
<td>2011</td>
<td>1599</td>
<td>9197</td>
</tr>
<tr>
<td>Samoa</td>
<td>2011</td>
<td>354</td>
<td>37,371</td>
</tr>
<tr>
<td>Tonga*</td>
<td>2013</td>
<td>1534</td>
<td>4646</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>2012</td>
<td>1492</td>
<td>47,250</td>
</tr>
<tr>
<td>Kiribati</td>
<td></td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Tokelaū†</td>
<td>2012</td>
<td>352</td>
<td>109</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>2012</td>
<td>1472</td>
<td>24,336</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>2012</td>
<td>1639</td>
<td>0‡</td>
</tr>
</tbody>
</table>

Source: Human Resources for Health Knowledge Hub

*† See notes to Table 1.
‡ Only Health Assistants are posted to the rural outer islands.

Table 3. Proportion of vacant doctor and nursing posts in rural areas.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Doctors</th>
<th>% Vacant Established Posts</th>
<th>% Vacant Posts in Rural Areas</th>
<th>Nurses</th>
<th>% Vacant Established Posts</th>
<th>% Vacant Posts in Rural Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiji</td>
<td>2011</td>
<td>23.6</td>
<td>14.7</td>
<td>7.0</td>
<td>11.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samoa</td>
<td>2011</td>
<td>1.8</td>
<td>No data available</td>
<td>7.6</td>
<td>No data available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tonga*</td>
<td>2013</td>
<td>8.3</td>
<td>80.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanuatu</td>
<td></td>
<td>No data available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiribati</td>
<td></td>
<td>No data available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tokelaū†</td>
<td>2012</td>
<td>0</td>
<td>31.6</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>2012</td>
<td>18.1</td>
<td>36.8</td>
<td>8.7</td>
<td>16.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>2012</td>
<td>27.3</td>
<td>0.0</td>
<td>7.2</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Human Resources for Health Knowledge Hub

*† See notes to Table 1.

The doctor to population and nurse to population ratios (Table 2) show even greater differences between urban and rural areas, most marked in Samoa and Vanuatu.

**Findings**

The current allowances in Pacific countries documented in Public Service Commission (PSC) manuals27,33 include sections on general public service conditions of service, such as leave entitlements, shift allowances and other allowances available to all public servants. We did not locate any specific policy or reference to an incentive to counter the extent of HW emigration.

We have identified in Table 4 the incentives that are specifically available to HW in rural/remote areas, and have also identified other standard and negotiable allowances for all health staff.

Most incentives and allowances identified are either financial or housing. Whether housing is an incentive depends on individual circumstances. There are few educational incentives available, limited establishment of training schools outside of urban centres (e.g. some nursing schools in the Solomon Islands and one in Fiji), many countries bond their scholarship or subsidize students34,35 and deploy them as required, and programs do expose students to rural environments during training (e.g. nurse students in Tonga, and several cadres trained in Fiji). In our workforce profiling of PICs19-26 we have found that over-expenditure of allowances occurs consistently in a number of Pacific countries as a significant and persistent budgetary problem that results in operational funds being used to meet human resource overruns. The research question that arises now is to assess the costs of retention incentives relative to the costs of training staff who leave service rather than accept a rural posting.
<table>
<thead>
<tr>
<th>Country</th>
<th>Incentives available to health workers to improve retention rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiji</td>
<td><strong>Fiji</strong>&lt;br&gt;Rural Locations Allowances: Single officer F$1200/year; married officer F$1800/year; for staff in posts &gt;45km from declared city or townships. &lt;br&gt;Nurses Consolidated Allowance: +15.5% of basic salary for nurses in districts. &lt;br&gt;Medical Officer Transfer Allowance: F$190 for transfers &gt;3 months. &lt;br&gt;Medical Officer Consolidated Allowance: +25% on mean salary for extra hours worked that cannot be recorded accurately. &lt;br&gt;Environmental Allowance: +15.5% of basic salary for Principal Medical Officers and Medical Officers from health centres. &lt;br&gt;Housing: HW eligible for subsidised housing decided by the housing committee. &lt;br&gt;Medical Officer Transfer Allowance: F$190 for transfers &gt;3 months. &lt;br&gt;Medical Officer Consolidated Allowance: +25% on mean salary for extra hours worked that cannot be recorded accurately. &lt;br&gt;Environmental Allowance: +15.5% of basic salary for Principal Medical Officers and Medical Officers from health centres. &lt;br&gt;Housing: HW eligible for subsidised housing decided by the housing committee.</td>
</tr>
<tr>
<td>Tonga</td>
<td><strong>Tonga</strong>&lt;br&gt;Relocation Allowance: F$150 for HW posted to Nius. &lt;br&gt;Nurse Rotation: Nurses rotated often between urban and rural areas to prevent burn out. &lt;br&gt;Government Housing: Staff entitled to government housing decided by the housing committee. &lt;br&gt;Medical Officer Transfer Allowance: F$190 for transfers &gt;3 months. &lt;br&gt;Medical Officer Consolidated Allowance: +25% on mean salary for extra hours worked that cannot be recorded accurately. &lt;br&gt;Environmental Allowance: +15.5% of basic salary for Principal Medical Officers and Medical Officers from health centres. &lt;br&gt;Housing: HW eligible for subsidised housing decided by the housing committee.</td>
</tr>
<tr>
<td>Vanuatu</td>
<td><strong>Vanuatu</strong>&lt;br&gt;Remote Allowance: Vt10,000/month for postings in remote areas not serviced by regular shipping, ferries, air strips and other communication. &lt;br&gt;Government Housing: For HW outside Port Vila or Luganville. &lt;br&gt;Medical Officer Transfer Allowance: F$190 for transfers &gt;3 months. &lt;br&gt;Medical Officer Consolidated Allowance: +25% on mean salary for extra hours worked that cannot be recorded accurately. &lt;br&gt;Environmental Allowance: +15.5% of basic salary for Principal Medical Officers and Medical Officers from health centres. &lt;br&gt;Housing: HW eligible for subsidised housing decided by the housing committee.</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td><strong>Solomon Islands</strong>&lt;br&gt;Provincial Allowance: +20% on top of mean salary if in a provincial position. &lt;br&gt;Transport Allowance: SD$6500/year for doctors and &lt;SD$50,000 loan guarantee for vehicle duty and GST. &lt;br&gt;Domestic Allowance: +25% on mean fortnightly salary for doctors working in a dangerous area. &lt;br&gt;Medical Officer Transfer Allowance: F$190 for transfers &gt;3 months. &lt;br&gt;Medical Officer Consolidated Allowance: +25% on mean salary for extra hours worked that cannot be recorded accurately. &lt;br&gt;Environmental Allowance: +15.5% of basic salary for Principal Medical Officers and Medical Officers from health centres. &lt;br&gt;Housing: HW eligible for subsidised housing decided by the housing committee.</td>
</tr>
<tr>
<td>Samoa</td>
<td><strong>Samoa</strong>&lt;br&gt;Remote Locality Allowance: $600-1000 p.a. depending on location (availability of transport, means of communication and social amenities). &lt;br&gt;Housing: Given to HW in district hospitals. &lt;br&gt;Local Travelling Allowance: For travel within Samoa when absent from normal place of residence overnight; Chief Executive Officers WST$30/night; other public servants WST$25/night. &lt;br&gt;Shift Allowance: Compensation for working unsocial hours at WST$15/hour. &lt;br&gt;Medical Officer Transfer Allowance: F$190 for transfers &gt;3 months. &lt;br&gt;Medical Officer Consolidated Allowance: +25% on mean salary for extra hours worked that cannot be recorded accurately. &lt;br&gt;Environmental Allowance: +15.5% of basic salary for Principal Medical Officers and Medical Officers from health centres. &lt;br&gt;Housing: HW eligible for subsidised housing decided by the housing committee.</td>
</tr>
<tr>
<td>Tokelau</td>
<td><strong>Tokelau</strong>&lt;br&gt;No rural retention incentives are available. &lt;br&gt;Travel Allowance: Officers requiring travel inter-island or overseas receive per diems. &lt;br&gt;Medical Officer Transfer Allowance: F$190 for transfers &gt;3 months. &lt;br&gt;Medical Officer Consolidated Allowance: +25% on mean salary for extra hours worked that cannot be recorded accurately. &lt;br&gt;Environmental Allowance: +15.5% of basic salary for Principal Medical Officers and Medical Officers from health centres. &lt;br&gt;Housing: HW eligible for subsidised housing decided by the housing committee.</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td><strong>Marshall Islands</strong>&lt;br&gt;No rural retention incentives are available. &lt;br&gt;Travel Allowance: Officers requiring travel inter-island or overseas receive per diems. &lt;br&gt;Medical Officer Transfer Allowance: F$190 for transfers &gt;3 months. &lt;br&gt;Medical Officer Consolidated Allowance: +25% on mean salary for extra hours worked that cannot be recorded accurately. &lt;br&gt;Environmental Allowance: +15.5% of basic salary for Principal Medical Officers and Medical Officers from health centres. &lt;br&gt;Housing: HW eligible for subsidised housing decided by the housing committee.</td>
</tr>
<tr>
<td>Kiribati</td>
<td><strong>Kiribati</strong>&lt;br&gt;No rural retention incentives are available. &lt;br&gt;Travel Allowance: Officers requiring travel inter-island or overseas receive per diems. &lt;br&gt;Medical Officer Transfer Allowance: F$190 for transfers &gt;3 months. &lt;br&gt;Medical Officer Consolidated Allowance: +25% on mean salary for extra hours worked that cannot be recorded accurately. &lt;br&gt;Environmental Allowance: +15.5% of basic salary for Principal Medical Officers and Medical Officers from health centres. &lt;br&gt;Housing: HW eligible for subsidised housing decided by the housing committee.</td>
</tr>
</tbody>
</table>

Source: Compiled from PSC manuals of Fiji, Samoa, Tonga, Vanuatu, Kiribati, Solomon Islands and Marshall Islands, and Human Resources for Health Knowledge Hub.
Discussion

It can reasonably be inferred that current retention incentives are not working well, as vacancies in rural areas remain and emigration from the region is continuing. The use of financial and housing incentives could be supplemented by incentives in the educational, regulatory and supportive of personal and professional goals domains. For example, progression to further training could be related to a period of service in a rural or remote location, the opportunity for experience in extended clinical practice, or a managerial role, could support career progression.

This review of the incentives and allowances currently offered across the countries of the region shows significant variation in how retention incentives are structured, although general allowances for sick and annual leave are similar. Rural retention incentives and allowances appear to be established to support the retention of doctors and nurses, but, while housing and salary supplements to doctors are available they are not specifically provided to counter migration, or marketed in a way to attract health professionals from other PICs. That they differ could suggest that policy has been developed for differing contexts, although other explanations may be proffered: that governments and financially conservative public sector employers have not identified the opportunity costs of vacancies (including international recruitment); and, that current incentives and allowances have not been adjusted in response to the emerging global trend in professional labour force dynamics. These dynamics include the informal intra-regional movement and employment of Pacific health professionals. Given this emerging trend there appears to be some potential to fill skills gaps by the provision of incentives and allowances adequate to attract Pacific HW to work in remote areas.

Discussion of such issues among the region’s public sector employers, and the development of common approaches could contribute to universal health coverage in the region, and to the development of a Pacific health workforce. That said; there is a clear need for research into the effectiveness of retention incentives and allowances to counter urban pull and the emigration of HW from the region.

References


4. Connell J. Migration of Health Workers in the Asia Pacific Region. Human Resources for Health Knowledge Hub, School of Public Health and Community Medicine, University of New South Wales, Sydney, Australia; 2010.


8. Dambisya YM. A review of non-financial incentives for health worker retention in east and southern Africa. Health Systems Research Group, Department of Pharmacy, School of Health Sciences, University of Limpopo, South Africa; 2007.


### Abbreviations and Acronyms

Listed are Abbreviations and Acronyms used in the series Evidence and Policy Options for healthcare education and training in the Pacific Island Countries.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAMC</td>
<td>Association of American Medical Colleges</td>
</tr>
<tr>
<td>ABMS</td>
<td>American Board of Specialties</td>
</tr>
<tr>
<td>ACNM</td>
<td>American College of Nurses Midwives</td>
</tr>
<tr>
<td>ACME</td>
<td>Accreditation Commission for Midwifery Education</td>
</tr>
<tr>
<td>ACGME</td>
<td>Accreditation Council for Graduate Medical Education</td>
</tr>
<tr>
<td>AHPs</td>
<td>Allied Health Professionals</td>
</tr>
<tr>
<td>AMA</td>
<td>American Medical Association</td>
</tr>
<tr>
<td>AMC</td>
<td>Australian Medical Council</td>
</tr>
<tr>
<td>AMCB</td>
<td>American Midwifery Certification Board</td>
</tr>
<tr>
<td>ANMAC</td>
<td>Australian Nursing and Midwifery Accreditation Council</td>
</tr>
<tr>
<td>APs</td>
<td>Advanced Practitioners</td>
</tr>
<tr>
<td>AusAID</td>
<td>Australian Agency for International Development</td>
</tr>
<tr>
<td>BoN</td>
<td>Boards of Nursing</td>
</tr>
<tr>
<td>BMedSci</td>
<td>Bachelor of Medical Science</td>
</tr>
<tr>
<td>CACMS</td>
<td>Committee of Accreditation of Canadian Medical Schools</td>
</tr>
<tr>
<td>CFWI</td>
<td>Centre for Workforce Intelligence</td>
</tr>
<tr>
<td>CMA</td>
<td>Canadian Medical Association</td>
</tr>
<tr>
<td>CME</td>
<td>Continuing Medical Education</td>
</tr>
<tr>
<td>CMNHS</td>
<td>College of Medicine, Nursing and Health Sciences</td>
</tr>
<tr>
<td>CMRC</td>
<td>Canadian Midwifery Regulators Consortium</td>
</tr>
<tr>
<td>CMRE</td>
<td>Canadian Midwifery Registration Examination</td>
</tr>
<tr>
<td>CMSA</td>
<td>Canadian Medical Schools Association</td>
</tr>
<tr>
<td>CMP</td>
<td>Certificate Maintenance Programme</td>
</tr>
<tr>
<td>CMI</td>
<td>College of the Marshall Islands</td>
</tr>
<tr>
<td>CNM</td>
<td>Certified Nurse-Midwife</td>
</tr>
<tr>
<td>CNP</td>
<td>Certified Nurse Practitioner</td>
</tr>
<tr>
<td>CNS</td>
<td>Clinical Nurse Specialists</td>
</tr>
<tr>
<td>CPD</td>
<td>Continuing Professional Development</td>
</tr>
<tr>
<td>CRNA</td>
<td>Certified Registered Nurse Anaesthetist</td>
</tr>
<tr>
<td>DOPS</td>
<td>Direct observation of procedural skills</td>
</tr>
<tr>
<td>ELAM</td>
<td>Latin American School of Medicine</td>
</tr>
<tr>
<td>FNU</td>
<td>Fiji National University</td>
</tr>
<tr>
<td>FSM</td>
<td>Federated States of Micronesia</td>
</tr>
<tr>
<td>FSMed</td>
<td>Fiji School of Medicine</td>
</tr>
<tr>
<td>FSMB</td>
<td>Federation of State Medical Boards</td>
</tr>
<tr>
<td>GAMSAT</td>
<td>Graduate Medical Schools Admission Test</td>
</tr>
<tr>
<td>GEM</td>
<td>Graduate Entry Medicine</td>
</tr>
<tr>
<td>GEP</td>
<td>Graduate Entry Programme</td>
</tr>
<tr>
<td>GMC</td>
<td>General Medical Council</td>
</tr>
<tr>
<td>GMP</td>
<td>Graduate Medical Programmes</td>
</tr>
<tr>
<td>HEE</td>
<td>Health Education England</td>
</tr>
<tr>
<td>HGCON</td>
<td>Helena Goldie College of Nursing</td>
</tr>
<tr>
<td>IMG</td>
<td>International Medical Graduate</td>
</tr>
<tr>
<td>IOM</td>
<td>Institute of Medicine</td>
</tr>
<tr>
<td>LCME</td>
<td>Liaison Committee on Medical Education</td>
</tr>
<tr>
<td>LMCC</td>
<td>Licentiate of the Medical Council of Canada</td>
</tr>
<tr>
<td>MA</td>
<td>Medical Assistant</td>
</tr>
<tr>
<td>MAPAS</td>
<td>Maori and Pacific Islanders Admissions Scheme</td>
</tr>
<tr>
<td>MBBS</td>
<td>Bachelor of Medicine, Bachelor of Surgery</td>
</tr>
<tr>
<td>MCCCEE</td>
<td>Medical Council of Canada Evaluating Examination</td>
</tr>
<tr>
<td>MCNZ</td>
<td>Medical Council of New Zealand</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>MCQs</td>
<td>multiple choice questions</td>
</tr>
<tr>
<td>MCQE</td>
<td>Medical Council of Canada Qualifying Examination</td>
</tr>
<tr>
<td>MEAC</td>
<td>Midwifery Education Accreditation Council</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MMIs</td>
<td>Multiple mini interviews</td>
</tr>
<tr>
<td>MPET</td>
<td>Multi Professional Education and Training</td>
</tr>
<tr>
<td>MSF</td>
<td>multi-source feedback</td>
</tr>
<tr>
<td>NARM</td>
<td>North American Registry of Midwives</td>
</tr>
<tr>
<td>NBME</td>
<td>National Board of Medical Examiners</td>
</tr>
<tr>
<td>NCEA</td>
<td>National Certificates of Educational Achievement</td>
</tr>
<tr>
<td>NCD</td>
<td>Non-Communicable Disease</td>
</tr>
<tr>
<td>NCSBN</td>
<td>National Council of State Board of Nurses</td>
</tr>
<tr>
<td>NCNZ</td>
<td>Nursing Council of New Zealand</td>
</tr>
<tr>
<td>NMBA</td>
<td>Nursing and Midwifery Board of Australia</td>
</tr>
<tr>
<td>NMC</td>
<td>Nursing and Midwifery Council</td>
</tr>
<tr>
<td>NPs</td>
<td>Nurse Practitioners</td>
</tr>
<tr>
<td>NTRCS</td>
<td>Northern Territory Rural Clinical School</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
</tr>
<tr>
<td>OSCE</td>
<td>Objective Structured Clinical Examination</td>
</tr>
<tr>
<td>OSLER</td>
<td>Objective Structured Long Examination Record or Case</td>
</tr>
<tr>
<td>OUM</td>
<td>Oceania School of Medicine</td>
</tr>
<tr>
<td>PACES</td>
<td>Practical Assessment of Clinical Examination Skills</td>
</tr>
<tr>
<td>Pas</td>
<td>Physician Assistants</td>
</tr>
<tr>
<td>PBL</td>
<td>Problem Based Learning</td>
</tr>
<tr>
<td>PSC</td>
<td>Public Service Commission</td>
</tr>
<tr>
<td>PICs</td>
<td>Pacific Island Countries</td>
</tr>
<tr>
<td>PICT</td>
<td>Pacific Island Countries and Territories</td>
</tr>
<tr>
<td>PNG</td>
<td>Papua New Guinea</td>
</tr>
<tr>
<td>PRCC</td>
<td>Parallel Rural Community Curriculum</td>
</tr>
<tr>
<td>PSA</td>
<td>Prescribing Skills Assessment</td>
</tr>
<tr>
<td>QAA</td>
<td>Quality Assurance Agency</td>
</tr>
<tr>
<td>QSSN</td>
<td>The Queen Salote School of Nursing</td>
</tr>
<tr>
<td>RCPS</td>
<td>Royal College of Physicians and Surgeons</td>
</tr>
<tr>
<td>ROMPE</td>
<td>Rural Origin Medical Programme Entrants</td>
</tr>
<tr>
<td>SJT</td>
<td>Situational Judgement Test</td>
</tr>
<tr>
<td>SLEs</td>
<td>Supervised learning events</td>
</tr>
<tr>
<td>SMHS</td>
<td>School of Medicine and Health Sciences</td>
</tr>
<tr>
<td>UKCAT</td>
<td>United Kingdom Clinical Aptitude Test</td>
</tr>
<tr>
<td>UMAT</td>
<td>Undergraduate Medical and Health Sciences Admissions Test</td>
</tr>
<tr>
<td>UoF</td>
<td>University of Fiji</td>
</tr>
<tr>
<td>UPNG</td>
<td>University of Papua New Guinea</td>
</tr>
<tr>
<td>USMLe</td>
<td>United States Medical Licensing Exam</td>
</tr>
<tr>
<td>VHTI</td>
<td>Vanuatu Health Training Institute</td>
</tr>
<tr>
<td>WFME</td>
<td>World Federation of Medical Education</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
Definitions

The definitions used in the Evidence and Policy Options for healthcare education and training in the Pacific Island Countries series are derived from the multiple definitions used by different healthcare systems in different countries. A full glossary of common terms used in medical education (in the UK) has been compiled by the UK General Medical Council.

Accreditation is a process designed to confirm the educational quality of new, developing and established education and training programs. It is usually carried out by peer/third party review against established standards, outcomes or performance indicators.

Advanced practitioners are health professionals (often nurses, but can be from a range of professions or subject disciplines) who have been trained in and granted registration in an extended or discrete scope of practice. Countries use various names for such practitioners (whose roles may vary according to locality and service need) including: nurse consultants/practitioners, medical, physician, surgical or anaesthetic assistants/associates and clinical officers.

Approval for programs is sought via accreditation. Decisions to approve (or not) an educational program are often taken by a different body to the one which has carried out the accreditation process.

Assessment refers to a determination of student/learner performance/competence, often via examinations.

Bonded/Bonding— an arrangement where trainees/students agree to return to a particular geographical location and/or specialty after completing their education in return for financial assistance with the cost of their education or other benefits.

Commissioning is used to describe the scheme and processes by which education and training programs (and in particular the numbers of students/trainees involved in those programs) are funded and allocated to education and healthcare training organizations. Commissioning activities include the allocation of scholarships and subsidies and self-funding schemes and typically involve some type of formal quality assurance of the education and training provided.

Competency: A broad composite statement, derived from professional practice, which describes a framework of skills, knowledge, attitudes, psychosocial and psychomotor elements.

Continuous Professional Development (CPD) is the process by which fully qualified professionals demonstrate that they are maintaining and updating their education and clinical competence. It usually involves completion of a specified number of accredited activities over a fixed recurring time period (e.g. 1-5 years).

Credentialing is the process of reviewing and confirming the qualifications and profile of a healthcare professional, for example when they apply for positions in different institutions or countries. It is particularly important in countries with regional registration systems.

Curriculum: The totality of the education programme, that is coherent in structure, processes and outcome and that links theory and practice in the professional education of a doctor, nurse or of a midwife.

Family Medicine refers largely to Primary Care – ‘going to see a doctor’. It is largely synonymous with ‘General Practice’ in the United Kingdom and Ireland.

Family Medicine Practitioners are medical practitioners who work primarily in the community/primary care/family medicine and provide care to individual patients and families. In some countries these are known as GPs (General Practitioners). This is seen as a specialty in its own right, requires specific training and is different from the role of a general physician/generalist.

Hub and Spoke refers to a scheme in which one organization acts as a management or coordinating centre for a number of other related organizations or activities. One example is a primary care (family medicine) training centre which has responsibility for coordinating and monitoring the training activities of a number of other practices.

Licensing generally involves conferring upon an individual a license to practice their particular healthcare profession. Many countries do not distinguish between licensing and registration (below) and both may be partial/temporary/conditional in certain circumstances (for instance, newly qualified professionals in some countries).

Local – applicable to individual Pacific Islands, Countries and Territories (PICT)

Numerus Clausus (closed number) is a system of regulating student numbers (usually medical students) wherein a fixed number of places are available each year, usually determined by the government and based upon future workforce planning. The opposite form of student number regulation is a free market, wherein there is no regulation of student numbers - graduates compete for jobs and Universities compete for students (and funding, from students and/or government).

Postgraduate refers, in the context of the education of healthcare professionals, to education which occurs after initial registration with/licensing by a professional body. This is sometimes termed post-qualifying education for example when referring to some nursing programs which are at diploma and not degree level.

Regional - applicable to all PICT across the Pacific region.
Registration generally refers to the actual process of enrolling with a professional regulatory body following graduation from an accredited programme. Many countries do not distinguish between registration and licensing, but some do and a license to practise may be issued by a separate authority, particularly in countries where the processes are managed at a regional level. Both licensing and registration may be partial/temporary/conditional under certain circumstances (for instance, newly qualified professionals in some countries).

Revalidation refers to the renewal of a license to practice. Many countries have some sort of regular renewal or re-registration, generally every few years (although the term revalidation is one most commonly associated with the UK currently).

Specialty/Specialist refers to the latter stages of postgraduate training, generally for doctors, where they attain their final career status (e.g. surgeon, psychiatrist).

Standard: A definition or statement for evaluating performance and results established by evidence and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the requisite degree of compliance in a given context.

Undergraduate refers, in the context of the education of healthcare professionals, to education that occurs before, and usually leads to, registration with/licensing from a professional body/regulator. This is sometimes termed prequalifying or basic education. Students engaged in undergraduate education of this sort may already have a previous degree (and so are graduates, but will always be referred to here as undergraduate not postgraduate students).

“Education is the most powerful weapon which you can use to change the world.”

Nelson Mandela
**Vision for C-POND**
Creating the evidence, knowledge exchange, and research capacity needed to reverse the obesity and NCD crisis in the Pacific Islands.

**ROLES and OBJECTIVES of C-POND**
C-POND was established in 2009 as a collaboration between Fiji School of Medicine (now the College of Medicine, Nursing & Health Sciences, Fiji National University) and the WHO Collaborating Centre for Obesity Prevention at Deakin University. Its overall objectives are:

- **To conduct solution-oriented research on obesity and NCDs**
  The focus is on finding the solutions to reduce the very high prevalence and burden of obesity and NCDs in the Pacific.

- **To disseminate the research findings and translate them into policies and practice**
  The usual process of research dissemination through publications and conference presentations is accompanied by strong knowledge exchange linkages with government agencies, NGOs, private sector organizations and communities to translate the research findings from C-POND and international studies into policies and practice in the Pacific.

- **To build research capacity in obesity and NCD prevention**
  This includes the supervision of Master students and Doctoral students as well as training for research staff.

- **To conduct other research-related activities which further the aims of C-POND**
  Other activities related to the prevention of obesity and NCDs are conducted by C-POND and these include support for WHO and SPC’s research initiatives.

The scope of the research is intended to be primarily on prevention of NCDs, but can also include clinical aspects of NCDs, subject to demand from.

---

For more information contact;
C-POND Co-ordinator - Dr. Wendy Snowdon
Phone: +679 3233 253
Email: wendy.snowdon@deakin.edu.au/wendy.snowdon@fnu.ac.fj
Pacific Research Centre for the Prevention of Obesity and Non-Communicable Diseases, Research Unit, Fiji School of Medicine, College of Medicine, Nursing & Health Sciences, Fiji National University, Suva, Fiji Islands
Postal Address: C-POND, Research Unit, C/- Fiji School of Medicine, Private Mail Bag, Suva, Fiji Islands, Phone: +679 3311700, Fax: 6793233 328
Website: www.fsm.ac.fjwww.fnu.ac.fj
Control of blood sugar among adults aged ≥40 years with self-reported diabetes in Fiji

Garry Brian\textsuperscript{a,b,c}  
Jacqueline Ramke\textsuperscript{a}  
John Szetu\textsuperscript{a,d}  
Biu Sikivou\textsuperscript{d}  
Konstanze Fischer-Harder\textsuperscript{d}

\textsuperscript{a}The Fred Hollows Foundation New Zealand, Auckland, New Zealand. Corresponding Author: The Fred Hollows Foundation New Zealand, Private Bag 99909, Newmarket, Auckland 1023, New Zealand. Telephone: +64 9 304 0524, Fax: +64 9 379 7178. Email: grbrian@tpg.com.au. \textsuperscript{b}Dunedin School of Medicine, University of Otago, Dunedin, New Zealand. \textsuperscript{c}Population Health Eye Research Network, Brisbane, Australia. \textsuperscript{d}The Pacific Eye Institute, Suva, Fiji

Abstract

\textbf{Aim:} To examine glycaemia among adults with self-reported diabetes in Fiji, suggest a “satisfactory” control HbA1c threshold, and examine associations of “unsatisfactory” control.

\textbf{Method:} During a population-based cross-sectional survey, participants self-reported diabetes and had HbA1c determined.

\textbf{Results:} 222 (16.1\%) participants reported having diabetes, with HbA1c >8.0\% for 62.7\% and <6.5\% for 9.7\% of these. Mean HbA1c was 9.3±2.3\%; higher (t=10.02, p<0.0001) than for participants with previously undiagnosed diabetes (n=384: 7.6±1.8\%). More self-reported had HbA1c ≥10.0\% (p<0.00001) and >8.0\% (p<0.00001). Most self-reported were treated with oral antiglycaemics (62.6\%), insulin (3.6\%), a combination of both (2.7\%), or diet/exercise alone (23.9\%). On multivariate analysis, being Indian (compared with Melanesian: p=0.003), aged <50 years (≥70 years: p=0.021), from a paid employment income household (primary industry: p=0.021), and being diagnosed 5-10 years previously (more recently: p=0.019) were predictive of HbA1c >8\%.

\textbf{Conclusion:} Diabetes management was poor: self-reported participants had no better control than those newly diagnosed who were untreated. HbA1c <8.0\% may be an achievable “satisfactory” control target, accepting increased health risk to accommodate personal and health service realities. As evidence accumulates for the Fijian context, the control threshold and the benchmark proportion of achievement (perhaps initially set at 45\% as a service performance indicator) could be adjusted. (PHD 2012; Vol 18(2): p89-95)

\textbf{Key Words:} diabetes, Fiji, glycaemia control, HbA1c, Indian, management, Melanesian

Introduction

As for other developing countries, chronic non-communicable diseases, including diabetes, are becoming more prevalent in Fiji.\textsuperscript{1,2}

The care of those with diabetes was estimated to have consumed 6\% of Fiji’s total 1999 health budget.\textsuperscript{2} However, the true cost of diabetes and its complications are unknown. In addition to direct health care costs borne by individuals and the state, which include those associated with sending citizens overseas for treatments unavailable in country, there are indirect costs related to lost productivity and early mortality.

Fiji has a population of 837,300 people (240,700 aged ≥40 years: being 50.0\% female; 51.5\% indigenous Fijian, who are Melanesian; 42.6\% Indo-Fijian; 5.8\% other ethnicity; and 50.6\% rural dwellers). It has a medium Human Development Index rating, and is ranked 108 of 182 countries.\textsuperscript{3} As such, it can ill-afford an escalating cost burden for management of diabetes complications. Although as yet not calculated for Fiji, the cost-effectiveness of interventions targeting risk factors for development of complications—obesity, physical inactivity, high blood pressure, poor plasma lipid profile, increased thrombogenicity, and hyperglycaemia—would likely mean that implementation would help contain costs. This is in addition to the personal, family and community non-financial benefits of decreased morbidity and mortality.

This paper examines the management of one risk factor: hyperglycaemia. It reports HbA1c data from the Fiji Eye Health Survey 2009 (FEHS2009), compares the data for participants with self-reported diabetes with those for participants with previously undiagnosed diabetes, suggests an HbA1c threshold for “satisfactory” glycaemia control in the Fiji context, and examines the associations of poor control.

Methods

FEHS2009 was a population-based survey of the prevalence, causes and impact of vision impairment and blindness in Fiji, with particular emphasis on diabetes and diabetic eye disease, among the cohort most at risk, adults aged ≥40 years.
**Sampling plan**

The sample frame (188,800 people aged ≥40 years; 50.3% female; 49.4% Melanesian, 44.9% Fijian, and 5.7% of other ethnicity; 43.2% rural dwellers) included all eight provinces of Viti Levu, Fiji’s main island, where 79.1% of the population reside. Using an anticipated prevalence of vision impairment of 11% in the target population, absolute precision of ±2.2% (20% relative difference), with 95% confidence, a design effect of 1.4 and a response rate of 80%, the sample size was determined to be 1354 persons. From the sample frame, 34 clusters of 40 people were required. Across Viti Levu, the clusters were selected through probability proportionate to size sampling, using national census data.

**Pilot**

A pilot study was undertaken (40 participants from 2 clusters, representative of the population to be screened in the main survey) to refine and validate the enquiry, and investigate test-retest reliability. These data were not included in the final survey analysis.

**Enumeration**

A single survey team visited all clusters during September to November, 2009. Using a random process, the team leader identified the first household to be targeted in each cluster. Thereafter, consecutive households were approached and eligible people enumerated by trained local fieldworkers until the 40 participants for that cluster were enrolled. If an eligible person was absent, with no prospect of returning during the team’s time in the cluster, the absentee’s demographic and socioeconomic data were elicited from an available relative in the household or a knowledgeable adult in an adjacent household.

**Questionnaire and examination**

Enumerated residents amenable to participating attended a central facility, typically a community hall.

An interview-based questionnaire, developed in English, translated into Fijian and Hindi, and back translated to ensure veracity, was used to collect demographic, socioeconomic and health data.

Using a DCA 2000+ point of care analyser (Siemens/Bayer, Munich, Germany), glycosylated haemoglobin (HbA1c) was determined for each participant.

**Data analysis**

Data were de-identified and entered into a specifically designed database during the survey, with subsequent extensive but random checking for entry integrity. Prior to analysis, missing and outlier data were checked against the survey forms. Analysis was performed using PASW/SPSS Statistics 18.0 (SPSS Inc, Chicago, IL, USA) and OpenEpi 2.3 (www.openepi.com). Statistical significance was accepted at p<0.05.

**Ethical considerations**

The Fiji National Research Ethics Review Committee convened by the Fiji Ministry of Health approved this study and its methodology.

Consent was obtained from village chiefs prior to survey commencement in each cluster. Participants provided written acknowledgement of informed consent prior to data collection and examinations, including point of contact blood analysis. Communications occurred in English, Fijian or Hindi, depending on the participant’s preference. Referral to permanent health care services was organized for any participant requiring refraction and spectacles, ocular investigation or treatment, or management of diagnosed or suspected diabetes.

**Results**

Of the 1892 eligible people enumerated, 1381 participated (73.0%). However, 27.2% (139/511) of nonparticipants were from just 5 (14.7%) clusters. Most (63.6%) nonparticipants were not at home, with 39.7% (129/325) of these away for work. Immobility or illness prevented 5.5% (28/511) attending. Others refused to participate because their eye or vision problem was already being managed (2.3%) or because there was no perceived problem (1.6%).

**Figure 1: Distribution of glycosylated haemoglobin (Haemoglobin A1c %) for 217 adults aged ≥40 years who admitted a previous diagnosis of diabetes (Fiji, 2009)**

Of the 1381 participants, a previous personal diagnosis of diabetes made by a doctor was reported by 222 (16.1%). HbA1c was recorded for 217 of this group (Figure 1). Eleven (5.1%) had HbA1c ≥14.0% (14.0% being the underestimating maximum determination capable by the DCA 2000+ analyser). HbA1c >8.0%, 8.0-7.0%, <7.0% and <6.5% were recorded for 136 (62.7%), 40 (18.4%), 41 (18.9%) and 21 (9.7%) participants, respectively. Mean (±standard deviation) HbA1c for those participants with self-reported diabetes was 9.3±2.3% (Table 1). It was 9.6±2.2% if those with HbA1c <6.5% were excluded.
# Table 1: Mean glycosylated haemoglobin (Haemoglobin A1c %) of 217 adults aged ≥40 years who admitted a previous diagnosis of diabetes (Fiji, 2009)

<table>
<thead>
<tr>
<th>Participant characteristic</th>
<th>All</th>
<th>Melanesian</th>
<th>Indian</th>
<th>Other ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>mean (%)</td>
<td>SD</td>
<td>n</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melanesian</td>
<td>104</td>
<td>8.9</td>
<td>2.6</td>
<td>104</td>
</tr>
<tr>
<td>Indian</td>
<td>104</td>
<td>9.5</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>10.3</td>
<td>2.0</td>
<td>0</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>94</td>
<td>9.1</td>
<td>2.3</td>
<td>43</td>
</tr>
<tr>
<td>Female</td>
<td>123</td>
<td>9.4</td>
<td>2.3</td>
<td>61</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-49</td>
<td>39</td>
<td>10.4</td>
<td>2.3</td>
<td>21</td>
</tr>
<tr>
<td>50-59</td>
<td>81</td>
<td>9.4</td>
<td>2.3</td>
<td>34</td>
</tr>
<tr>
<td>60-69</td>
<td>64</td>
<td>8.7</td>
<td>2.3</td>
<td>30</td>
</tr>
<tr>
<td>≥70</td>
<td>31</td>
<td>8.6</td>
<td>2.0</td>
<td>17</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>8.4</td>
<td>0.3</td>
<td>2</td>
</tr>
<tr>
<td>Domicile</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>107</td>
<td>9.2</td>
<td>2.4</td>
<td>67</td>
</tr>
<tr>
<td>Rural</td>
<td>110</td>
<td>9.3</td>
<td>2.3</td>
<td>37</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal</td>
<td>37</td>
<td>8.7</td>
<td>2.2</td>
<td>13</td>
</tr>
<tr>
<td>Primary</td>
<td>106</td>
<td>9.3</td>
<td>2.3</td>
<td>47</td>
</tr>
<tr>
<td>Secondary</td>
<td>54</td>
<td>9.3</td>
<td>2.3</td>
<td>28</td>
</tr>
<tr>
<td>Tertiary</td>
<td>16</td>
<td>9.5</td>
<td>2.7</td>
<td>14</td>
</tr>
<tr>
<td>Unknown</td>
<td>4</td>
<td>11.9</td>
<td>1.4</td>
<td>2</td>
</tr>
<tr>
<td>Primary household income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid employment</td>
<td>109</td>
<td>9.3</td>
<td>2.3</td>
<td>64</td>
</tr>
<tr>
<td>Farming /fishing</td>
<td>77</td>
<td>9.1</td>
<td>2.3</td>
<td>20</td>
</tr>
<tr>
<td>Pension</td>
<td>28</td>
<td>9.5</td>
<td>2.4</td>
<td>20</td>
</tr>
<tr>
<td>No income</td>
<td>3</td>
<td>9.3</td>
<td>3.2</td>
<td>0</td>
</tr>
<tr>
<td>Regular checkups for diabetes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>175</td>
<td>9.4</td>
<td>2.1</td>
<td>72</td>
</tr>
<tr>
<td>No</td>
<td>40</td>
<td>8.8</td>
<td>2.9</td>
<td>31</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>10.0</td>
<td>5.7</td>
<td>1</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tablets</td>
<td>135</td>
<td>9.6</td>
<td>2.1</td>
<td>53</td>
</tr>
<tr>
<td>Insulin</td>
<td>8</td>
<td>9.9</td>
<td>1.8</td>
<td>1</td>
</tr>
<tr>
<td>Tablets and insulin</td>
<td>6</td>
<td>11.4</td>
<td>2.6</td>
<td>2</td>
</tr>
<tr>
<td>Diet and/or exercise</td>
<td>53</td>
<td>8.5</td>
<td>2.5</td>
<td>37</td>
</tr>
<tr>
<td>Herbal remedy</td>
<td>2</td>
<td>8.3</td>
<td>3.0</td>
<td>2</td>
</tr>
<tr>
<td>No Treatment</td>
<td>13</td>
<td>8.2</td>
<td>2.7</td>
<td>9</td>
</tr>
<tr>
<td>All</td>
<td>217</td>
<td>9.3</td>
<td>2.3</td>
<td>104</td>
</tr>
</tbody>
</table>

Original Papers Part 2
Health Professionals Education in the Pacific Vol 18 No. 2 2012

91
### Table 2: Predictors of HbA1c >8.0% among adults aged ≥40 years with known diabetes (Fiji, 2009)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>n^</th>
<th>%</th>
<th>Adjusted† Odds Ratio (95% Confidence Interval)</th>
<th>p value‡</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melanesian</td>
<td>48</td>
<td>50.0</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>Indian</td>
<td>67</td>
<td>71.3</td>
<td>3.61 (1.53-8.52)</td>
<td>0.003**</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>87.5</td>
<td>3.28 (0.31-34.90)</td>
<td>0.325</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>52</td>
<td>59.8</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>Female</td>
<td>70</td>
<td>63.1</td>
<td>1.26 (0.59-2.70)</td>
<td>0.555</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥70</td>
<td>15</td>
<td>50.0</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>60-69</td>
<td>28</td>
<td>49.1</td>
<td>0.59 (0.20-1.74)</td>
<td>0.337</td>
</tr>
<tr>
<td>50-59</td>
<td>49</td>
<td>66.2</td>
<td>1.83 (0.59-5.67)</td>
<td>0.298</td>
</tr>
<tr>
<td>40-49</td>
<td>30</td>
<td>81.1</td>
<td>5.39 (1.29-22.51)</td>
<td>0.021*</td>
</tr>
<tr>
<td><strong>Domicile</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>59</td>
<td>60.8</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>Urban</td>
<td>63</td>
<td>62.4</td>
<td>1.20 (0.48-3.00)</td>
<td>0.690</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal</td>
<td>17</td>
<td>53.1</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>Primary</td>
<td>60</td>
<td>60.6</td>
<td>1.55 (0.57-4.20)</td>
<td>0.390</td>
</tr>
<tr>
<td>Secondary</td>
<td>35</td>
<td>67.3</td>
<td>2.65 (0.74-9.51)</td>
<td>0.134</td>
</tr>
<tr>
<td>Tertiary</td>
<td>10</td>
<td>66.7</td>
<td>1.52 (0.29-8.05)</td>
<td>0.623</td>
</tr>
<tr>
<td><strong>Household income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing/farming</td>
<td>38</td>
<td>55.9</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>No income/pension only</td>
<td>16</td>
<td>61.5</td>
<td>3.76 (1.01-13.98)</td>
<td>0.048*</td>
</tr>
<tr>
<td>Paid employment</td>
<td>68</td>
<td>65.4</td>
<td>3.31 (1.20-9.18)</td>
<td>0.021*</td>
</tr>
<tr>
<td><strong>Relative with diabetes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>48</td>
<td>53.9</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>No</td>
<td>74</td>
<td>67.9</td>
<td>1.74 (0.62-3.69)</td>
<td>0.147</td>
</tr>
<tr>
<td><strong>Personal diagnosis made (years)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5</td>
<td>63</td>
<td>53.8</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>5-10</td>
<td>38</td>
<td>74.5</td>
<td>2.85 (1.19-6.84)</td>
<td>0.019*</td>
</tr>
<tr>
<td>&gt;10</td>
<td>21</td>
<td>70.0</td>
<td>1.76 (0.59-5.20)</td>
<td>0.309</td>
</tr>
<tr>
<td><strong>Regular diabetes check</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>43.2</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>Yes</td>
<td>106</td>
<td>65.8</td>
<td>1.40 (0.54-3.68)</td>
<td>0.491</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>5</td>
<td>41.7</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>Herbal medicine</td>
<td>1</td>
<td>50.0</td>
<td>9.49 (0.33-272.98)</td>
<td>0.189</td>
</tr>
<tr>
<td>Diet and/or exercise</td>
<td>22</td>
<td>44.0</td>
<td>1.10 (0.23-5.30)</td>
<td>0.903</td>
</tr>
<tr>
<td>Tablets and insulin</td>
<td>4</td>
<td>80.0</td>
<td>7.88 (0.42-148.02)</td>
<td>0.168</td>
</tr>
<tr>
<td>Insulin alone</td>
<td>6</td>
<td>85.7</td>
<td>4.47 (0.26-77.19)</td>
<td>0.303</td>
</tr>
<tr>
<td>Tablets alone</td>
<td>84</td>
<td>68.9</td>
<td>3.00 (0.61-14.72)</td>
<td>0.176</td>
</tr>
</tbody>
</table>

^ Multivariate analysis excluded 19 participants for whom one or more variables were unknown  
† Adjusted for ethnicity, gender, age, domicile, education, household income, whether a relative had diabetes, time since personal diagnosis of diabetes, whether had regular checkups for diabetes, and type of treatment for control of blood sugar  
‡ Significance accepted at p<0.05
Of the 1159 participants who denied a previous personal diagnosis of diabetes, HbA1c was not known for 28. Logistical difficulties at one cluster were responsible for 14 of these. The remainder were due to sporadic omission and analyser error (including sample anaemia).

Of the 1131 participants who denied a previous personal diagnosis of diabetes, but for whom HbA1c was recorded, 384 had diabetes (HbA1c ≥6.5%). Of these, 7 (1.8%) had HbA1c ≥14.0%. Mean HbA1c for participants with previously undiagnosed diabetes was 7.6±1.8%.

The mean HbA1c of those previously diagnosed was significantly higher (t=10.02, p<0.001) than that of the previously undiagnosed diabetes group. Also, there were significantly more individuals with HbA1c ≥14.0% (p=0.03), ≥10.0% (p<0.001), and >8.0% (p<0.001) in the previously diagnosed group. There was no difference for HbA1c 8.0-7.0% (p=0.05), but those in the previously undiagnosed group were more likely to have HbA1c 7.0-6.5% (p<0.001).

Of the 222 participants who admitted having diabetes, 139 (62.6%) were treated with oral antiglycaemics alone, 8 (3.6%) with insulin alone, and 6 (2.7%) with a combination of both. Diet and/or exercise were the only treatment for 23.9%. Herbal remedies were used by 2 people, and 14 (6.3%) claimed no treatment.

Regular checks for the management of their diabetes were reported by 179 (80.6%) participants, with the likelihood increasing with time since diagnosis (extended Mantel-Haenszel χ² for linear trend=7.98, p=0.005). However, only 81 (36.5%) said they had ever had a dilated ocular examination. This was not associated with greater time since diagnosis (extended Mantel-Haenszel χ² for linear trend=1.36, p=0.24). Regular checks were not significantly associated with an increased likelihood of dilated examination (OR 1.44: 95%CI 0.68, 3.16: p=0.35).

For participants with self-reported diabetes, on multivariate analysis, being Indian (p=0.003), aged <50 years (compared with ≥70 years: p=0.021), from a household with paid employment income (compared with those reliant on primary industry: p=0.021), and having been diagnosed with diabetes 5-10 years previously (compared with more recent diagnosis: p=0.019) were predictive of HbA1c >8% (Table 2).

Discussion

Data from the 511 nonparticipants were not included in this survey analysis. Compared with participants, nonparticipants were more likely to be male (p=0.001). However, gender was not predictive of high or low HbA1c for those with self-reported diabetes. Although ethnicity was predictive, the ethnic composition of participant and non-participant groups was not significantly different (χ²=3.50, p=0.17). Also, although being younger was associated with poorer blood sugar control (p=0.021), the difference of mean age (55.4±10.5 years and 53.1±10.1 years) for the two groups was unlikely to impact on the HbA1c data recorded. Additionally, the majority of reasons given for non-participation were unlikely to bias HbA1c data collected. Therefore, the data presented here concerning HbA1c are likely to be representative.

The utility of HbA1c for population screening has been demonstrated5, 6 and, with threshold of 6.5%, a role in diagnosis of diabetes increasingly advocated. Further, the DCA 2000+ analyser has shown good concordance with laboratory estimates of HbA1c, including when used for population-based screening in difficult conditions. However, for the current study, a limitation of using the DCA 2000+ instrument was its inability to measure HbA1c >14.0%. Although underestimating only 1.3% (18/1348) of the HbA1c readings, and having no impact on interpretation of the data concerning control of blood sugar, it will have influenced some of the mean HbA1c values reported.

The literature is replete with evidence and commentary concerning what constitutes “good” and “poor” control of blood sugar for those with type 2 diabetes. The aim of good control is minimization of risk for long-term vascular complications. “Tight” control of glycaemia, as evidenced by low HbA1c, is generally accepted as necessary to achieve this. But how tight does this need to be? What is acceptable to clinicians and patients is frequently modified by patient age, recent diagnosis, medication-related weight gain, and risk and consequences of medication-induced hypoglycaemia. In the best of circumstances, HbA1c <6.5% may be an appropriate criterion for good control. However, evidence that such tight control is more beneficial than harmful may not be as strong as previously accepted. When the management and financial impositions for the individual and the health system are considered, all the more burdensome in a developing country such as Fiji, then a case may be made for accepting a higher HbA1c upper limit. Depending on circumstances, this may be as high as 9.0% or even 10%. The proportions of diabetic participants with HbA1c above and below various thresholds are reported for this survey. These include HbA1c 8.0%, which has been used to determine the associations for control of blood sugar (Table 2). Hyperglycaemia producing HbA1c <8.0%, may be associated with a significantly lower risk of microvascular complications compared to that responsible for higher HbA1c. Glycaemic control to this threshold—already occurring for 37.3% of diabetic participants in the survey sample—may be achievable by most. Therefore, the authors suggest, until evidence...
of benefit/harm is available for the Fiji context (including of personal medical complications, and personal and societal financial and other burdens), that the HbA1c 8.0% be accepted as the threshold for satisfactory/unsatisfactory blood sugar control.

At the HbA1c 8.0% cut-point, being Indian (p=0.003) was predictive of unsatisfactory control (Table 2). So too was being younger (p=0.021); perhaps related to increased mortality with poorer control. Primary household income from paid employment was also associated with poor control (p=0.021); perhaps related to changes in level of physical activity and increased but poor food choices that may present with relative affluence. A pension or no household income was marginally associated (p=0.048); perhaps related to the decreased, poor food choices of poverty. Of itself, urbanization was not predictive of poor control (p=0.69). Although a positive family history for diabetes was previously found to be associated with hyperglycaemia in Fiji, the HbA1c on this occasion it was not (p=0.147). If glycaemia control is to be improved, education and services targeting those at greater risk may be an appropriate first step.

Although precision may have increased with a larger sample, there was no significant association between HbA1c and treatment with insulin and/or oral antiglycaemics (Table 2). However, there was a tendency for poorer control to be associated with medical treatments. Perhaps poorer control induced more aggressive but still insufficient treatment. Also, although 23.9% of those with self-reported diabetes claimed no treatment other than diet and/or exercise, there was essentially no difference (with respect to HbA1c>8.0%; OR 1.10; 95%CI 0.23-5.30; p=0.903) between this group and those receiving no treatment. These findings, the scarcity (2.7%) of combination pharmaceutical treatments, the high mean HbA1c (9.3±2.3%), and the infrequency (36.5%) of reported dilated ocular examination, indicate overall poor management of diabetes, despite 80.6% of diabetic participants claiming regular supervision of their disease by medical practitioners or nurses. Indeed, although severity of baseline hyperglycaemia may be different for the two groups, those with known diabetes had no better control of their blood sugar than those newly diagnosed by the FEHS2009 and as yet untreated.

Conclusion

If the cardiovascular and microvascular complications of diabetes are to be avoided, or their incidence and impact are at least to be mitigated, then management of diabetes, including of hyperglycaemia and other risk factors, will need to improve in Fiji. This is unlikely to be achieved by aiming for a perhaps unattainable and alienating glycaemia control goal such as HbA1c <6.5% for the majority of those with diabetes. Instead, initially, on the basis that any improvement in glycaemia control is beneficial, a higher, more achievable target—HbA1c <8.0%—could be accepted. Necessarily, this would tolerate increased health risk in order to accommodate the personal and health service realities in Fiji. As a health service performance indicator, the proportion achieving this could be set at, perhaps, 45%. Then, as evidence accumulates for the Fijian context, the threshold for “satisfactory” control and its benchmark proportion of achievement could be adjusted.

Acknowledgements

The design, implementation and analysis of the Fiji Eye Health Survey 2009 were financially supported by the New Zealand Agency for International Development (NZAID), the Australian Agency for International Development (AusAID), and The Fred Hollows Foundation New Zealand. The authors acknowledge the help of Sanya Baker, Louisa Semmons, Tom Schaefer, Carmel Williams, Losalini Tavaga, Louise Maher and the FEHS2009 survey team.

References


“I much prefer the sharpest criticism of a single intelligent man to the thoughtless approval of the masses.”

Johannes Kepler
Male Breast Cancer in Fiji – A Descriptive Study

Sonal Singh\textsuperscript{a}
Sheetal Nagra\textsuperscript{b}
Jitoko Cama\textsuperscript{c}

\textsuperscript{a}Dr. MBBS, MPH, Medical Officer and National Acting Epidemiologist, Ministry of Health-Fiji \textsuperscript{b} Dr. MBBS, PGDS, Surgical Registrar, Colonial War Memorial Hospital (CWMH), Suva. Correspondence: contact Dr Sheetal Nagra on email (sheetal.nagra@gmail.com), Medical Officer and National Acting Epidemiologist, Ministry of Health-Fiji. \textsuperscript{c}FRACS, MBBS, Senior Lecturer/Consultant Paediatric Surgeon, Fiji School of Medicine/CWMH.

Abstract

Objective: To describe the trends in epidemiology of adult male breast cancer in Fiji and compare with international trends

Method: During a population-based cross-sectional survey, participants self-reported diabetes and had HbA1c determined.

Study Design: Population based descriptive study of retrospective data over an 11 year period.

Results and Conclusion: Male breast Cancer (MBC) accounts for approximately 2\% of all breast cancers in Fiji over the past 11 years, which is twice the proportion from global trends of 1\%. The median age of diagnosis (59 years) in our study group was 7 years younger than that reported internationally. However, as with international studies, the most susceptible age groups for MBC in Fiji are the 65-69 age group. Adenocarcinomas, especially ductal carcinoma was the most common histological type seen with the majority being moderate to poorly differentiated cancer. Due to the poor record keeping and the unavailability of a centralized cancer registry, the outcomes of these patients were not available. It is evident that more awareness is required to encourage earlier presentation. (PHD 2012; Vol 18(2): p96-100)

Key Words: Male Breast Cancer, Ductal Carcinoma

Abbreviations: Surveillance Epidemiology and End Results Registry (SEER), Male Breast Cancer (MBC)

This paper was presented in the combine Pacifica Medical Association (PMA) and Fiji Medical Association (FMA) Conference held in Denarau, Fiji on 18th-20th August 2011.

Background

Male breast cancer (MBC) is a rare diagnosis and is often diagnosed late and therefore has a poor outcome. Other factors that contribute to its poor outcome include the small size of male breasts, the lack of awareness that males can also develop breast cancer and the poor health seeking behaviour of male patients. As in females, MBC is treatable with very good outcomes if detected and treated early. No data is currently available in the South Pacific including Fiji on MBC and this is a problem that needs to be addressed.

Methodology

Using the ‘Fiji Cancer Registry’, the number of cases of MBC’s were identified and the patients’ demographic details, hospital number (NHN), location, time of diagnosis and the tissue diagnosis were tabulated. Unfortunately, records of individual patients were difficult to obtain and therefore the study was severely hindered in terms of individual patient records and outcomes. Data was correlated with Patient Information System (PATIS) and death certificates for those that have died.

Results and Discussion

A total of 19 cases of male breast cancer (MBC) were diagnosed in Fiji over the past 11 years from January 2000 to December 2010 and therefore averaging 2 new cases of MBC per annum. The incidence of male breast cancer is ranging from 0.23 to 1.27 per 100,000 of the male population in Fiji.\textsuperscript{1} Comparatively, the incidence in Western countries such as the United States of America is about 1.06 per 100,000 which is similar to our experience in Fiji.\textsuperscript{2} The majority of these cases (5) were diagnosed in 2005 when the Ministry of Health (MOH) in Fiji took a different approach in preventing NCDs where government budgetary allocation alongside donor funding had been increased. These measures included more public awareness and outreach clinics which perhaps increased the diagnosis of male breast cancer.

Worldwide there is an increasing trend in males being diagnosed with breast cancer. Various reasons have been reported such as the trend of an aging population.\textsuperscript{4} Therefore, the most susceptible age groups are men in their sixth and seventh decade.\textsuperscript{5,10} However, in Fiji the age distribution of the cases ranges from as young as 40 years to those in the seventh decade at 79 years. Hence, the mean age at the time of diagnosis in our population was at 58 years and a median age of diagnosis of 59 years.
This trend showed that the median age of diagnosis in Fiji was 7 years younger when compared to international trends of between 65 - 67 years. At present we have not ascertained an explanation as to why Fijian males are prone to have MBC at an early age. The majority of cases were still diagnosed at the 65 - 69 age groups and this was comparable to the international trend. However, it is important to note that, there have been some case reports in the world literatures of elderly patients being diagnosed as late as 93 years of life. These are in contrast to those children diagnosed as young as 5 years who have different tumour pathologies as compared to adults.
Of these 19 cases, majority (17 cases) were adenocarcinomas. Most of these were invasive ductal carcinomas (7 cases). Of these 7 ductal carcinomas, 3 were papillary carcinomas and the remaining 4 were not specified (figure below). The remaining 10 cases of adenocarcinomas were histologically not specified as either ductal or lobular. There was one case of squamous carcinoma reported and one patient out of the 19 cases had a histological type which was not specified.

**Figure 4: Source - Cancer Card Registry, Health Information Unit, Ministry of Health**

In Fiji, over the past 11 years, among the 37% of cases where the grading was mentioned, 14% were well differentiated, 57% moderately well differentiated and 29% poorly differentiated i.e. 86% in grade II and III as per the Scarff-Bloom-Richardson grading. This was comparable to other studies which described 82% of cases in grade II or III. As with international trends, our study has shown a predominance of adenocarcinomas, especially ductal. The Surveillance Epidemiology and End Results Registry (SEER) of 2900 MBC, showed that 93.7% of male breast cancers are ductal, 2.6% are papillary, 1.8% are mucinous and 1.5% lobular. Similarly, in a population based study in the USA, of the 282 males, there were no cases of lobular or medullary carcinoma. Generally, Lobular carcinoma among males accounts for merely 1 to 2% as compared to 10-15% among females. This is due to the lack of terminal lobules in male breasts. We did not come across any case of lobular carcinoma over our 11 year study period. MBC have high rates of hormone receptor expression with about 90% expressing oestrogen receptor and about 80% expressing progesterone receptor. In our study, only one case of hormone receptor expression was reported and we could not establish a reason for this poor hormone receptor expression, apart from the possible unspecified reporting.

The single case of squamous cell breast carcinoma reported in 2000 in Fiji was unusual as primary squamous cell carcinoma comprises of <0.5% of all male and female breast cancers.

In Fiji, over the past 11 years, among the 37% of cases where the grading was mentioned, 14% were well differentiated, 57% moderately well differentiated and 29% poorly differentiated i.e. 86% in grade II and III as per the Scarff-Bloom-Richardson grading. This was comparable to other studies which described 82% of cases in grade II or III. As with international trends, our study has shown a predominance of adenocarcinomas, especially ductal. The Surveillance Epidemiology and End Results Registry (SEER) of 2900 MBC, showed that 93.7% of male breast cancers are ductal, 2.6% are papillary, 1.8% are mucinous and 1.5% lobular. Similarly, in a population based study in the USA, of the 282 males, there were no cases of lobular or medullary carcinoma. Generally, Lobular carcinoma among males accounts for merely 1 to 2% as compared to 10-15% among females. This is due to the lack of terminal lobules in male breasts. We did not come across any case of lobular carcinoma over our 11 year study period. MBC have high rates of hormone receptor expression with about 90% expressing oestrogen receptor and about 80% expressing progesterone receptor. In our study, only one case of hormone receptor expression was reported and we could not establish a reason for this poor hormone receptor expression, apart from the possible unspecified reporting.

The single case of squamous cell breast carcinoma reported in 2000 in Fiji was unusual as primary squamous cell carcinoma comprises of <0.5% of all male and female breast cancers.

In Fiji, over the past 11 years, among the 37% of cases where the grading was mentioned, 14% were well differentiated, 57% moderately well differentiated and 29% poorly differentiated i.e. 86% in grade II and III as per the Scarff-Bloom-Richardson grading. This was comparable to other studies which described 82% of cases in grade II or III. As with international trends, our study has shown a predominance of adenocarcinomas, especially ductal. The Surveillance Epidemiology and End Results Registry (SEER) of 2900 MBC, showed that 93.7% of male breast cancers are ductal, 2.6% are papillary, 1.8% are mucinous and 1.5% lobular. Similarly, in a population based study in the USA, of the 282 males, there were no cases of lobular or medullary carcinoma. Generally, Lobular carcinoma among males accounts for merely 1 to 2% as compared to 10-15% among females. This is due to the lack of terminal lobules in male breasts. We did not come across any case of lobular carcinoma over our 11 year study period. MBC have high rates of hormone receptor expression with about 90% expressing oestrogen receptor and about 80% expressing progesterone receptor. In our study, only one case of hormone receptor expression was reported and we could not establish a reason for this poor hormone receptor expression, apart from the possible unspecified reporting.

The single case of squamous cell breast carcinoma reported in 2000 in Fiji was unusual as primary squamous cell carcinoma comprises of <0.5% of all male and female breast cancers.
late stages of III and IV. As with our male population in a developing country, they often present late for medical attention which is often attributed to their health seeking behaviour and is linked to psychosocial impact of a condition that is largely considered to be feminine. There is generally a lack of awareness in the community about males developing breast cancer. Hence there is a need to enhance their knowledge on this disease and the consequences of presenting late for medical attention.

Fiji is expected to report about 800 to 1,600 new cases of cancer per year based on trends estimated in developing countries. However, over the past 15 years (1995-2009) based on the Cancer Registry in Fiji, only about 500 cases of cancer are reported annually, suggesting some degree of under-reporting or patients failure to seek medical attention. As a result, this could also influence the under-reporting and estimations of male breast cancer. Efforts to improve the accuracy of incidence figures in 2010 involved the expansion of data sources for cancer e.g. using death certificates and the Patient Information System (PATIS) with various limitations due to improper documentations or wrong diagnosis. A nationwide cancer registry that is accessible by all the doctors in Fiji to identify and document all cancer patients would improve the data available about cancer patients.

Conclusion

The trend of male breast cancer in Fiji appears twice as high as global statistics accounting for 2.18% of all breast cancers per annum. Furthermore, the median age of diagnosis in Fiji is about 7 years earlier than that reported globally. Ductal Adenocarcinoma is the most common histological type with the most susceptible age groups between 65-69 years, which is similar to other reports. The majority of MBC cases present late with histological grading of II and III. Therefore creating awareness about the burden of illness from breast cancer in males in the community will encourage earlier presentation with better treatment outcomes. This descriptive study presents scope for future operational research in particular treatment options tailored for the male population rather than depending on results of studies extrapolated from female subjects. However, an improvement with our patient’s records is paramount to any follow up study on MBC. Improvement of the input of data into PATIS and introducing a complete cancer registry is deemed necessary.

Reference

3. Ministry of Health Annual Report, 2005

8. Mouna Bourhafour, Rhizlane Belbaraka, Amine Souadka, Hind M'rabet1, Fouad Tijami and Hassan Errihani; Male breast cancer: a report of 127 cases at a Moroccan institution. BMC Research Notes 2011, 4:219


10. Ministry of Health Annual Report 2009


15. Mission Report on Training on Cancer Registration for the Pacific, Brisbane, Australia, 3-7 May 2010

“I have no special talent. I am only passionately curious.”

Albert Einstein
Preparation For Emerging Infectious Diseases: A study from the Solomon Islands

Margaret Aota Soma a
John D Vince b

Abstract
Adequate planning for the prevention, control and management of emerging infectious disease and disease outbreaks is an important function of National Health Services. Infection control practice is an integral part of such planning. This study aimed to determine the current state of preparedness for emerging infectious diseases of the Ministry of Health and Medical Services and hospitals, and to assess nurses’ perception and practice of infection control.

The study utilised questionnaires, in depth interviews and direct observation to obtain quantitative and qualitative data. The overall understanding and utilisation of Infection Control Practices was assessed as good. This was probably the result of the effort made in training of infection control staff, and holding workshops and training courses.

Lack of specific budget allocation for preparedness planning was identified as a constraint. Nursing managers noted the need for coordination and communication with other ministries and departments involved in the “Whole Society” approach to preparedness for disease outbreaks.

Preparedness plans should be revised and regularly updated. Continuous training and monitoring of health workers are required to maintain the high level of infection control practices. (PHD 2012; Vol 18(2): p101-107)

Key Words: Emerging Infectious Diseases, Disease Outbreaks, Preparedness

Introduction
Emerging diseases “include outbreaks of previously unknown diseases or known diseases whose incidence in humans has significantly increased in the past two decades. Re-emerging diseases are those that have reappeared after a significant decline in incidence”.

The definition encompasses increase in geographic range as well as incidence. Emerging Infectious Diseases (EIDs) are “a significant burden on global economies and public health” and pose a “continuing threat to all persons, regardless of age, sex, lifestyle, ethnic background, and socioeconomic status, causing suffering and death and imposing financial burdens on society”.

Some emerging infectious diseases are the result of importation of pathogens into a previously unexposed population. Some are zoonotic, and rely on animal populations as reservoirs of infection. Many are caused by pathogens that are already present in the environment and which are presented with the opportunity of infecting new hosts as a result of changing environmental and socioeconomic conditions. Increasing intranational and international travel, extensive deforestation and irrigation works, the neglect of insect and vector control programs, and human behavioural factors contribute to the increasing risk of emerging infectious diseases.

Examples of emerging infectious disease over the last 50 years include acquired immunodeficiency syndrome (HIV/AIDS), Lyme disease, HINI influenzae, SARS, and hantavirus pulmonary syndrome. The development of drug resistance in previously sensitive organisms such as malaria, tuberculosis, Staphylococcus aureus, Pneumococcus and gram negative organisms pose even greater threats.

Emerging and epidemic-prone diseases pose serious public health threats in the Western Pacific Region. Over the past years, the region has experienced significant outbreaks of newly emerging diseases, including Nipah virus, severe acute respiratory syndrome (SARS) and avian influenza. Outbreaks of known communicable diseases such as dengue, meningococcal infection, typhoid fever, cholera and leptospirosis continue to occur regularly in the region.

The first reported outbreak of cholera in Papua New Guinea in 2010 sharply focussed attention on the preparedness of the health systems in Papua New Guinea and its neighbouring countries to deal with disease outbreaks.

Solomon Islands is a near neighbour to Papua New Guinea, sharing a border, with regular movement of people between the countries by air and sea. It is an island nation of some 515,870 citizens in the South Pacific Ocean that occupies an archipelago of six main islands and 986 smaller volcanic islands, coral atolls and reefs. The capital city, Honiara, is situated in the largest island.
of Guadalcanal. Eighty five percent of the population live inland in isolated rural villages or on underdeveloped outer islands where transportation is difficult and accessibility to health services is limited. The health care facilities within the country include the National Referral Hospital, Provincial Hospitals, Area Health Centres, Rural Health Clinics and Village Aid Posts. Whilst the Ministry of Health and Medical Services (MHMS) is the major provider of health services, Church Health Services and Non-Government Organizations (NGO) also make significant contributions.6

Public health systems must be prepared for the unexpected. The MHMS has stated that “Embracing a Public Health vision will enable the Ministry of Health to deal with the changing disease patterns in the country. The Public Health vision focuses very much on improving and strengthening the National prevention and control programs embedded under the Health Improvement Banner.”5

The aim of this study was to determine the preparedness of the Solomon Island Health Service and its health workers for prevention, control and containment of disease outbreaks.

The objectives were to:

1. assess the programs and functions that are carried out by the Ministry of Health and Medical Services in preparedness for emerging infectious diseases.
2. assess health workers’ level of knowledge and understanding of infection control practices.
3. determine nurses and nurse managers’ perception of infection control practices and protocols.
4. determine organizational factors that affect the public health programs in the MHMS in its preparation for emerging diseases.
5. work with parties concerned and make recommendations for improving and strengthening preparedness and emergency plans for emerging and epidemic-prone diseases.

Methods

The research conducted from 18th July to 30th September 2011 was a descriptive study focused on two areas of the health services, the Ministry of Health and Medical Services and the Hospital setting, using quantitative and qualitative methods. The National Referral Hospital (NRH) in Honiara and one provincial hospital, Gizo Hospital, in the Western Province were the hospital sites.

The methods included participatory observation, self-administered questionnaires, and in-depth interviews. Data was collected using pretested questionnaires.

Quantitative Approach.

Two sets of self-administered questionnaires used closed and open ended questions. One explored knowledge of infection control practices and hospital infection control policies among nursing staff at NRH and Gizo Hospitals. The other, designed for managers within the MHMS and hospitals explored organizational service factors. The questionnaire responses included categorical variables (simple Yes/No and very good/good/poor responses) and fill in responses. A space for comments was included. Participants were given a week to fill in the questionnaires. Forms were collected and checked for completeness.

Qualitative Approach

a. Participatory observations in the workplace (NRH and Gizo Hospitals)

The researcher was a member of staff of NRH. Staff were not aware of the study. During one week in each hospital prior to the issuing of questionnaires and interviewing, the researcher unobtrusively observed and recorded infection control practices (ICP) in various departments. Checklists were used without the health workers knowledge at the beginning and end of shifts.

b. In-depth Interviews

Interviews were carried out with key informants - managers and supervisors whom the researcher assumed to have good knowledge of the local situation. Open-ended structured and unstructured questions were used to obtain understanding of the organization’s functions and preparedness for emerging diseases. Participants were informed two days in advance of the purpose, timing and place of interview. Responses were recorded using audio tape and hand written notes.

Study Sites

The study was conducted in three different areas to give an overview of preparedness; the MHMS, NRH and Gizo Hospital. Gizo hospital was chosen because of its recent experience with disasters (Tsunami, 2007). It is also near to the border with Papua New Guinea and is a tourist destination for international travellers.

Sample Size for self-administered questionnaire survey

The 200 participants were health care workers (Managers, Supervisors, Nurses and Nurse Aides) from the departments in NRH, Gizo and the MHMS. Sampling was stratified according to the health workers’ occupation and department. The “lucky pick” method was used with names being drawn from a container.

Sampling for the In-depth interview

Purposeful sampling was used in the selection of participants to be interviewed. Among the 30 managers five were selected on the basis of their knowledge of the local situation. They were also thought to have a good understanding of the organization in terms of Policies, Standard Operation Guidelines, Preparedness Plans and other functions within the Ministry of Health and Medical Services and the Hospital Settings.
Data Recording
The participatory observation made in each department/unit were summarised using a checklist. Quantitative data from the questionnaires was recorded on a master sheet.

Data Analysis
Quantitative Data
Quantitative data was processed using Microsoft Excel. Answers for questions on knowledge and understanding of infection control practices were compared with the expected answers and were categorized as very good, good or poor. (For example; for the question “What are the five moments of hand washing?” 5 correct responses was classified as very good, 4 as good). For each question a score of 2 was given for a very good response, 1 for a good response and 0 for a poor response giving a total maximum score of 16.

Qualitative Data
Qualitative data from in-depth interviews was translated into research notes. These were then coded into themes, and subsequently into categories.

Ethical Consideration
Ethical clearance was obtained from the following institutions before commencement of the study:
• University of Papua New Guinea School of Medicine and Health Sciences Research Committee.
• National Health Research and Ethics Committee of the MHMS of the Solomon Islands.
• Chief Executive Officer of NRH and the Head of Table 1: Total number of participants from each study site.

<table>
<thead>
<tr>
<th>Site</th>
<th>Number of participants</th>
<th>Managers</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHMS</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>NRH</td>
<td>170</td>
<td>20</td>
<td>150</td>
</tr>
<tr>
<td>Gizo Hospital</td>
<td>25</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>30</td>
<td>170</td>
</tr>
</tbody>
</table>

Departments within the MHMS gave verbal approval as soon as they saw the certificate of approval.
• Director of Gizo Medical Services gave verbal approval on 30th of August before commencement of study in Gizo Hospital.

Consent and Confidentiality
All participants signed a consent form. In order to maintain confidentiality areas in which interviews were conducted are not identified. Participants were assured that the study would not affect them in any way but would help future researches and help in improving policies.

Results

Participatory Observation
The majority of the nurses at Gizo and at NRH demonstrated a high level of work performance with good infection control practices. Alcohol hand wash gel was available in each of the wards in NRH and was also available on the ward round trolleys. Although not included in the “Five Moments of Hand Hygiene”, alcohol hand wash was used frequently by the majority of nurses and doctors in NRH.

Self-Administered Questionnaires
The number of participants and their role is shown in Table 1

Knowledge of Infection Control Practices
The results of the survey on knowledge of infection control practices at NRH and Gizo Hospitals is shown in Table 2. Five (25%) of the 20 nurses at Gizo obtained a perfect score of 16, 11 a score between 12-15 and 4 scored between 9 and 11. One hundred twenty seven (85%) of the 150 nurses at NRH had a perfect score, 10 had a score of between 12-15 and 13 a score between 8-11.

Knowledge of Infection Control Policies
The nurses’ knowledge of hospital infection control policies is shown in Table 3.

Almost all nurses at NRH were aware of the infection control manual- a copy of which was available on each ward - and were aware of emergency plans, isolation facilities and the availability of Personal Protective Equipment (PPE). In Gizo hospital the only copy of the Infection Control Manual was kept in the Infection control office and was not readily available. As at NRH, Nurses at Gizo were aware of the emergency plan, isolation facility and availability of PPE.

Evaluation of Service Factors by Managers
All 30 managers reported a satisfactory situation in regards appropriate committees for ensuring preparedness for outbreaks, availability of preparedness policies and guidelines, policies for reporting infectious diseases, and training programmes. Thirteen (43%) indicated that pathology services were unreliable and 10
Table 2. Knowledge of Infection Control Practices. Number and proportion of nurses obtaining the maximum score for each of the questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Gizo Hospital (20)</th>
<th>National Referral Hospital (150)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>5 moments of Hand washing</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>Chain of Infection</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Care for Infectious Patients</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>Prevention of Spread of Infections</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>Difference between Infectious Disease and Common Infections</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>Disposal of Hospital Waste</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>Colour coding of Waste Bins</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Availability of Personal Protective Equipment and knowledge of how to use it</td>
<td>17</td>
<td>85</td>
</tr>
</tbody>
</table>

Table 3. Nurses Knowledge about Infection Control Policies

<table>
<thead>
<tr>
<th>Question</th>
<th>Gizo Hospital (20)</th>
<th>National Referral Hospital (150)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Availability of Infection Control Manual</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Infection Control Manual available for reading</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Emergency Plan for ID outbreak</td>
<td>19</td>
<td>95</td>
</tr>
<tr>
<td>Availability of Isolation Room</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Availability of Personal Protective Equipment</td>
<td>19</td>
<td>95</td>
</tr>
<tr>
<td>Provision of Personal Protective Equipment by Nurse Managers.</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

indicated that these services were inadequate. Twenty six (87%) felt that preparedness was inadequately financed and 10 indicated the need for updating the current preparedness policy.

In Depth Interviews
Five managers were selected, 1 from Gizo, 2 from the NRH and 2 from the Ministry of Health and Medical Services. Data was analysed and converted into themes. The important issues, with some illustrative quotes from participants are summarised as follows:

- A written plan for EID preparedness was available in draft and needed to be tried or tested for its effectiveness. “A written plan is in place but needs to be tried or tested before it can be used in every day work” (manager)
- Health promotion measures were integrated into the existing structures and process of the organization for EID preparedness.
- There was a document in place – a guideline for pandemic preparedness according to IHR 2005 - that can be used for EID preparedness. The document was published during the swine flu outbreak in 2007/2008.
- There was a preparedness team in the hospital settings and within the MHMS and these included stakeholders from other Ministries such as Agriculture, Civil Aviation, Customs and Immigration, and Quarantine and Works Departments.
- Preparedness initiatives and decisions by managers were communicated to the general members through minutes, emails and regular meetings. “The decisions are made during the committee meetings and communicated through emails to the general members” (Manager)
- A surveillance system was in place which was capable of detecting a disease outbreak “We establish syndromic surveillance to 7 identified sentinel sites including the provinces to monitor the trend of influenza like illnesses and with that weekly report are sent to the MHMS surveillance coordinator. Any change in the trend can be picked up by this system”. (Manager)
- Financing for EID was uncertain because there was no clear budget allocation from the MHMS. “There is no clear budget for EID from the MHMS, with the human resources we have a preparedness team in place consisting of health care workers and other stake holders from other ministries and departments.”(Manager, interviewee No. 3)
- Monitoring of infection control practices, workplace health and safety measures including environmental cleaning and health promotion measures were done by the Infection Control team and the manager for each ward/department.
• A Pathology laboratory is available and reliable but it needs more space and equipment to function better. "The laboratory is very small to use for disease outbreaks and is not very reliable for emerging infectious disease. We need a bigger laboratory if we were to prepare for such disease occurrences". (Manager)

• Procurement of pharmaceutical and non-pharmaceutical protective measures was done by the National Medical Store (NMS) in the country.

Discussion

Developing countries face major challenges in preparing for disease outbreaks and mortality and morbidity are likely to be high. Adequate and successful response at health facilities depends on awareness of health workers on disease prevention and control, the availability of adequate materials and equipment to protect themselves, and an adequate supply of appropriate pharmaceutical and other treatment necessities. Public Health responses include education of the communities, provision of safe water and sanitation, surveillance and documentation and linkage with clinical services.

Gizo Hospital, near the border of PNG is at high risk of cross border transmission of infections. This was highlighted when in June 2011, a suspected case of cholera presented to the hospital. The attention to and scaling up of preparedness for prevention and control of a possible cholera epidemic drove health administrators and health care workers to re-assess their infection control guidelines and standards. A workshop on cholera for the health care workers conducted in Gizo by a World Health Organization (WHO) representative based in PNG greatly helped in identifying the weaknesses in, and consequently the strengthening of, infection control practices and policies. The imminent opening of a new Gizo hospital provided a focus for these improved practices and policies. Whilst only 5 nurses obtained a perfect score in the assessment of knowledge of infection control practices, 16 of the 20 nurses scored a perfect or good score overall. Knowledge was poorest in the area of waste disposal, Knowledge of the chain of infection appeared poor and knowledge of the five moments of hand washing was disappointing with only 12 of the 20 demonstrating very good knowledge in this area. Although the hospital had an infection control manual it was not readily available to the nursing staff.

Observation of nurses in the wards revealed good hand washing techniques in most instances and nurses tried to maintain aseptic techniques when doing dressings. PPE was available and used appropriately. Hospital waste was disposed by incineration. Thus, whilst the situation in Gizo was certainly reasonable, there was still room for improvement.

At NRH 127 (85%) of the 150 nurses that participated in the study had a perfect score and 137 (91%) a perfect or good score for knowledge of infection control practices. This was almost certainly due to the number of training sessions and workshops carried out by the infection control officer in NRH. The NRH infection control nursing staff are sent abroad for work attachment. This provides motivation and skill in improving practices within the local hospital settings. In addition to general issues of infection control other training workshops, for example on cholera and swine flu preparedness, are held. Importantly also an infection control manual is available in each ward.

Direct observations confirmed that the majority of the nurses working in NRH were practicing very good ICP measures. These included proper hand hygiene technique, segregation and proper disposal of hospital wastes and wearing of PPE. Alcohol hand wash was widely available in the wards and on ward trolleys and was regularly used by nursing and medical staff. Posters dealing with hand washing and segregation of hospital waste were also in each ward.

All 30 managers reported having the guidelines and policy for EID. The document was produced in 2007/2008 in line with International Health Regulation for EID preparedness. The plan had been tested once as a table top exercise to identify gaps in the plan. Managers indicated the need for improvement and strengthening especially in the areas of translating strategic into operational plans. It was apparent that there was little or no involvement or communication with the essential sectors like water, energy, food, transport and other private businesses that are required for Whole Society readiness.

The availability of funding for EID was unclear. In particular there was no budget allocation specifically for emerging disease preparedness. Whilst a pathology laboratory and some services were available at NRH current space was inadequate to house and operate all its diagnostic equipment. Some tests were only available in international laboratories.

The MHMS had a preparedness committee in place chaired by the Undersecretary for Health Improvement and providing the focal point for the reporting of any disease. The committee had representatives from Ministry of Agriculture and Live Stock, Customs and Immigration, Civil Aviation, Quarantine, Works Department, Ministry of Police and Justice and Fire Services responsible for implementing the plan in their respective workplace environment. Within the MHMS, there was a team of nurses and doctors called the front liners trained to perform specific tasks in the event of threat of emerging diseases. This team was in active
operation when, in September 2011, the chairman was notified that a member of the returning Solomon Islands South Pacific Games contingent was suspected to have swine flu. The front liners team was subsequently dispatched to the airport and did mass screening of all the arriving athletes.

Training on infection control practices and prevention including how to wear PPE for personnel from the different stakeholders mentioned was being carried out by the infection control team from NRH. It included a cholera workshop organized by the NRH Hospital Emergency Operation Committee in September 2011 with funding from the World Health Organization (WHO). All stakeholders’ representatives attended with health care workers from other provincial hospitals.

A surveillance system based on syndromic diagnosis was in place at 7 sentinel sites throughout the Solomon Islands.

The present study has shown that the measures put in place by the MHMS and hospitals appear to have resulted in a high level of preparedness by health institutions and staff. The state of preparedness at the NRH appears very high. That at Gizo was lower and this indicates the need for ensuring that policies and practices initiated centrally are carefully expanded to the Provinces and are regularly reviewed and reinforced.

Improved awareness of the need and the requirements for preventing, controlling and managing disease outbreaks lead to improved routine clinical and public health outcomes. Improved ICP in health facilities reduce nosocomial infection whilst improved public health measures such as improving the community understanding of the need for safe water, safe disposal of faeces and waste, and appropriate health seeking behaviour can be expected to reduce the prevalence and severity of common infectious diseases.

The study had a number of limitations. Health care workers within the hospital settings had recently gone through training on infection control practices. The good results obtained from the questionnaire survey were thus not unexpected. Some questions were not answered properly, possibly as a result of misunderstanding, misinterpretation, or reluctance to provide an honest answer. The topic of the study was broad but most of the information collected was on the practice of infection control by health care workers within hospital settings and less was collected on the factors affecting the functions of the Public Health Sections of the MHMS. However information collected through in depth interviews with managerial staff provided insight into these areas.

**Conclusions and Recommendations**

In its publication Asia Pacific Strategy for Technical Papers on Emerging Diseases WHO states that, “establishing of effective IPC practices in health care is essential for reducing the transmission of EIDs to health care workers, patients and their families and the community”, and that in order to increase compliance with ICP, especially during an outbreak, “basic infection prevention and control (IPC) capacity- building is fundamental”. It is clear from the study that the MHMS has put considerable effort into establishing effective IPC strategies and in capacity building within its workforce. However there is still a need for improvement and strengthening especially in the areas of translating all strategic plans into operational plans, and coordination of all organisations involved in the “Whole Society” readiness or planning.

In planning for continuing preparedness the following principles should be followed:

- The Preparedness Plan should be revised and regularly evaluated and updated
- Preparedness planning activities require specific budget allocation
- Continuous training and monitoring of health care workers on infection control practices will be necessary to maintain adequate infection control within the hospital and work environments.
- Pathology Laboratory services should be equipped to provide the services necessary to diagnose and control emerging infectious diseases and disease outbreaks.

**References**

4. Centre for Disease Control, Preventing Emerging Infectious Disease 1998 8http://www.cdc.gov/mmwr/preview/mmwrhtml/00054779.htm (accessed September 2011)


Glossary of Acronyms

AIDS Acquired Immunodeficiency Syndrome
EID Emerging Infectious Disease
HIV Human Immunodeficiency Virus
IPC Infection Prevention and Control
IHR International Health Regulation
NIAID National Institute of Allergy and Infectious Diseases
NIH National Institutes of Health
NGO Non-Government Organisation
NMS National Medical Store
NRH National Referral Hospital
MHMS Ministry of Health and Medical Services
MOH Ministry of Health
PPE Personal Protective Equipment
SARS Severe Acute Respiratory Syndrome
WHO World Health Organization

“Laughing is the best medicine but if you are laughing for no reason, you need medicine”

Anonymous
The Attitudes and Practices of Tobacco Smoking Among Students of a Medical Training Institution in the Pacific.

Elizabeth Rodgers
College of Medicine, Nursing & Health Sciences, Fiji National University.

Abstract
Anti-tobacco campaigns have been in the forefront of the battle against smoking and NCDs in the last decade. This article is a brief survey using the global health professional students' survey questionnaire to determine the attitudes and practice of health professional students in the Pacific with regards to tobacco smoking: with the view to identify areas to focus on within the medical profession. (PHD 2012; Vol 18(2): p108-111)

Introduction
The medical literature has many references to the ill effects of tobacco smoking and tobacco exposure, with it being a well-recognised risk factor for non-fatal myocardial infarction\(^1,2\) and in lower respiration tract infections in children.\(^2\) Frieden and Bloomberg\(^3\) call it the “leading agent of death” in man. In fact the burden of disease attributed to tobacco is so great that the Lancet NCD Action Group in a paper to the UN High Level Meeting this year states that tobacco control and the reduction of salt intake are the most cost effective interventions for the reduction in disease burden of non-communicable diseases.\(^4\)

The role of the doctor in advocating against smoking is clear, but the prevalence of smoking in doctors differs little from the wider community in some countries .\(^5\) However, in an editorial citing studies in the early 1990’s, Crofton report that the levels among medical students to be disturbing.\(^6\) A more recent study, the global health professions students’ survey (GHPSS) in 2009 also confirms such alarming rates.\(^7\) Whilst the GHPSS for Fiji showed a prevalence of smoking in third year medical students to be an overall rate of 11%, the sample size was small and may not reflect that of the whole student body. This study was performed to confirm the prevalence (noting that students tend to give a lower estimate of smoking using self-reporting questionnaires); the student characteristics and also to suggest ways for tobacco control within the institution.

The methodology used had a secondary purpose to raise awareness of the responsibility of future health care professionals in tobacco control.

Method
An opportunistic sampling method was used where the programme coordinators of all the programmes offered by the Fiji School of Medicine (of the Fiji National University) and the students association were requested to administer the global health professional students’ survey questionnaire to all the students of the Semester 1, 2011 cohort. All returned questionnaires in the first semester were collated using the programme EpInfo and presented in tabular form.

Results
Sample Size
The total number of possible respondents was 1082 of which 418 were students within the MBBS programme; 504 allied health students and 160 public health students. Of these, 716 were from Fiji and 366 from other Pacific island countries. Females make up 60% and males 40%. Seven hundred and sixty four (764) were either first or second year students, comprising 70% of the totals.

The total number of returned questionnaires was 512 giving a sample size of 46% of the total possible responses. Of these 307 were students within the MBBS programme comprising 60% of the total sample. Only 205 allied health science students responded comprising 40% percent of the sample. There were no respondents from Public Health students. Of the 512 respondents, 84% were between 19 and 24 years of age, as the college has high school entrants into the undergraduate programmes. The demographic details of the students are representative of and proportionate to the sample population.

Prevalence of Tobacco Smoking
Data on the prevalence of cigarette smoking is shown below; other forms of tobacco consumption are negligible.

The survey showed that of the 511 respondents, 53% had tried smoking; 63.5% of these before eighteen years of age, the average age for entry into university. There was a greater male to female ratio but the difference was not significant.
Table 1: The prevalence of smoking in the sample.

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>MBBS</th>
<th>Allied Health</th>
<th>All</th>
<th>Sample Pop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tried smoking</td>
<td>154 (50%)</td>
<td>118 (58%)</td>
<td>272 (53%)</td>
<td>511</td>
</tr>
<tr>
<td>Smoked in past month</td>
<td>59 (19.2%)</td>
<td>36 (17.6%)</td>
<td>95 (19%)</td>
<td>512</td>
</tr>
<tr>
<td>Currently Smoked</td>
<td>19 (3.7%)</td>
<td>12 (2.3%)</td>
<td>31 (6%)</td>
<td>507</td>
</tr>
<tr>
<td>Stopped smoking less than 1 month ago</td>
<td>29 (5.7%)</td>
<td>16 (3.1%)</td>
<td>45 (8.8%)</td>
<td>507</td>
</tr>
<tr>
<td>Do not wish to stop smoking now</td>
<td>8 (1.5%)</td>
<td>8 (1.5%)</td>
<td>16 (3%)</td>
<td>508</td>
</tr>
<tr>
<td>Smoked within school premises</td>
<td>45 (14.6%)</td>
<td>15 (7%)</td>
<td>60 (12%)</td>
<td>512</td>
</tr>
<tr>
<td>Cigarette Exposure in place of residence in past week</td>
<td>151 (49%)</td>
<td>95 (46%)</td>
<td>246 (48%)</td>
<td>511</td>
</tr>
<tr>
<td>Cigarette Exposure outside place of residence in past week</td>
<td>220 (72%)</td>
<td>115 (65%)</td>
<td>335 (66%)</td>
<td>510</td>
</tr>
</tbody>
</table>

Overall, 19% of students had smoked cigarettes in the last month but only 6% admitted that they currently smoked, although the survey was unable to determine any reason for this. Forty five (8.8%) of students who had smoked cigarettes reported to have stopped less than a month ago. However 3% of the students who currently smoke had no intention of ceasing at this time.

Table 2: Attitudes towards smoking

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>MBBS</th>
<th>Allied Health</th>
<th>All</th>
<th>Sample Pop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of existence of policy banning smoking in school and clinics</td>
<td>300 (98%)</td>
<td>187 (92%)</td>
<td>487 (95%)</td>
<td>509</td>
</tr>
<tr>
<td>Agree that Smoking ban policy is not enforced</td>
<td>96 (19%)</td>
<td>40 (7.9%)</td>
<td>136 (26.9%)</td>
<td>504</td>
</tr>
<tr>
<td>Smoked in school premises in last year</td>
<td>45 (27%)</td>
<td>15 (9%)</td>
<td>60 (36.3%)</td>
<td>165</td>
</tr>
<tr>
<td>Agree on ban of tobacco sales to less than 18 years olds</td>
<td>282 (92%)</td>
<td>180 (88%)</td>
<td>462 (90%)</td>
<td>510</td>
</tr>
<tr>
<td>Agree on a complete ban on tobacco advertising</td>
<td>259 (84%)</td>
<td>151 (75%)</td>
<td>410 (80%)</td>
<td>509</td>
</tr>
<tr>
<td>Agree for smoking ban in restaurants</td>
<td>297 (97%)</td>
<td>191 (94%)</td>
<td>488 (95%)</td>
<td>511</td>
</tr>
<tr>
<td>Did not agree for smoking ban in discos/bars</td>
<td>79 (15.5%)</td>
<td>69 (13.5%)</td>
<td>148 (29%)</td>
<td>509</td>
</tr>
<tr>
<td>Agree for smoking ban in enclosed public places</td>
<td>297 (97%)</td>
<td>191 (94%)</td>
<td>488 (95%)</td>
<td>511</td>
</tr>
</tbody>
</table>

Second-hand smoking is a greater issue with 48% of the respondents exposed to cigarette smoking in areas where they lived and 66% exposed in areas outside where they lived.

Knowledge; Attitudes and Practice.

Raw data reflecting on the attitudes of the students toward smoking are shown in the tables:

Table 3: Student attitudes on tobacco cessation

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>MBBS</th>
<th>Allied Health</th>
<th>All</th>
<th>Sample Pop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>That cessation training techniques should be taught</td>
<td>298 (98%)</td>
<td>196 (97%)</td>
<td>494 (97%)</td>
<td>507</td>
</tr>
<tr>
<td>Cessation counselling is taught in the school</td>
<td>79 (15.7%)</td>
<td>67 (13.3%)</td>
<td>146 (29%)</td>
<td>503</td>
</tr>
<tr>
<td>That health professionals should serve as role models</td>
<td>218 (71%)</td>
<td>141 (69%)</td>
<td>359 (70%)</td>
<td>511</td>
</tr>
<tr>
<td>Health Professions routinely advise against smoking</td>
<td>303 (99%)</td>
<td>189 (92%)</td>
<td>492 (96%)</td>
<td>509</td>
</tr>
<tr>
<td>Did not believe that patient’s chances of quitting smoking increased by health professional’s advice</td>
<td>48 (9.4%)</td>
<td>38 (7.5%)</td>
<td>86 (16.9%)</td>
<td>506</td>
</tr>
</tbody>
</table>

In assessing the general knowledge, a majority 95% of the students are aware of a policy against smoking in public places such as schools and clinics but 26.9% of them do not believe this is being enforced. Indeed, 36.3% of student who smoked did so within the premises of the school. Nevertheless, a majority agreed that tobacco sales to adolescents younger than 18 years of age should be banned and to a total ban on the advertising of tobacco.

In terms of their own practices, the majority of those who smoked in the past month do want to cease smoking and have tried to stop, as shown in the table below:

Discussion

The survey utilising the WHO Global Health Professionals Students Survey (GHPSS) has provided some information.
products. Although 95% of the respondents agree that there should be a ban on smoking in restaurants, 29% did not think this should extend to discos/bars or pubs.

Survey results with respect to the students’ own perspective and practice are presented below:
Students believed that health professionals should receive training in cessation counselling techniques but only 29% are taught this. This is perhaps explained by cessation counselling being taught in only one programme (MBBS) and only to senior students. However, although the majority (70%) of the students feel they should be trained, 30% do not believe that health professionals should serve as role models for the public. Furthermore, even though nearly all medical students agree that advice against smoking should be routinely given to the patients, 16.9% do not believe the chances of this making any difference to the practices of their patients.

Table 4: Students who smoked in the past month past practice in tobacco cessation.

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>MBBS</th>
<th>Allied Health</th>
<th>All</th>
<th>Sample Pop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students who smoked in the past month</td>
<td>59 (11.5%)</td>
<td>36 (7%)</td>
<td>95 (18.5%)</td>
<td>512</td>
</tr>
<tr>
<td>Wants to stop smoking now</td>
<td>38 (40%)</td>
<td>22 (23 %)</td>
<td>60 (63%)</td>
<td>95</td>
</tr>
<tr>
<td>Received advice to help stop smoking</td>
<td>49 (51%)</td>
<td>45 (47%)</td>
<td>94 (98.9%)</td>
<td>95</td>
</tr>
<tr>
<td>Students who smoked last year</td>
<td>60 (11.8%)</td>
<td>105 (20.6%)</td>
<td>165 (32.4%)</td>
<td>508</td>
</tr>
<tr>
<td>Tried to stop smoking in the last year</td>
<td>50 (30.3%)</td>
<td>36 (21.8%)</td>
<td>86 (52%)</td>
<td>165</td>
</tr>
</tbody>
</table>

on the prevalence (19%) of smoking in the last month and the attitudes of our students, but these are most likely reflective of attitudes in the general population of that age, even though WHO country profiles on smoking show a higher prevalence for the general population\(^7\) of some Pacific countries, as shown in the table below.

This higher prevalence of 19% of students who smoked in the last month found within the student body of

<table>
<thead>
<tr>
<th>Country</th>
<th>Male %</th>
<th>Female %</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiji</td>
<td>26.0</td>
<td>3.9</td>
<td>...</td>
</tr>
<tr>
<td>Samoa</td>
<td>56.9</td>
<td>21.8</td>
<td>...</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>56.1</td>
<td>26.1</td>
<td>41.4</td>
</tr>
<tr>
<td>Tonga</td>
<td>45.8</td>
<td>12.0</td>
<td>28.7</td>
</tr>
</tbody>
</table>


2011 is probably more reflective of a truer rate than that found (11%) in a survey using the same tool but in a smaller cohort in 2009. The rate raises a concern not just for the medical school but also for further anti-tobacco campaign in the region. However, it is perhaps encouraging that the prevalence of students who ‘currently smoke’ was only 6% suggesting that even simple reminders such as a survey may trigger changes in practice, although this result may reflect a bias arising from students’ concern to comply with regulations.

Thus, it is of note that although more than half of the students had tried smoking at some stage, only a relatively small percentage currently smoked and an even smaller number who had indicated no intention to cease the practice. However, even this small percentage is of concern as this has the potential to undermine the credibility of the entire profession in its campaign against smoking.\(^5\)

Indeed, a significant proportion of the study population did not believe in role modelling for the general populace which may indicate a paradigm shift in values of future health professionals in the Pacific. This is against the attitude that anti-smoking advice should be routinely given to the patients and is possibly reflected in the attitude whereby 16 percent of the students surveyed believed that this advice would be of no avail anyway.

The attitude and practice of the students is not related to any lack of knowledge of existing policies but more probably on the lack of implementation of the policy, reflected by the majority of students who smoke doing so within the premises where an anti-smoking policy exist. It is of interest to find that a higher proportions of MBBS students than Health Science students expressed the view that smoking policy was not enforced but also had a higher rate of smoking on school premises within the last year. However, despite this, the majority of students do believe that cessation counselling techniques should be taught.

This survey shows that there is a mismatch between the knowledge, the attitudes and indeed the practice in students of a health professional training institute in the Pacific. Whilst the subject matter is taught, it comes rather late in the curriculum to have any impact on individual practice. Where policies against smoking within the campus exist, they are not policed and the students openly smoke in the halls of residence.

If a role of medical schools is to contribute to the battle against tobacco smoking and, in turn, to the global cause of reducing morbidity and mortality of NCDs, then not
only should this be taught in their programmes but the policies of banning tobacco smoking in their campuses for all staff and students should be enforced. This is particularly important for the institution where the survey was conducted as it is the premier medical training institution for the Pacific island countries; serving students from sixteen island countries. The challenge is thus for the institution to put into place greater effective measures into the campaign against smoking and target the number one contributing cause of morbidity and mortality for non-communicable diseases.

Acknowledgement
The author wishes to acknowledge the assistance of the Students’ Association in the collection of the data.

References

1 Koon K Teo, Stephanie Ounpuu, Steven Hawken, et al, on behalf of the INTERHEART Study Investigators; Tobacco use and risk of myocardial infarction in 52 countries in the INTERHEART study: a case-control study; The Lancet, Volume 368, Issue 9536, Pages 647 - 658, 19 August 2006


3 Thomas R Frieden, Michael R Bloomberg; How to prevent 100 million deaths from tobacco - The Lancet 2007; 369:1758–61


5 Konrad Jamrozik; ABC of smoking cessation : Policy priorities for tobacco control - BMJ VOLUME 328 24 APRIL 2004

6 Simon Chapman, Editorial -Doctors who smoke; BMJ 311 : 142 (Published 15 July 1995)

7 Rarick J.; What we know about tobacco and youth and the training of health professionals in the Western Pacific Region – a Presentation in a WHO meeting on Child and Adolescent Health and Tobacco Control, 9 – 10 December 2010.


“A committee takes hours to put into minutes what can be done in seconds” 

Judy Castrina

111
Developing adolescent health policy in Papua New Guinea – what are the sexual and reproductive health needs in service provision?

Jessica McGowan\textsuperscript{a}
Shanti Raman\textsuperscript{b}
Catherine Bateman-Steel\textsuperscript{c}
Wendy Pameh\textsuperscript{d}

\textsuperscript{a}School of Social Sciences, University of New South Wales. \textsuperscript{b}Department of Community Paediatrics, University of New South Wales. \textsuperscript{c}School of Public Health & Community Medicine, University of New South Wales. \textsuperscript{d}School of Medicine and Health Sciences, University of PNG.

Abstract
Papua New Guinea (PNG) has a large youth population, high fertility rates, and widespread violence, including sexual violence. Accessible sexual and reproductive health (SRH) services are a priority if adolescent needs are to be met. In recognition of this need the Government of PNG is drafting a Youth and Adolescent Health Policy. To understand what is known about the SRH needs of adolescents in the capital Port Moresby and to feed into this policy process, an extensive literature review was undertaken. The review highlighted significant social factors influencing adolescent SRH, high rates of adolescent pregnancy, low contraception usage, increasing rates of sexually transmitted infections including HIV, and increased popularity of male penile modification. The literature suggests facilities are struggling to provide adolescent-friendly health services in the context of severely strained healthcare delivery. Key areas that require additional investigation include exploring the role of different providers in PNG, the barriers adolescents face in accessing services and whether youth-friendly or youth-specific services may best address these, and assessing how services can better integrate sexual health and reproductive health. (PHD 2012; Vol 18(2): p113-119)

Key Words: Adolescents, health services, Papua New Guinea, health policy, sexual and reproductive health

Introduction
Adolescent health has received substantial international attention in recent years and is now high on the global health agenda. Worldwide there are 1.2 billion adolescents, aged between 10–19 years, and nearly 90% live in less developed countries.\textsuperscript{1,2} Evidence suggests that adolescents face significant social, economic and health risks,\textsuperscript{3} but often fall through the cracks in struggling health systems. Papua New Guinea (PNG) is a country with a young demographic and large representation from adolescents, with people under 20 years of age accounting for half of the total population.\textsuperscript{4}

Sexual and reproductive health (SRH) are fundamental to social and economic development and attainment of Millennium Development Goals (MDGs) 3-6 (improving maternal and child health, and reducing HIV) in particular,\textsuperscript{5,6} however whilst significant progress has been made for children worldwide, adolescents have been left behind.\textsuperscript{1} Adolescence, defined by the United Nations as a period between 10-19 years,\textsuperscript{2} is a pivotal and vulnerable stage of life as young people make the transition from children to adults, experience physical, psychological and emotional changes, and engage in sexual exploration.\textsuperscript{1} As they often lack the cognitive capacity to make safe decisions, can be disempowered by laws and customs, and may have limited access to information and services,\textsuperscript{4} they can be disproportionately burdened when it comes to poor SRH.\textsuperscript{5,7} Adolescent girls are also more susceptible to sexually transmitted infections (STIs) and their incomplete body growth places them at increased risk of complications during pregnancy and delivery.\textsuperscript{7} Education and employment prospects are often affected for both adolescent mother and child.\textsuperscript{2,5,8}

Given the heightened vulnerability of adolescents to poor SRH outcomes, access to relevant information and services is essential,\textsuperscript{1} however adolescents commonly do not engage with health services.\textsuperscript{5} As health facilities play a central role in shaping positive behaviours and preventing ill health, improving adolescents’ access to services may help to mitigate against their increased risk of SRH-related morbidity and mortality. Investment in services tailored to their distinct needs and social contexts is particularly important to overcome barriers, and an approach now advocated by many is for the establishment of adolescent-friendly health services,\textsuperscript{2,7,9} based on quality, equity, accessibility and acceptability. Furthermore, due to the overlap of sexual health and reproductive health\textsuperscript{5} integration of these has also been promoted. However whilst the benefits of these approaches have been demonstrated\textsuperscript{10,11} provided sufficient resources are available to support integrated service delivery,\textsuperscript{12} such services are often absent or of poor quality in many countries.\textsuperscript{5}

PNG is one of the world’s most diverse countries, geographically, biologically, linguistically and culturally.\textsuperscript{4}
It has a population of nearly seven million, with the adolescent population comprising 22.7% of the total.\(^1\) 

Whilst over 85% of the national population live in rural areas,\(^4,\) migration to the capital Port Moresby is growing rapidly.\(^1,\)\(^3,\)\(^4\) Port Moresby has a population of approximately 400,000 and is growing at 3.6% annually compared to the national growth rate of 2.6%.\(^17\) Around 45% of the population live in overcrowded settlements with inadequate housing or basic services.\(^15\)

The Government of PNG decentralised in 1977 and further decentralisation reforms occurred in 1995.\(^4\) Many believe this has contributed to the deterioration of health services,\(^4,\)\(^14\) as transferring responsibility has limited the role of the National Department of Health (NDoH), and the implementation of national health policies depends critically on the cooperation and capacity of provincial and local governments.\(^19\) Whilst PNG has experienced economic growth, with 6.6% growth in gross domestic product in 2008, this has not translated into improved service delivery or reduced poverty.\(^14,\)\(^16\)

The government is the largest provider of health services in PNG, though faith-based organisations manage approximately half of these.\(^4\) There is a critical shortage of health workers,\(^20\) and with a growing population\(^4,\)\(^14,\)\(^22\) and an ageing workforce\(^15,\)\(^20\) a considerable increase in the number and quality of health workers is essential for all aspects of health. There are many national, international and faith-based non-government organisations working in Port Moresby in the area of reproductive and/or sexual health, with the majority of these working in close partnership with the Government of PNG.

PNG is a signatory to the Millennium Declaration of the United Nations General Assembly\(^23\) however is unlikely to meet most or any of the MDGs by 2015.\(^26\) Although some progress has been made, PNG has relatively poor health and development indicators with high mortality rates, low primary school enrolment and significant gender inequality.\(^16\) Whilst valuable health policies have been developed, such as the National Health Plan 2011–2020 and Child Health Plan 2008–2015, implementation of these has been slow.\(^4,\)\(^14\) This is largely attributed to government decentralisation and inadequate provision of resources to provincial and local governments.\(^14\)

The PNG NDoH acknowledges there “is an urgent need for reproductive and sexual health services for young unmarried women and female students,”\(^18\) and in response are currently drafting a Youth and Adolescent Health Policy. In order to inform this process and in particular to assist in the planning of effective SRH services that can respond to adolescents’ unique needs in Port Moresby, we undertook an extensive literature review of adolescent sexual and reproductive health (ASRH) needs and service provision. The review was endorsed by the NDoH, and carried out in collaboration with their adolescent health technical advisor, to provide input for their adolescent health policy.

**Methods**

An extensive literature review was undertaken to assess what is known about ASRH needs and services in Port Moresby, using a combination of the following terms: Papua New Guinea, Port Moresby, urban, adolescent, teenage, youth, young people, sexual health, reproductive health, HIV/AIDS, sexually transmitted infection, contraception and family planning. Literature from the last ten years was examined and included peer-reviewed literature and grey literature from multi- and bilateral agencies, and government and non-government agencies. While efforts were made to utilise studies undertaken in Port Moresby, studies from elsewhere in PNG were also included.

**Key findings**

**Adolescent sexual and reproductive health issues in Port Moresby**

According to the 2006 Demographic Health Survey (DHS) the age-specific fertility rate for 15-19 year olds in PNG is 65 births per 1,000 women. The proportion of those who have begun childbearing increases with age from 1.2% among women aged 15 years to 31.4% among women aged 19 years, with little difference among rural and urban populations.\(^21\) There are detrimental consequences for early and unintended pregnancies, including risk of social derision, powerlessness, disownment and increased health risks to mother and child.\(^21\) Births to adolescent mothers have a high risk of infant and child mortality, with the infant mortality rate among mothers under 20 years estimated to be 66 per 1,000 live births and the neonatal mortality rate 41 per 1,000 live births in PNG.\(^21\)

Contraceptive use in PNG is less than 25% among women aged 15-49,\(^21\) and is particularly low among married adolescents.\(^4\) The 2006 DHS found that 14.3% of 15-19 year olds are married, 21, a concerning proportion given that marriage is often the most common route to risky sexual intercourse for adolescent girls in developing countries.\(^24\) Only 65% of married 15-19 year olds in PNG have heard of a modern contraceptive method and only 54% know where to obtain it.\(^21\) The high fertility rate combined with poor access to family planning may also lead some women to seek abortion, however as abortions are illegal under the PNG Criminal Code Act (1974) women may be forced to seek unsafe abortion. Whilst there appears to be no published data related to abortion in PNG it has been anecdotally recognised that unsafe abortion is an increasing problem.\(^18,\)\(^25\)

There are around one million new STI cases in PNG every year.\(^26\) Chlamydia is most prevalent in younger
women, with two-thirds of those with an STI having a Chlamydia infection. A generalised HIV epidemic was also declared in PNG in 2002, and approximately 45% of new HIV infections occur among youth and up to 50% of reported diagnoses come from Port Moresby.

Male reproductive health is often treated as a lower priority than female reproductive health, males have their own reproductive health needs and their knowledge and behaviours can be significant determinants of women’s reproductive health. An issue of growing concern in PNG is the effects of non-traditional practices such as penile cutting or modification through inserting objects into the penis. In a 2010 survey conducted among men who have sex with men in Port Moresby (14% were 15-19 years old) 13% reported they bore penile implants and 14% that they injected their penis. These practices can lead to compromised health, and present an increased risk for HIV transmission due to use of non-sterile equipment, trauma to the vaginal or rectal wall, or condom breakage during sexual intercourse.

Social determinants influencing adolescent sexual and reproductive health
Adolescent health, and ASRH in particular, is affected by a range of factors at individual, family, community and national levels in PNG.

Early sexual debut and multiple sexual partners are a common occurrence in PNG, which puts adolescents at great risk of teen pregnancy and STIs. The 2006 DHS conducted in PNG found that a large proportion of 15-19 year olds (19.4%-63.2%, depending on the area) had more than one partner in the last year, and of the currently married females aged 15-19 living in urban areas 20.9% were in a polygynous union. According to the same survey almost 5% of women aged 20-49 had their first sexual intercourse by age 15 and 57% by age 20, though other studies suggest the mean age of sexual debut in PNG is 16 years. Girls who have sex before 18 years of age are three times more likely to be diagnosed with an STI, thus the young age of sexual debut in PNG puts adolescents at great risk. Other risk factors associated with transmission of STIs include sexual violence, multiple sexual partners, low rates of condom use, and the trading of sex, all of which are common in Port Moresby.

Schooling in PNG is not compulsory nor free and school attendance is low beyond primary level, with only 24.4% of males and 12.4% of females reaching a secondary or higher level of education. This has a negative effect on access to health information and services and is often associated with unemployment, which can lead to criminal activity or commercial sex work. Early pregnancies are more common among the least educated adolescents, and the 2006 DHS shows that level of education has an influence on the number of children a woman has.

The literature suggests that community attitudes can act as a barrier to adolescents seeking information and services. A study conducted among Grade 12 students in Eastern Highlands secondary schools found that young people were most comfortable talking about issues like sex and HIV with their same-sex peers than with their parents, who were considered more moralising and judgemental. This sense of discrimination and judgement in relation to SRH issues for adolescents can also be perpetuated by community and health workers, particularly in relation to unmarried adolescents.

Female sex workers are considered a high risk group for SRH issues, and adolescent sex workers are particularly vulnerable. As reported by UNICEF PNG “young men engage in crime to survive and young women in transactional or commercial sex.” Whilst there is minimal data on the prevalence of adolescent sex workers in PNG, several studies looking at sex workers have reported a high number of adolescent respondents. In a study undertaken in 1994 30% of the 350 sex workers interviewed were between 13 and 19 years of age, and another study carried out in 2004 among female sex workers in Port Moresby found that of the 174 participants, 36% were aged 14-20 years.

PNG is a largely male-dominated society and the literature demonstrates that women frequently experience gender-based discrimination and violence. Gender inequality is widespread and prevents women from practicing their decision-making rights and from accessing services. Whilst there is minimal data around violence against women in PNG and it is severely under-reported, available evidence suggests it is rife. Sexual violence against women and children is particularly common, with approximately 50% of reported sexual abuse victims being under the age of 15. The high prevalence of violence is a major factor in the transmission of HIV and has a significant impact on ASRH.

Accessing health care
The literature illustrates that adolescents in less developed countries frequently experience cultural, social, logistical and financial challenges in accessing health services for reasons such as lack of knowledge of what services offer, negative attitudes of staff, issues of confidentiality, inaccessibility, unacceptability, high visibility, and cost of services. This is evident in PNG. A study conducted with ‘out of school youth’ in 2007 in the Eastern Highlands found the barriers preventing youth from going to sexual health clinics were fear of rejection by family and community, ignorance of symptoms, confidentiality issues, poor location of clinics, unfriendliness and negative attitudes of staff, bad road conditions and lack of money. Community attitudes in particular impede the use of SRH services by adolescents in PNG through
constraining potential clients from seeking services, and the poor attitudes of many health staff also appears to be a common obstacle.\(^{46}\)

A critical issue for health care access in PNG is the role of religious providers. Religion is an integral part of Papua New Guinean culture, with the vast majority of the population identifying themselves as Christians.\(^{5,45}\) Churches provide half the health services as well as government-run health services,\(^{46}\) though while they have a significant and influential role in society\(^{45,46}\) their role in adolescent health is complex. The strong influence of religious institutions can be seen as both a positive and negative element of the health system, particularly when it comes to ASRH, and the literature presents a mixed picture. Many people reportedly prefer the church-based health system over government-run health services,\(^{14,18}\) and faith-based organisations have proven to be valuable in responding to the HIV epidemic.\(^{46}\) The literature on their role in adolescent health and SRH specifically is limited, though what is available suggests some churches are opposed to the use of contraception,\(^{46}\) particularly for young or unmarried people,\(^{46}\) which has harmful implications for adolescents.

Adolescents require services that are designed to meet their specific needs and that are sensitive to their vulnerabilities,\(^{18}\) however providing holistic health services for adolescents is a key challenge in PNG.\(^{37}\) Furthermore, despite the wide-ranging factors creating SRH vulnerability amongst adolescents in PNG, they commonly under-utilise what services are available.\(^{18}\)

**Discussion**

Globally adolescents have been acknowledged as a vulnerable group who are at heightened risk for poor SRH outcomes.\(^{5,7}\) The significant youth demographic in PNG and wide range of SRH issues highlighted suggests that adolescent health is an urgent priority in PNG. The literature clearly identifies many factors that negatively impact ASRH in this context, such as stigma, minimal education, early age of sexual debut, sex work, sexual violence, STI, early pregnancy and male penile modification, with gender inequality underlying many of these. However the literature also raises many questions around the policy and practice solutions to providing effective services for ASRH. This literature review was designed to inform the development of evidence-informed policy to plan accessible, appropriate and equitable services for ASRH in PNG. While it provides the foundation for the planning of adolescent friendly SRH services in Port Moresby and PNG, more in-depth consultation with adolescents, key stakeholders and service providers must still be undertaken.

It is evident that adolescents in PNG face considerable challenges and barriers in accessing health services, particularly due to inaccessibility and unwelcoming environments of facilities and staff, which is a significant limitation of services and service providers. Further research should be undertaken to explore this with adolescents and health providers in PNG, and to better understand how factors such as location, opening hours, staff, security and even name of service affect accessibility for this group.

While the need for investment in more appropriate health services for adolescents in Port Moresby is clear, the question of whether to create specific adolescent-only services or whether to enhance existing mainstream services to be more adolescent-friendly is not clearly answered by the current literature. The context of PNG, with a struggling health system and vast health needs, might suggest that enhancing existing services may be favourable, however this requires further exploration. The strengths and weaknesses of public and private providers are also not well elaborated for this age group, and the role of faith-based providers in this area remains unclear. Given the centrality of faith-based providers and the complex mix of value and potential harm highlighted by the literature, it is vital that their role in adolescent health be further explored.

Another consideration is the integration of sexual health and reproductive health at the service level. Health sectors often develop separate ‘vertical’ delivery systems, focusing primarily on HIV and maternal health,\(^{47}\) and PNG is no exception, with many services working in isolation and focusing primarily on either antenatal care or HIV care, often with little inclusion of family planning. The integration of SRH services is desirable to provide holistic care,\(^{10,11}\) with the five core components ideally being: 1) improvement of antenatal, perinatal, postpartum and newborn care; 2) provision of high-quality services for family planning; 3) elimination of unsafe abortion; 4) prevention and treatment of STIs; and 5) promotion of healthy sexuality.\(^{5}\) There are, however, many challenges in providing high-quality integrated care, largely due to weaknesses in health systems,\(^{12}\) and these should be explored with service providers and policy-makers in PNG.

Improving ASRH in PNG will not be achieved through enhanced health services alone. The social determinants that impact adolescent health must be addressed before significant change can occur. Factors such as increasing school attendance, SRH education and employment opportunities, reducing gender discrimination and sexual violence, and increasing community knowledge and acceptance of ASRH, will make a positive contribution for change. Policies with a strong emphasis on the right to health, addressing the critical need for family planning and integrated SRH services, are also vital. Lastly, the support and collaboration of religious institutions,
provincial and district level governments, and relevant government sectors such as health, education and welfare, are critical to form a supportive environment to improve services for adolescents, and are key to ensuring real and sustainable change.

**Conclusion**

Adolescents are at considerable risk of poor SRH outcomes and experience significant challenges in accessing SRH information and services in PNG. The barriers they face commonly result in reduced service utilisation, which further contributes to their poor health outcomes. Further investigation is required with adolescents, service providers and policy-makers to explore the role of different providers in PNG and the barriers adolescents face in accessing services. This type of investigation may also assist in answering the question of whether adolescent-specific services or enhanced adolescent-friendly services are the best policy response. Ensuring effective integration of adolescent sexual health and reproductive health services is also important and health policy and planning to further this outcome would be invaluable in PNG. Enhancing effective health service provision for adolescents in PNG is a key step in improving adolescent health outcomes and is crucial for attainment of the MDGs and post-2015 goals.

**References**


“Do just once what others say you can’t do, and you will never pay attention to their limitations again.”

James Cook
Enhancing health workforce capacity in response to STIs and HIV in the Pacific Islands

John Rulea
Hilary Gormanb
Jacinta Ankusc
Edward Reisd
Jason Mitchelle

aResearch Associate, Human Resources for Health Knowledge Hub, School of Public Health and Community Medicine, University of New South Wales
bResearch Officer, Pacific Islands Aids Foundation cSenior Project Officer, Australasian Society for HIV Medicine
dInternational Division Manager, Australasian Society for HIV Medicine.
eExecutive Officer, Oceanic Society for Sexual Health and HIV Medicine

Abstract

Pacific Island Countries and Territories have reported consistently high rates of STIs, in particular chlamydia. In attempting to address high rates of STIs and provide services for people living with HIV, Pacific island countries and territories are met with two major challenges. The first challenge is the training and retention of health care workers in the diagnosis, treatment and care of STIs and HIV. The second challenge is the need to address health care worker discrimination and stigmatisation of those seeking care and of those diagnosed with STIs and/or HIV. This paper describes a new strategy being implemented by the Oceania Society for Sexual Health and HIV Medicine (OSSHHM) in collaboration with the Australasian Society for HIV Medicine (ASHM). OSSHHM is focussing their efforts on developing local clinical and training experts to provide high quality services, train other local health workers within their countries and assist in developing a more integrated approach to STI and HIV service delivery across health services in general. In developing these expert clinicians and trainers and equipping them with the tools to teach clinical skills and address stigma and discrimination, OSSHHM is attempting to achieve a localised response to STI and HIV that has been developed and implemented within the Pacific.(PHD 2012; Vol 18(2): p120-123

Introduction

Epidemiological data shows that HIV prevalence across the Pacific region is low, although rates of Sexually Transmitted Infections(STIs) remain very high among surveyed populations.1,2 The WHO Multi-country Cooperation Strategy for the Pacific 2013-2017 lists the reduction of morbidity and mortality from STIs, including HIV as a priority target, but has also noted that some of the challenges faced in the Pacific include the quantity, quality, skill-mix, distribution and retention of the health care workforce.3

The literature on human resources and STIs, including HIV in the Pacific has never been systematically reviewed, although some relevant information can be found in various reports and articles. Roberts and Mudaliar (2007)4 proposed that capacity building in HIV care, treatment and support at a regional level and especially through professional groups, would be a necessary and important component of the development of human resources for health in the Pacific. They argued that significant professional strengths in some clinical practices and community health care settings were evident and this would provide, ‘...a sound basis for the mobilisation of key players and the development of policy’ (p.3). Although not specifically focussing on human resources the rapid assessment carried out by Connell and Negin (2010)5 emphasised principles of multi-stakeholder and multi-sectoral responses to the spread of HIV in the Pacific; what is relevant in terms of human resource responses and planning was that the report recommended the integration of HIV and STIs into general health services. The findings from a study of health care workers (HCWs) knowledge of HIV and STIs by Lui et al. (2012)6 indicated that negative attitudes by HCWs towards the clients from key affected populations (KAPs) was common and that the existence of discrimination towards clients from KAPs was evident within the health system; this suggests that socio-cultural-issues such as stigma and discrimination need focussed attention to enhance the health workforce capacity to respond to HIV and STIs.

In this article we provide basic epidemiological data of the context in which workforce capacity building responses are being developed. We discuss training needs from the perspectives of people living with HIV (PLHIV) as identified in recent reports. We briefly refer to challenges of HIV clinical training and capacity building, including medical laboratory staffing and skills in the Pacific. We note the importance of a partnership approach in all Pacific work, the importance of working closely with populations and being advised by the communities. We describe how the Oceanic Society of Sexual Health and HIV Medicine (OSSHHM) is now positioned with a Strategic Plan from 2012-2015, with specific strategies to improve access to training and
capacity building in STIs and HIV management for HCWs in the region.

Although there are many organisations working in training and capacity development within the region, the advantage of OSSHHM’s approach is the attempt to find a Pacific-based response to strengthen in-country HCWs to be trainers and expert HIV carers—a step which will be more sustainable in the long term. In particular, it is hoped that this approach will be effective by responding to local, and sometimes changing training needs, rather than to present pre-determined training packages for local consumption.

**Epidemiological Information and Regional Strategies**

Second generation surveillance undertaken in the PICTs in 2004/5 and 2008 have shown very high rates of STIs among surveyed populations. For example, in the 2004/5 round surveys, in 6 countries, of the 1,618 pregnant women attending antenatal clinics who were tested for STIs, 18% were found positive for chlamydia. The prevalence rate was significantly higher among women under 25 years old. Surveys in 2007 and 2008 showed an overall prevalence of chlamydia of 19% among antenatal clinic attendees. Drawing on data from 21 PICTs (excluding PNG) we report that the number of people newly diagnosed with HIV was 68 in 2010 and 98 in 2011. Since 1984 a total of 1,609 cumulative cases have been reported in the region. These cases are unevenly distributed across PICTs; some countries have never reported HIV cases and in six countries less than ten cases have been reported. The majority of reported HIV cases are in Fiji, New Caledonia, French Polynesia and Guam, which account for 1,363 (84%) of the total reported cases to December 2011.

The Second Pacific Regional Strategy on HIV and other Sexually Transmissible Infections 2009-2013 (PRSIP II) states that ‘The focus on STIs—a key risk factor for acquiring HIV—is an important element of the strategy’. In terms of human resource capacity building in order to provide a continuum of treatment, care and support systems and services, STI diagnosis and treatment capacity, as well as linking and integrating sexual reproductive health (SRH), STI and HIV services are essential.

The strategy adopted by OSSHHM of improving access to training, including training of trainers (TOT), in STI/HIV management for public and private-sector health care workers in the region, is a strategy consistent with and addressing current epidemiological trends. Some progress in the area of HCW training has already been made, as reported by Dr Iniakwala of the Secretariat of the Pacific Community who noted that specialists had trained 233 health workers and volunteers in HIV and STI prevention in 10 PICTs, supported implementation of HIV testing in at least one laboratory in 12 PICTs, and provided technical assistance toward the development of National Strategic Plans in four PICTs. However, serious problems still need to be addressed in relation to workforce capacity building.

**Diverse training needs**

The issues of psychological and socio-economic support for PLHIV, problems experienced in referral processes, inadequate confidentiality while accessing testing, treatment and support services and increasing the involvement of PLHIV in the planning and evaluation of treatment and care programs have been identified by Roberts and Mudaliar (2007) and more recently by Labbe (2012) and Gorman (2012). As documented by McMillan and Worth (2010) similar issues of discrimination and a lack of confidence in confidentiality of sexual health services were also experienced by sex workers in Fiji. The OSSHHM Strategic Plan (p.7) states that persistent stigma and discrimination against KAPs remains a significant barrier and limits the coverage of prevention, treatment, care and support services. Future HCW training in PICTs will need to include support and training for PLHIV and other KAPs so they can also contribute to curriculum development and, possibly in the delivery of such programs. Initiatives such as the development of a Regional HIV/STI Counselling and Testing Policy will assist, but as noted in previous studies, policy guidelines exist but delivery, application and implementation in the region remain problematic.

Lui et al. (2012) noted the existence in Fiji of discrimination towards KAP and that HCW knowledge, attitudes and beliefs about HIV and PLHIV affect the quality sexual health services. The authors recommended focussing on increasing the knowledge levels of health care workers about HIV and STIs, in order to reduce their concerns, fears and moral judgments that impede the provision of non-judgmental and equitable services as a significant training need. They also note that some HCW felt that HIV was a form of punishment for immoral behaviour; Hammar (2011) in a study of HIV transmission and risk in Fiji noted that study participants, including HCW, felt that HIV could be cured through faith and prayer. These pieces of research provide support for the argument that enhancing human resources by building health workers’ capacity to provide non-judgmental services could help to encourage testing, especially among KAP who have been the targets of discrimination. Building the health workforce capacity could also reduce any loss-to-follow up and support treatment adherence among those who are receiving antiretroviral treatments.

Another challenge is the availability of laboratory services and trained laboratory staff. Even though PSRIP II aimed to strengthen processes of submitting samples for testing, screening for STIs and HIV is still rarely offered in general hospital outpatient clinics or wards in the region. Part of the problem to be addressed is the availability of
adequately trained staff and deficiencies in knowledge of existing staff.\textsuperscript{18} Any strategies which attempt to address the limited human resources in the Pacific response to STIs and HIV need to focus on a number of staffing levels, such as laboratory and nursing staff within the health care system. Recently identified needs include training in oral HIV manifestations for public and private sector dentists.\textsuperscript{22}

The challenges of HIV clinical training in such a diverse cultural and geographical area as the Pacific have been documented and the argument has been put that a ‘one size fits all approach’ should be jettisoned.\textsuperscript{19} Vezina et al. (2007)\textsuperscript{20} proposed that HIV clinical conferences, mini-residencies, mentoring and satellite-based trainings should be developed for educators and clinicians. Connell and Negin (2010)\textsuperscript{6} recommended that HIV and STI management be integrated into the general health system and this point applies equally to training programmes; trainings for improvement in STI and HIV care must be sensitive to existing care sites and health care structures so that knowledge can be applied in practice within the general health system, as required.

Human resources for health challenges in responding to HIV and STIs

Worth et al (2012) conducted an international literature review\textsuperscript{21} of human resources and HIV and summarised the issues that are persistent challenges in developing country contexts. These included: insufficient training for staff in resource-limited settings; poor working conditions and attrition; uneven distribution of staff geographically and between parts of the health sector including public, NGO and private sectors; knowledge of health workers and negative attitudes towards PLHIV. All of these challenges are found in PICTs with the additional problem of emigration of health care workers from the region. Using census data from 100 countries (released by the OECD in 2011), a recent study found that more than half (51.7\%) of all professional health care workers from Fiji, and around 40\% of all employed Samoan and Cook Islander professional health care workers were working overseas at that time.\textsuperscript{22} OSSHHM has identified in its strategic plan that there are a few professionals in the region with the skills and capacity to train health care staff in STI and HIV management (p. 8) but there is concern that those who undergo training may then migrate to work overseas.

**OSSHHM’s strategic objective: to improve access to training and capacity building in STI/HIV management for health care workers in the region.**

OSSHHM is collaborating with the Australasian Society for HIV Medicine (ASHM) on an initiative in which selected front line health workers from three PICTs (Fiji, Solomon Islands and Vanuatu) will participate in a three-stage training program. The OSSHHM Pasifika Training Program for HIV and STIs (OPTPHS) will include a 10 day clinical training program in Papua New Guinea; a 5 day Training of Trainers program conducted by the Fiji National University in Fiji; and clinical and training mentoring visits to each country.

The participants will travel to Mendi in the Southern Highlands of PNG where the National Catholic Health Service has provided excellent patient care and management to over 700 people living with HIV. This location was chosen due to the similarities in resource limited settings, the exposure to high and complex case loads and to support an overall objective of the program: south – south collaboration and learning. Following the clinical training and ‘training of the trainer’, the HCW will return to their home countries and act as master-trainers, with periodic, time-bound, mentoring and supervision visits provided by ASHM and OSSHHM. The aim is to establish a cadre of master-trainers in STIs and HIV management in selected PICTs.

As a long term plan, the OSSHHM trainers will be able to support training of their colleagues in other Pacific countries, or act as mentors in the management and care of PLHIV and to further the STI response in the Pacific. In principle agreement to the plan has been received from Ministries of Health and trainees have been selected and completed a training needs assessment.

**Conclusion**

The strategies identified in this article are an attempt to assist PICTs to increase their training capacity, thereby equipping countries with the tools and professional capacity to provide sustainable STI, HIV and sexual health services for populations. Stigma and discrimination, as well as general patient care, are problems across various areas of health service delivery but are particularly evident in the areas of STI and HIV health management – perhaps lessons learnt in health workforce capacity building in this area may be applicable to other parts of the health system. The above programme to enhance health workforce capacity will reduce the reliance on external technical support and showcase that Pacific developed and in-country led HCW trainings can be sustainable and successful.

**Reference**

1 2011 Epidemiological Update: Pacific Island Countries & Territories Summary, Secretariat of the Pacific Communities.

2 Breaking the silence: Responding to the STI epidemic in the Pacific, STI Regional Working Groups, January – June 2010

4 Roberts, G and Mudaliar J (2007), Capacity building in HIV care, Treatment and Support, Fiji School of Medicine, Suva.


7 http://www.spc.int/hiv/downloads/second-generationsurveillance-surveys/


10 Source: Saipan Tribune. Available at http://lyris.spc.int/read/archive?id=79697


15 HIV Counselling and Testing Policy (2012) available from College of Medicine and Nursing Health Sciences, Fiji National University, Suva.


22 Doyle, J and Roberts G (2013) Migration and Mobility of Skilled Health Workers from Selected Pacific Island Countries, Human Resources for Health Knowledge Hub, UNSW, Sydney, Australia.

“Educating the mind without educating the heart is no education at all.”
Aristotle
The Editorial Team would like to sincerely acknowledge and thanks the **AusAID** (the Australian Agency for International Development) for funding this issue of the Pacific Health Dialog.
Hypereosinophilic Syndrome: Case Report

Dipesh Raniga\textsuperscript{a}  
William May\textsuperscript{b}  
Litia Tudravu\textsuperscript{c}

\textsuperscript{a}Medical Registrar, Lautoka Hospital. \textsuperscript{b}Consultant Physician, Senior Lecturer in Medicine, Fiji National University. Correspondence: william.may@fnu.ac.fj  
\textsuperscript{c}Consultant Pathologist Lautoka Hospital.

Abstract

A broad range of disorders present with eosinophilia. These include infectious, allergic, rheumatic, neoplastic, endocrine and idiopathic disorders, which range from benign to life-threatening illnesses. All these conditions create a heterogeneous list of clinical presentations that patients may display, thus creating a diagnostic challenge for clinicians. We present a patient with a broad range of clinical features and hematological counts that fit into the diagnosis of Hypereosinophilic Syndrome (HES). He was investigated reasonably to rule out the various possible differential diagnoses and was subsequently started on Prednisone therapy. (PHD 2012; Vol 18(2): p125-129)

Key Words: Hypereosinophilic Syndrome, FIP1L1-PDGFRA, Imatinib

Case

A 54 year old male was referred from a rural health center with 6 months history of generalized swelling, pruritis and worsening shortness of breath on exertion and 2 years history of back pain and lower limb pain which escalated with mobilization. Generalized swelling involved facial puffiness, abdominal distention and lower limb swelling. His itchiness was generalized but marked on the limbs. The patient described as being short of breath within about 30 meters walk or climbing stairs.

Past history revealed that he had been investigated for chronic diarrhoea in November, 2009, was treated for amoebiasis and subsequently improved. He was diagnosed to have dyslipidemia in April 2010, managed with Atorvastatin 40mg nocte and was afterward lost to follow up. The patient was not on any regular medications at time of admission; had no known allergies and his family history revealed his father suffered from hypertension, diabetes mellitus type 2 and stroke. He worked as a farmer, did not take alcohol and cigarettes but occasionally took kava.

On examination he was an obese man with normal vital signs. He was pale and his eyes looked puffy. There were no palpable lymph nodes. His heart sounds were normal. His respiratory examination revealed bibasal coarse crepitations. Abdominal examination was normal. Extremities revealed thickened skin in right forearm (Figure 1) and exfoliative erythematous rashes on his legs (Figure 2) extending up to the thighs and also on his back.

\textbf{Figure 1: Thickened right forearm skin}

\textbf{Figure 2: Erythematous exfoliative rashes in legs}
The patient’s full blood count showed normocytic anaemia with a hemoglobin of 7.9g/dL and a white cell count of 409800/µL with more than 85% eosinophils (figure 3). ESR was elevated at 100mm/hr. His kidney functions were normal and liver function tests revealed a mildly raised ALP of 211U/L. The Vitamin B12 level was low at 42ng/L. His chest x-ray showed evidence of cardiomegaly with normal lung fields and ECG had normal findings. Antinuclear antibodies (ANA) were negative.

A Trans-thoracic Echocardiogram study showed impaired relaxation pattern indicative of Stage II Diastolic dysfunction.

**Figure 3: Peripheral Blood Smear: Shows marked eosinophilia**

A skin biopsy (figure 4) was taken from the thickened skin of the right forearm for histological studies which showed perivascular eosinophilic infiltration in dermis suggestive of eosinophilic vasculitis.

**Figure 4: Skin Biopsy: Perivascular infiltration of eosinophils**

Bone marrow aspirate (figure 5) and trephine biopsy was carried out and showed hypercellular fragments due to markedly increased eosinophils and eosinophil precursors with normal maturation pattern. No increase in blasts and no dysplasia were reported in other cell lines.

**Figure 5. Bone Marrow Aspirate Smear: Eosinophils at various stages of maturation with dysplastic changes**

Chromosomal studies of the bone marrow aspirate showed no BCR/ABL 1 gene rearrangement and further studies revealed no F1P1L1/CHIC2/PDGFRα gene rearrangement.

The diagnosis of hypereosinophilia was made and the differentials included hematological malignancies or idiopathic cause. The available literature on hypereosinophilia showed that allergies, infections and autoimmune processes were frequently associated with mild to moderate hypereosinophilia. The serum was negative for ANA so these processes were ruled out. A malignant process was also ruled out since the vitamin B12 level was not elevated, chromosomal studies were negative, the bone marrow showed dysplastic changes in less than 5% of eosinophils and, clinically, he did not have signs or symptoms frequently associated with a malignant pathology, such as weight loss and hepatosplenomegaly.

The patient was initially started on Lasix 20mg once daily with low dose aspirin for his diastolic dysfunction. Once the possible differentials were ruled out, the patient was assessed to have idiopathic hypereosinophilic syndrome (HES) and evidence suggested the use of steroids to bring down the eosinophil count to prevent further end-organ damage.

He was commenced on Prednisone of 60mg daily and reviewed a week later. His WCC dropped to 238240 cells/µL. After 2 weeks, he was less symptomatic and had a white cell count that dropped to 34370 cells/µL, so his Prednisone dose was tapered to 50mg once daily.
Chusid et al in 1975 used three diagnostic criteria for HES studies. A convenient form of classification is mentioned due to ongoing research and updates from various sources. The classification of Hypereosinophilic Disorders varies in its definitions and applications.

The pathophysiology of HES is sequestration of eosinophils into organ tissues. Any organ system may be involved, leading to manifestations such as cough (24%), dyspnoea (16%), myalgias or angioedema (14%), rash or fever (12%), and rhinitis (10%).

A retrospective study had demonstrated that the most common clinical manifestations associated with hypereosinophilia were weakness and fatigue (26%), cough (24%), dyspnoea (16%), myalgias or angioedema (14%), rash or fever (12%), and rhinitis (10%).

The laboratory investigation for CEL is centered on determining the presence of FIP1L1/PDGFRA fusion gene. The gene is created by a deletion on the 4q12 gene leading to the creation of the fusion gene. The median prevalence of FIP1L1/PDGFRA fusion gene in a review of eight published studies of hypereosinophilic patients was 23% (3-56%).

Negative FIP1L1-PDGFRA fusion calls for assessment of other clonal hypereosinophilias associated with recurrent molecular defects such as PDGFRα with other fusion partners on 4q12, PDGFRβ on 5q31-33, or FGFR1 on 8p11-13.

The classification of Hypereosinophilic Disorders varies due to ongoing research and updates from various studies. A convenient form of classification is mentioned by Gottlib et al and again by Tefferi et al.

Discussion

The term hypereosinophilic syndrome (HES) is synonymous with idiopathic hypereosinophilia, was coined in 1968 by Hardy and Anderson to describe the group of patients with unexplained high eosinophil counts with end-organ damage. There has not been much research done on hypereosinophilic syndrome due to the rarity of the condition: an incidence rate of 0.036 per 100,000 population with a male to female ratio of 9:11. Chusid et al in 1975 used three diagnostic criteria for HES:

1. Persistent eosinophilia of 1.5 x10⁹/L (1500/mm³) for longer than 6 months;
2. Lack of evidence for parasitic, allergic, or other known causes of eosinophilia; and
3. Signs and symptoms of organ involvement

Reactive causes of Hypereosinophilia need to be ruled out first and these include:

- Parasitic Diseases – Helminthes, tapeworm, Filariasis etc.
- Allergic Diseases - Asthma, Atopic Dermatitis etc.
- Immunologic Diseases - Rheumatoid Arthritis, Churg-Strauss Syndrome, Wegner’s Granulomatosis etc.
- Neoplasms - Mastocytosis, T-cell lymphomas, Hodgkin’s Lymphoma etc.

The reactive causes usually give rise to mild or moderate peripheral eosinophilia and represent a physiologic response by bone marrow to increased tissue demand for eosinophils. The eosinophilia ceases or declines with cessation of the causative disease process.

Once possible reactive causes are ruled out clinically or by laboratory investigations, the attention shifts to look for clonal causes of eosinophilia which includes mainly Chronic Eosinophilic Leukemia (CEL).

The laboratory investigation for CEL is centered on determining the presence of FIP1L1/PDGFRA fusion gene. The gene is created by a deletion on the 4q12 gene leading to the creation of the fusion gene. The median prevalence of FIP1L1/PDGFRA fusion gene in a review of eight published studies of hypereosinophilic patients was 23% (3-56%).

The lymphocytic variant hypereosinophilia involves abnormal T-cells which excessively produce cytokines (e.g. IL-5) and causes excessive production of IgE, thus
promoting the production of eosinophils in bone marrow.\textsuperscript{2,6} The condition has a combination of both reactive and clonal mechanism and thus creates a dilemma in its classification. The patients usually present with dermatological manifestations.\textsuperscript{1,2,3} There is no consensus for the diagnosis of the lymphocytic variant.\textsuperscript{2} This condition has a prevalence of about 17\% in hypereosinophilic patients\textsuperscript{11} and has a tendency to have malignant transformation to T-cell lymphoma or S‘ezary Syndrome.\textsuperscript{2,16}

Research has demonstrated finding T-cell clonality by detecting TCR gene rearrangements and abnormal T-cell immunophenotype (e.g. CD3-CD4+, CD3+CD4-CD8- or CD4+CD7-). Elevated levels of IgE, thymus and activation-regulated chemokine (TARC), cytokines (esp. IL-5, IL-4 and IL-13) produced due to these abnormal T-cells provides support for lymphocytic variant.\textsuperscript{2,6,11,16,15,17}

Anemia and thrombocytopenia are common hematological changes in addition to the raised white cell count with predominantly eosinophils ranging from 1500-400000/µL. Smears from the blood and marrow show varying degrees of mature, immature cells and cell dysplasia. Charcot-Leyden Crystals are a common finding in bone marrow smears.\textsuperscript{2} Elevated levels of Vitamin B12 are common in malignancies associated with eosinophilia (6, 7,11). Serum Tryptase levels are elevated in the CEL namely FIP1L1-PDGFRA positive, and can be used as a substitute marker if cytogenetic studies are not easily available.\textsuperscript{2,11}

Such extensive investigations were not carried out in our setting due to limited resources, cost of tests and treatment modalities not being readily and reasonably available.\textsuperscript{2,11}

Most patients with Eosinophilia are initially classified as Idiopathic Hypereosinophilia (HES), after preliminary clinical analysis and various investigations are inconclusive. Subsequent manifestations of the disease process and/or further tests may reveal a clonal or reactive pathology.\textsuperscript{2,3,5}

The consensus among experts is that Imatinib provides definitive treatment for PDGFRA/B rearrangements.\textsuperscript{2,7,30} Numerous studies have shown its efficacy to produce hematologic and cytogenetic remissions.\textsuperscript{18,22,30} Doses from 100mg-400mg daily produced remission and the patient may be maintained on as low as 100mg weekly.\textsuperscript{23}

For patients with HES, CEL-NOS and lymphocytic variant hyper-eosinophilia, recommendations are to treat with steroids, such as Prednisone at 1mg/kg which rapidly reduce eosinophil counts and can be gradually tapered.\textsuperscript{24} The use of steroids for long periods comes with numerous side effects and so necessitates tapering to the lowest possible dose and adding other drugs that can be used alone or in conjunction to the steroid therapy.

These drugs include Hydroxyurea (most commonly used), Interferon-α (IFN-α), Vincristine, Cyclophosphamide. Imatinib used at high doses has also produced reduced eosinophilic counts in selected cases of Idiopathic HES.\textsuperscript{25,27}

Novel approaches to treat HES are still undergoing trials with newer Tyrosine Kinase Inhibitors showcasing more potency, efficacy, fewer adverse effect profiles or ability to treat resistant cases.\textsuperscript{2,7,4,26,28,29}

Reference


Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCR/ABL1</td>
<td>Breakpoint cluster region/Abelson murine leukemia</td>
</tr>
<tr>
<td>FIP1L1</td>
<td>Fip1-like1</td>
</tr>
<tr>
<td>CHIC2</td>
<td>Cysteine-rich hydrophobic domain 2 protein</td>
</tr>
<tr>
<td>PDGFRA</td>
<td>Platelet Derived Growth Factor Alpha</td>
</tr>
<tr>
<td>PDGFRB</td>
<td>Platelet Derived Growth Factor Beta</td>
</tr>
<tr>
<td>CEL</td>
<td>Chronic Eosinophilic Leukemia</td>
</tr>
<tr>
<td>CEL, NOS</td>
<td>Chronic Eosinophilic Leukemia, Not Otherwise Specified</td>
</tr>
<tr>
<td>FGFR1</td>
<td>Fibroblast growth factor 1</td>
</tr>
<tr>
<td>TCR</td>
<td>T Cell Receptor</td>
</tr>
</tbody>
</table>
Interval Appendectomy to Prevent Late Diagnosis of Appendiceal Cancer

Losalini TabaSkei
Jitoko Cama

*MBBS Labasa Hospital, Fiji.**,†FRACS, Waikato Hospital, New Zealand, Jitoko.Cama@waikatodhb.health.nz

Abstract

A case report of a rare appendiceal adenocarcinoma with a detrimental outcome is presented. We advocate doing an interval appendectomy in all adult patients who present with an appendix mass or an abscess. The technique of laparoscopic appendectomy is available and can be safely done in Fiji.(PHD 2012; Vol 18(2): p130-132)

Key Words: Appendiceal Abscess (AA), Appendiceal adenocarcinoma (AAC), Peritoneal Carcinomatosis (PC), Pseudomyxoma peritonei (PMP)

Case Summary

A 33 year old ethnic-Fijian female was re-admitted to Labasa hospital in June 2012 with complaints of having right lower quadrant pain, fever and nausea for 6 days. She had a previous history of developing an appendix abscess when she was 6 months pregnant and had undergone an open drainage 9 months prior to this second admission. On examination, she was febrile (T-38.2°C) with a tender mass measuring 5 x 6cm which was palpable over the previous surgical scar on the right iliac fossa (RIF). An abdominal ultrasound scan showed an inflamed appendix with hypoechoic structures around it, suggestive of an appendiceal abscess (AA). A CT scan of the abdomen (figure 1) showed a mass over the RIF which was suspicious for malignancy.

Figure 1: CT Scan of the abdomen showing the RIF Mass

Following a week of intravenous antibiotics, a laparotomy was done 4 months later, which was 13 months after the initial drainage of the appendix abscess. An Appendicular tumour with metastatic seedlings on the omentum and the lower peritoneal cavity was found. She had undergone a limited right hemicolecotomy, omental resection and bilateral tubal ligation. The histology of the appendix tumour and the omentum showed poorly differentiated mucus secreting Appendiceal adenocarcinoma (AAC), which confirms the presence of either a Peritoneal Carcinomatosis (PC) or Pseudomyxoma peritonei (PMP) of the appendix - a pathological diagnostic dilemma. Three months later she was still complaining of persistent abdominal pain and abdominal distension, either as a result of transcelomic spread of cancer or due to the peritoneal implants and mucinous ascites.

Discussion

Adult patients presenting with acute appendix mass or appendix abscess should have an interval appendectomy. This would certainly reduce the risk of missing an underlying malignancy of the appendix or the colon. This case report, in our opinion, highlights the importance of follow-up and of performing interval appendectomies in developing countries. The extent of the tumour spread has left this lady with a grave prognosis; and it’s debateable whether the surgical intervention at Labasa hospital was adequate or not, as it’s not going to improve her longevity. We reviewed the literature on how such patients should be ideally managed in developing countries such as Fiji.

Patients presenting acutely with a palpable mass over the right iliac fossa (RIF) require further radiological investigation. Abdominal ultrasound scan and CT scan would differentiate various causes such as appendix abscess, phlegmon, bowel malignancy, ovarian pathology in women and tuberculosis with assistance of having some inflammatory markers and maybe some selective tumour markers. Treatment would at least require conservative treatment of the appendix mass, wether it’s a mass or an abscess, until it resolves. Appendix abscess, as for other abscesses elsewhere, would ideally require drainage; in this setting by percutaneous or laparoscopic drainage options, which are not currently available in Labasa hospital.
The risk of recurrent appendicitis following an acute presentation is similar to the general population. Recurrent appendicitis or chronic appendicitis in most cases (75%) is due to an obstructive cause; either an appendicolith, swelling of the lymphoid tissue, intestinal parasites or, importantly, tumours of the appendix or caecum. These patients ideally should undergo an interval appendectomy, as had been seen in the majority (85.4%) of other patients with Chronic RIF pain who have signs of chronic inflammation of the appendix at surgery with histological evidence of fibrosis and lymphoplasmocytic infiltration. Most (87%) of these patients were cured following an interval appendectomy, despite the milder recurrence of symptoms or the risk of missing an appendiceal malignant tumour. It is also recommended by more than half (53.1%) of general surgeons in the United Kingdom (UK) to perform routine interval appendectomy weeks to 3 months after the initial presentation. This is despite reports from developing nations like Nigeria that the traditional initial conservative management is still an acceptable approach for appendix mass, as they would then require further investigations like CT scans when the diagnosis is uncertain. They would still recommend that interval appendicectomy should be done in patients with persistent right lower abdominal pain. This conservative approach could be quite costly and will only benefit a few Fijians with easy access to surgical care who should symptoms recur. The diversity and isolation of the Fiji islands would also suggest that doing an interval appendectomy would be safer with less morbidity and with risks that far outweigh the risks of cancer.

Malignant tumours of the appendix are rare and have been reported in 0.7%-6% of all appendectomies. Primary adenocarcinoma of the appendix is further classified histologically into mucinous adenocarcinoma, colonic adenocarcinoma, and adenocarcinoid. Some pathologists consider that the malignant mucocele which causes Pseudomyxoma peritonei (PMP) and adenocarcinoma causing carcinomatosis to be histologically identical and argue that they should be regarded as the same process. Despite this microscopic similarity, the natural histories of the two malignant tumours are distinct and other pathologists, including clinicians, would consider them as different disease processes. PMP which had been suspected for our patient is caused by rupture of a cystadenocarcinoma of the appendix with seeding of these mucin-producing cells on the omentum and peritoneal surface due to a translymphatic process. Peritoneal carcinomatosis (PC) on the other hand results from dissemination from a primary AAC due to iatrogenic, spontaneous perforation or from transacted lymphatics and blood vessels during surgery, suggestive of transmesothelial and translymphatic metastasis. This intracoelomic spread can also be governed by gravity, peristaltic movement of the gastrointestinal tract, and the negative pressure exerted by diaphragm muscle movements. A formal right hemicolecctomy is recommended for all AAC; unfortunately, our patient had an incomplete resection following a limited right hemicolecctomy. Further surgery and other treatment modality would be determined by the histopathology of the resected specimen. Any surgical debulking procedures do benefit patients with PMP and recent evidence has also shown some benefits of additional intraperitoneal chemotherapy which is not available locally.

Given the current evidence, we advocate that all adult patients presenting with an appendix mass or AA should have an interval appendectomy. The use of laparoscopic surgery would significantly reduce the morbidity associated with laparotomies and it’s a surgical skill that can be easily attained by surgeons in all of Fiji’s three divisional hospitals. This technique is safe with minimal morbidity as currently performed by trained laparoscopic surgeons living and working in Suva. The late diagnosis in our case has resulted in our patient’s grave prognosis, which will greatly impact on the upbringing of her newborn baby and the rest of her family.

Conclusion

Adenocarcinoma of the appendix is a rare malignancy that is surgically treatable when diagnosed early. We advocate that all adult patients in Fiji who had an acute presentation of either an appendix abscess or mass should have an interval appendectomy. This operative approach would prevent any primary malignancy of the appendix from being missed and also reduces recurrence of symptoms. This would significantly reduce the expenditure on the family and the health system in Fiji on regular follow ups and other radiological investigations. Interval appendectomy could be safely done laparoscopically and the surgeons in Lautoka and Labasa hospital could easily attain these operative skills.

Acknowledgement

We would like to acknowledge Dr Munkhbayar Regzen for allowing us to report this case and also to thank Dr Ahinoame Underwood for her expert opinion on the specimen.

References


“The Pacific Way ... is not a thing or state; it is the working out of a process. (But) ... the most important things in life are the most difficult to measure ... love, peace of mind, creativity, fulfillment, maturity or wisdom, for example”

Ratu Sir Kamisese Mara
Perspective from the Pioneers of the “Problem-Based Learning” and a Tribute to the Late Dr Jimione Samisoni: The Guinea Pigs

Jitoko K Cama\textsuperscript{a}
Anaseini Tinai Cama\textsuperscript{b}
Josaia Qovu\textsuperscript{c}

\textsuperscript{a}FRACS, MMed-Surgery, MBBS, DipHCP Consultant Paediatric Surgeon/Paediatric Urologist, Department of Paediatric Surgery, Waikato Hospital, Hamilton, New Zealand. \textsuperscript{b}Msc, Dip Oph, MBBS, DipHCP Pacific Island Sub Regional Secretariat, International Agency for the Prevention of Blindness, Pacific Eye Institute, Colonial War Memorial Hospital, Suva, Fiji. \textsuperscript{c}MBBS, Postgrad.Dip in Childhealth. General Practitioner and Medical Advisor to the AECOM/SPLA Medical Programme, Juba, South Sudan

Abstract

The pioneers or guinea pigs of the ‘problem-based’ learning have gone through many hurdles from criticism from other colleagues and a health system with very limited resources. This is their untold story from the Fiji perspective as the late Dr Jimione Samisoni once said ‘healing and giving back life to a patient is the most satisfying aspect of being a doctor’. (PHD 2012; Vol 18(2): p133-134)

Introduction

The ‘problem-based’ learning curriculum was first introduced at the Fiji School of Medicine in 1991 and has since seen many failures and successes. Many pioneers of this programme are now leaders in the Pacific region and some parts of the world. Medical education in Fiji has gone through many changes over the last century, with recent developments and modified curriculum and the different style of teaching with advanced teaching tools used today. The pioneers of problem-based learning have shown that Fiji School of Medicine can and has continued to produce and graduate quality medical doctors when compared to other medical schools in developed countries.

Problem-Based Learning: PCP/MBBS 2-Tier Program

Following the first coup de etat in Fiji of 1987 by Major Sitiveni Rabuka, there was mass emigration of health workers, especially amongst the Indo-Fijian doctors, to other countries like New Zealand, Australia, Canada and United States of America (USA). One of the outcomes of the coup was a decree to increase the proportion of ethnic Fijians to be trained as doctors, such that intakes into the Fiji School of Medicine would allow 50% of the students from Fiji to be ethnic Fijians. We the authors were fortunate to be part of that group. Being the guinea pigs of the Primary Care Practitioner course for the new 2-tier program, entering the Fiji School of Medicine in 1991 was not an easy task but a challenging and memorable moment in our respective medical careers.

Apart from having to learn individual subjects in anatomy, physiology, biochemistry, pathology and pharmacology as one would have done in the previous 6-year MBBS programme, we also had to learn the management of these medical problems. The programme of problem-based learning was more of having tutorials, group discussions, case presentations and researching rather than receiving didactic lectures. Lectures were significantly reduced and if a resource person or senior lecturer was going to provide a resource session, it was more of a class discussion with students providing the information. Clinical presentations, diagnosis or investigations and management were discussed from the first year of studies, whereas these had been clinical sessions held in the senior clinical years (4th to 6th year) of the old programme. As students, we were often called the “half-baked” or “bare-foot” doctors due to the lack of supervision. Yet, as determined by the late Dr Samisoni to the success of the new programme, students were motivated to pass the first 3 years with a Diploma in Health Care Practise (DipHCP) and to proceed to the second tier of the programme.

In that first year of problem-based learning in 1991, there were 40 students taken into the new PCP/MBBS programme -20 were from Fiji (10 ethnic Fijians and 10 Indo-Fijians and others) and the other 20 students were selected from the other Pacific island countries. Most of our colleagues from other Pacific countries were more mature in age and a few had a graduate degree compared to the Fijians who were more likely to have completed either Foundation Science at the University of the South Pacific or Fiji form 7 level within the previous 2 years. Out of the 40 student enrolled, only 32 students graduated with the DipHCP certificate of whom 14 were from Fiji.

Our tutors or lecturers during the first tier programme were MBBS graduands without any postgraduate...
Qualifications but with a few years of work in various specialities in medicine, emergency medicine and public health. They were great mentors and excellent teachers who excelled in trying to provide us with the appropriate knowledge to progress in the first 3 years of undergraduate training. The specialists or consultants from the previous MBBS classes would also provide us with the resource sessions but it was not on a regular basis. A major benefit to problem-based learning was the introduction of research which had been lacking in MBBS training; and this had contributed to the preparation for research in the rural attachment.

Following the success of the rural attachments in the 4th year, everyone was keen to return for the final 2 years of the MBBS training. A research project had to be conducted and presented at the end of the 4th year and based on one’s clinical supervisor’s (General Practitioners) report; trainees were then accepted to complete the second tier programme at the FSM. In the final 2 years of hospital based clinical training, the students participated in admissions, ward rounds, ward procedures, birthing units, clinics and in the operating theatres. The problem based learning had continued into the final years of training with great success. At the end of the final examinations in 1996, 28 students from the original pioneer group graduated with the MBBS degree, of whom 14 graduands were from Fiji. A few graduated a year later but all the 32 that had graduated with the DipHCP in 1993 had now graduated with a MBBS degree. A few of the local medical students from this programme got married in their student days – a trend which has continued today. The medical school at that time and even today has failed to provide accommodations for married couples who have to spend 6 years of their life learning. Nothing prepared us to the huge responsibilities of having to study to gain medical knowledge and the hours needed to nurture a newborn or an infant. We might have been brighter academically with great achievements but we had certainly lack the training of being parents as such an early age.

Since 1996 when we graduated with the MBBS degree, we have lost almost this entire group of young local doctors from the Ministry of Health (MOH) either to the private practise, to practice abroad or to pursue further medical education after migrating. This in a way has again proven and clearly shown the success of the 2-tier programme: that the calibres of our trainees at the Fiji School of Medicine are as good as any undergraduate medical degree in any developed countries. This however has also highlighted the lack of infrastructure and the lack of benefits for those doctors who chose to remain with the Ministry of Health in Fiji. Some from these doctors from this pioneer group have been retained as supervisors or tutors at the Fiji School of Medicine.

Conclusion

Changes in the technique of teaching will continue to develop even in developing countries like Fiji. Students have a much better advantage with accessing knowledge nowadays with better teaching facilities and hopefully with appropriate supervision prior to seeing patients. This will allow more patient safety and fewer complications but further assessment tools will need to be created so that competency and continuous medical learning are maintained to allow these new graduands to practise medicine safely. Problem based learning in medicine is the ideal way of learning for young adults and this achievements of graduands is a tribute to Dr Jimione Samisoni, who will be remembered as a teacher, a great leader and a father to most of his past students.

References


5. David Brewster. Fiji School of Medicine 1885-2010. Celebrating 125 years. PHD Vol 16, No2 : 125-127


Preparation of Pacific Health Workers for Climate Change.

Lisa M Thompson
Jennifer Doyle
Graham Roberts

*Human Resources for Health Knowledge Hub, School of Public Health and Community Medicine, University of New South Wales. Corresponding Author: g.roberts@unsw.edu.au

A regional priority

Strengthening the capacity of the health workforce to address the health effects of climate change was identified as a priority for the Region by the Pacific Health Ministers in the Madang Commitment of 2009. Climate change has been called the “biggest global public health threat of the 21st century.” Despite not producing greenhouse gases the Pacific Region has been identified as particularly likely to experience both direct and indirect effects of climate change. Rising sea levels may mean internal relocation or outmigration for many residents; changes to marine eco-systems and degradation of coral reefs will impact in the regions’ fisheries leading to food insecurity, and mental health problems may increase with population displacement. Also of concern is a predicted rise in vector borne diseases and a growing number of extreme events in a region that is already vulnerable to natural disasters.

The preparedness of health workers involves ensuring that they are available where needed and possess the skills and competencies to manage the health risks and health outcomes that are expected to occur. Although health impacts may vary by country, Ministries of Health have identified vector borne diseases, food security, respiratory disease and diarrhoeal diseases as priorities for most countries in the region. Addressing such health risks requires a skilled health workforce of epidemiologists, nutritionists, health and environment workers, health promoters, primary health care workers, nurses and doctors.

Expanding Health Worker Roles.

Preparation for climate change may provide the opportunity for health workers to expand their roles into facilitation; and potentially provides a community liaison role for primary health trained doctors returning to the Pacific from Cuba. Health workers can also contribute to research on the health impacts of climate change in their localities. Many will also be well placed to advocate for and support climate change adaptation initiatives, or to take up health promotion roles in other sectors in which health workers inform policy and practice. Health workers will have the opportunity to lead by example by developing and implementing strategies to reduce the environmental impacts of health facilities and systems, while also educating the general public on the expected health impacts of climate change.

Equitable delivery of health services is central to a just and fair health system and fundamental to human rights. Yet the inequitable distribution of climate change effects is well documented with those most at risk being the poorest populations who have contributed least to greenhouse gas (GHG) emissions. The Pacific region will be among the first to feel the effects of climate change at the country and local levels. Pacific health workers will therefore be among the first in the world required to take leading roles in countries and communities by initiating actions to reduce the adverse effects of climate change on vulnerable groups. This will require health system plans and adaptations that forecast the needs of children, the poor, the elderly, and those with pre-existing illnesses.

To undertake new roles effectively health worker training should include methods of facilitating community action. Roberts demonstrated the importance of the use and enhancement of existing community structures, and of working through people endorsed by their communities to act on their behalf. The essential activities of health workers in facilitation of community development are to provide relevant technical information and then to assist communities to present feasible plans to local authorities for funding or other support.

Key actions required within the health system include: disaster preparedness initiatives within the health sector and with communities, developing and improving early alert systems for communicable disease outbreaks and maintaining or expanding infectious disease control programs. The potential for damage to health infrastructure in extreme weather events requires contingency planning for patient transfers and for rapid construction of temporary facilities for patients seeking help and for health workers to have the necessary resources to respond to health needs.

Shortages of health workers and their outward migration have been major issues for health systems in Pacific region for some time and could be expected to increase as climate change progresses, extreme weather events...
increase in frequency and life becomes more difficult. Research indicates that dissatisfaction with the working environment and other professional considerations are influential ‘push’ factors in decisions to leave the region. Without increased preparedness and role adaptation, working in difficult environments and without sufficient resources, skilled health workers are likely to continue to migrate overseas.

Population relocation and staff deployment.

The relocation of populations living in low-lying areas has been proposed as a possible population adaptation strategy, and has been acted on in areas of the region previously experiencing high seas or rogue waves, although this is not an option for the low-lying Pacific atoll nations of Kiribati and Tuvalu. The precise consequences of climate change for health services and staff are difficult to predict, however, it is reasonable to assume an increase in demand for services arising from the negative physical, mental and emotional effects of displacement and relocation. Although there is as yet insufficient evidence that large scale relocation is a desirable adaptation strategy, it will require the deployment of appropriately trained and skilled staff to population relocations centres or to temporary camps for displaced persons.

Linking to other sectors

In preparedness work there is some scope to benefit from collaborative work on other priority issues in the Region, such as poverty alleviation and urban housing development. Strategies that address rising food costs and malnutrition, such as urban gardening also serve to improve food security thereby reducing vulnerability to climate change. Similarly, expanding health workers’ knowledge of government disaster preparedness initiatives will assist the workforce to prepare for mitigating the impacts of extreme weather events. The benefit of learning from past disaster experiences and investing in the preparedness of both health workers and the general community has been well demonstrated in the 2008 response to cyclone Nargis in Burma.

Conclusion

While a lot has been written in regard to climate change and its impact on the health of those living in the most affected areas, less attention has focused on the ramifications for health systems and human resources. We have sought to highlight some of the key issues potentially affecting the health workforce, and to forecast that health workers will need to work proactively as facilitators with communities and other stakeholders. In summary, climate change preparedness involves enhancing and utilising the strengths of health workers in new ways. In a region prone to natural disasters and most likely to suffer from the effects of climate change, preparedness is not an alternative but an imperative.

References


19. Oman K. Should I migrate or should I remain?: professional satisfaction and career decisions of doctors who have undertaken specialist training in Fiji: James Cook University; 2007.


“Silence may be as variously shaded as speech”

Edith Wharton
Future Trends for Human Resources for Health in the Asia Pacific Region

Graham Roberts
John Dewdney

*Human Resources for Health Knowledge Hub, School of Public Health and Community Medicine, University of New South Wales. Corresponding author: g.roberts@unsw.edu.au

Introduction

Forecasting the trends in human resource for health and identifying their driving forces in the Asia Pacific region is subject to the huge diversity of its country members; across all World Bank classifications of economies, ranging from the most to the least populous countries in the world, with diverse health systems ranging from bare essential to universal coverage and situated across vastly differing geographical areas. The resultant epidemiological and health systems differences require the description of several projected scenarios for the future production, development and management of human resources for the health.

Concurrent epidemiological, demographic and climate changes occurring in the region will require larger health systems with significantly enhanced workforce capacity for noncommunicable disease prevention, the provision of home-based care to ageing populations, the use of technological innovations and in cross-sectoral engagement for community development to reduce the potential impacts of climate change and deteriorating environments due to urbanisation and industrialisation.

Observable trends in health workforce availability forecast a continuing need to attract and retain health workers in rural and remote areas, to identify the potential benefits of labour market mobility and regional agreements, to create systems that ensure the quality of health professional production appropriate to emerging health needs, and to concurrently strengthen policy, management and governance capacity at national levels and in decentralised health systems.

The increasing prevalence of noncommunicable diseases has overwhelmed current health service capacity for promoting risk reduction and disease prevention and now requires significant changes to the training and roles of primary health care and community level workers, or the creation of new cadres. The significantly increased involvement of the private sector in health worker production and health service delivery will require new governance systems and policy analysts for the regulation of both graduates and service providers, and for avoiding the potential skews in the health workforce that may arise from medical tourism.

Forecasted trends:

1. The volume of demand and the utilisation of health services will increase due to population growth, population ageing and as the proportion of the middle class increases.

This trend forecasts the need for significant increases in health worker training places, more jobs at all levels, larger HR budgets and either more health facilities or alternative service delivery modes. Population projections indicate that the world’s population will increase to almost 9 billion by 2050, that the majority of growth will occur in the world’s least developed countries, that the proportion of the Asian population aged 50 and over will double over the next 50 years and the proportion of the aged population (60 and over) will double from 11% to 22% by 2050. It is estimated that by 2030 two thirds (66%) of the world’s middle class will be living in the Asia Pacific region. These changes have major implications for the size and nature of the health sector, its staffing requirements and for the roles they will perform. The production of increased numbers of health professionals will, in Asia, be increasingly provided through private sector institutions funded by private fee-paying students, while in the Pacific the financial incentive for providers will be limited by small populations and small markets. Global, regional and sub-regional professional labour market mobility will increase, although with a migratory bias towards the wealthier countries.

2. Urbanisation continues to increase and contributes to the increased volume of demand for health services in urban areas and the depletion of staff numbers in rural areas.

The countries of Asia and the Pacific are experiencing rapid urbanisation as populations seek educational and employment opportunities, stimulation and economic security. The health impacts of rapid urbanisation in the region will increase and will include the communicable disease impacts arising from poor sanitation, poor water supply, housing and waste disposal and the longer term social determinants of health of poor diets, unemployment, lack of recreational time and space, social alienation, drug abuse and urban crime. As the economies of the region improve the benefits will not be universally distributed, so in those countries that do not achieve a measure of universal coverage two-tiered health systems will consolidate; for those who can pay...
and for those who cannot, and health professionals will be attracted to work in the better funded services, including those that may provide services catering to medical tourism. The rise of the middle class increases the ability to pay for services and also to pursue litigation, requiring continued improvements in the quality of services and the availability of treatment options, including high cost technology and pharmaceuticals. As urbanisation applies also to health workers, it can be anticipated that the deployment of health professionals to rural and remote areas of the region will require the implementation of effective incentivising systems, such as salary supplements, the provision of housing and security and policy adjustments to retirement age.

3. As a consequence of urbanisation and increasing industrial pollution, public health conditions will deteriorate and require investment in environmental health monitoring, infrastructure development and new high level staff to be involved in public health advocacy for environmental protection.

The health sector response to deteriorating environmental health conditions will increasingly require environmental health staff to engage in cross-sectoral approaches and partnerships at all levels including laboratory, field workers and labourers, and to engage in knowledge translation and health advocacy at high levels. This will require a transformation of environmental health staff training from being the preparation of staff for local inspectorates to include higher level qualifications in technical, legal and policy areas, and a career structure that allows cross-sectoral mobility.

4. Management capacity is stretched as health systems management units increase in number and technical sophistication and as decentralisation, devolution and privatisation occur.

A combination of factors will test health service management capacity, including population growth, decentralised administration to local officials and devolved responsibilities to local government, as more communities and management units require management and advocacy capacity, while inadequate production of specialist health service managers and a reliance on clinicians to serve as both clinicians and managers will continue. Several countries in the region have decentralised the management of health services to local officials or have devolved responsibilities for all but referral hospitals to local governments (Papua New Guinea, Philippines, Indonesia and the Solomon Islands). Decentralisation is driven by the dual concerns for local representation and management efficiency, although its implementation has achieved variable outcomes. Devolution of budgets and responsibilities to local governments necessitates the additional management skill of advocacy for the health sector in competition with others. The HRH Hub has identified weaknesses in management capacity, particularly in financial and human resource management, at the provincial and district levels and has raised concerns related to the preparation for the role of the district health manager. While larger countries of the region have the potential to diversity into public sector management specialties, including higher level qualifications in leadership and management, those with small populations and economies will continue to rely on generalist managers or clinicians, thereby limiting the capacity to develop innovative specialist health sector management policy. Concurrently, conditions of employment and weak systems for managing the clinical supervision of recent graduates posted to rural areas will need to be significantly strengthened to support rural retention. Pacific countries with smaller staffing resources may need to consider pooling high level expertise into a central administrative advisory group.

5. Health professionals’ roles change as epidemiological transitions quicken pace as populations age and economies expand.

The region is predicted to experience continuing increases in the prevalence of noncommunicable diseases, the incidence of injury and traffic accidents and the adverse public health effects of climate change. These changes are driven by economic growth, global trade, dietary change, and global warming and are unlikely to be reversed. The epidemiological trend towards non-communicable diseases will quicken as a function of population ageing. Worldwide, NCDs currently represent 43 per cent of the burden of disease and are expected to be responsible for 60 per cent of the disease burden and 73 per cent of all deaths by 2020. Accident and injury rates will increase due to increasing reliance on motorised transport and activity in the construction industry, both of which will increase pace, for the central human resource for health question is whether to modify the roles of existing cadres, or to identify roles for new cadres, such as NCD prevention personnel. To address noncommunicable diseases and multiple morbidities in older people requires a different set of skills than for responding to the health needs of younger populations, specifically in chronic disease care (e.g. for diabetes), counselling on risk factors and behaviours, mental health support and to provide as much of the service as possible in patients’ homes. Staff will increasingly be involved in the early detection of disease, chronic disease care and rehabilitation, while also maintaining services for younger populations. It seems unlikely that without the advent of a major disaster, war or the emergence of an unchecked pandemic that the increase in the region’s population will be reversed in the next 4 decades or that the factors of ageing and economic growth will alter from current predictions.
6. Newly emerging pandemic diseases pose the threat of significant mortality in the region and require increased and vigilant surveillance, access to vaccinations and a human resource response.

The Asia Pacific region presents the world’s greatest risk for emerging diseases, as evidenced by Sudden Acute Respiratory Syndrome (SARS) and avian influenza (H1N1). Achieving effective pandemic preparedness commences with acceptance of the International Health Regulations and surveillance systems, and staff able to interpret and respond to reports of increased incidence. Preparedness and response will require animal health cadres (veterinarians and vet assistants), epidemiologist and disease control specialists as well as medical and nursing staff. Access to vaccination by countries that are non-producers will require health advocacy to be effective in high levels of departments of foreign affairs. For example, in the Asia Pacific region the WHO prequalified H1N1 vaccine is produced only by Australia, India and Korea. There is some potential for an international agency, such as WHO, to negotiate and oversee the distribution of vaccines to non-producing countries.

7. The private sector increases its investment in health professions training, requiring improvements in systems for the international accreditation of educational programmes and for the licensing of graduates by national or international authorities.

Graduates from private universities or colleges will seek license to practice their new profession from national authorities. As has occurred in Cambodia and Indonesia it can be anticipated that all graduates of medical schools (public or private) will be required to pass a national examination prior to licensure to practice. Concurrently, graduates of an increasingly diverse range of international health professions programmes will seek employment in countries other than the ones in which they were trained. International scholarship offers, provided for diplomatic reasons with little reference to national health workforce plans will contribute to this trend, unless rationalised, and will place pressure on national licensing authorities to endorse graduates for professional practice and on public sector employers to provide employment opportunities. While current developments proceed, the institutions involved in funding, training and licensing health professionals will be challenged to maximise the positive benefits of change, including international mobility, while minimising the adverse risks that are inevitably inherent in policy reform.

8. Professional labour market mobility increases as regional trade and diplomatic agreements are extended to include the professional workforce.

It can be anticipated that the Asia Pacific region will emulate the European Union and the Caribbean Community to create or extend regional agreements, such as the ASEAN countries adopting the ASEAN Economic Community Framework by 2020 to allow free movement of doctors, nurses and other professionals, and as Pacific countries move towards formalising regional professional mobility by adopting common systems of program accreditation and the licensing and regulation of graduates. While professional mobility offers the potential to address skills shortages, if left to market forces, it is unlikely that the problems of retaining staff in rural and remote areas will be addressed. Accordingly, the regulation of market mobility to and in countries will require policy strategies to overcome the potential for the pooling of excess staff in urban centres.

9. An increase in the use of telemedicine, remote diagnostics and on-line learning.

The impacts of geography and distance from health services apply to most areas of the Pacific region and to the remote areas of Asia. The potential for new and emerging technological innovations to overcome distance will develop into the provision of remote diagnostics and treatment support from centrally based specialist to clinicians in the field, epidemiological mapping of health needs and staff deployment leading to the reduction of staffing inequalities within countries, and access to on-line learning for health professionals. The use of such technologies will increase the demand for specialist consultations and services and will need to be incorporated into health worker training programs. A cadre of information technicians will be required to support their application and maintenance.

10. As health systems grow in response to increasing need and demand it will become increasingly important to conduct research in the area of human resources for health, in order to identify feasible and cost-effective methods of service provision.

As the human resource is the most costly recurrent item in most health service budgets, the need for competent research into identifying effective health staffing policy and interventions will increase in urgency. The development of an HRH research capacity will depend also on the quality of information generated by the health system, so it could be anticipated that the development of research capacity will contribute to strengthening health information systems. The development of cadre capable of identifying trends, conducting research and proposing evidence informed policy will increasingly be of critical importance to cost containment, efficiency and service effectiveness.

References


“*The greatest part of our happiness or misery depends on our dispositions and not our circumstances*”

*Martha Washington*
Writing a Good Abstract: A guide to good abstract writing for medical science journal articles

Christian Chinyere Ezeala\textsuperscript{a}
Mercy Okwudili Ezeala\textsuperscript{b}

\textsuperscript{a}PhD, AMLSCN, MSB, CBiol, CSci. Associate Professor, Department of Pharmacology, School of Health Science, College of Medicine, Nursing \& Health Sciences, Fiji National University, Suva, Fiji; Email: christian.ezeala@fnu.ac.fj. \textbf{Corresponding Author}: christian40ezeala@yahoo.com \textsuperscript{b}BA, PGDPH, PGCEd. Lecturer, Department of Communication, College of Humanities \& Education, Fiji National University, Suva, Fiji; Email: mercy.ezeala@fnu.ac.fj

Abstract

Abstract writing for a medical science journal article could pose significant challenges for inexperienced authors. The purpose of this paper is to provide a guide for writing a good abstract for medical science journal articles. It used examples published in a range of medical and health science journals to highlight the purposes, features, and structure of a good abstract. A good abstract should include a background, objectives, a concise but informative description of methods used, concisely presented results which should include real data, and a conclusion that is justified by the results. The abstract should be bravely written in good grammatical English, and take into account the journal’s specifications on word length and structuring. Using these guides could make the art of abstract writing easy for aspiring authors.--(PHD 2012; Vol 18(2): p133-134)

Key Words: Abstract, journal article, medical science, publication, writing style

Introduction

Writing a scientific article for journal publication can be a daunting task for young inexperienced authors. Although all sections of a manuscript are important and should be well written, the abstract is usually the first section to be read and its content can either attract or repel a reader. There are many factors contributing to poor quality in manuscripts, some of which have been presented in recent articles.\textsuperscript{1-3} Despite the emphasis given to good manuscript preparation and guidelines provided by the journals, many authors still find it hard to produce manuscripts that are compelling or abstracts that are enticing to readers. This paper presents an illustrated guide to good abstract writing for medical and health science journal articles by using examples from articles that are published in well recognized health sciences journals. The authors hope that this will be an interesting resource for both experienced and armature authors aspiring to write scientific articles for publication.

An understanding of the meaning and purpose of an article abstract is important to good abstract writing. An abstract has been defined as “(A) brief summary of a research article that emphasizes what is new, captures the salient features of the purpose, design, findings, and implications, and contains no unnecessary sentences or explanations.”\textsuperscript{4} The purpose of the article abstract is to make it easy for readers to quickly grasp the key points of the article. This will help them determine their interest in the article and/or its relevance to their work. As a brief summary, the abstract is expected to be an exact reflection of the content of the main text. It should not contain any information that is not presented in the main text, neither is it expected to exclude vital findings or shortcomings of the research. The emphasis should be on the novel features of the article, and it should be presented logically along the lines of the sections of the article’s main text. This includes context and background, objectives, the setting of the research, work done or materials and methods, findings/results, and conclusions from the results.

As a rule, abstracts do not include citations, figures or tables; however the format of an abstract may vary from discipline to discipline and from journal to journal. Some features of a journal article’s abstract distinguish it from conference abstracts designed for oral or poster presentation. These features, among others, include that journal abstracts could be indexed in academic databases while conference abstracts are not so indexed, some journals do not allow conference abstract citation in their articles, and often conference abstracts are not recognized as publications in the same manner articles are treated. Box 1 presents a summary of some factors that make a good medical science journal abstract.
Box 1: Features of a good abstract

What makes an abstract good?

1. It is a brief summary of completed or ongoing research article.
2. It includes information on the context or background of the study;
3. It states the rationale for the study
4. It has clear objectives/project statement
5. It has a succinct presentation of the work done
6. It contains clear and logical presentation of findings;
7. Its conclusions are supported by the results
8. It includes a take-home message or statement of impact;
9. It has been written according to journal guidelines: – structured or unstructured, word limit, etc.
10. It has good grammatical writing.

Sections of an Abstract

Context/Background: This section of the abstract answers the questions: Why did you start? What is the article about? Why is it important? This should be stated in one or two sentences. A few examples will illustrate this.

Example 1a: "In north India, vitamin A deficiency (retinol <0.70 μmol/L) is common in pre-school children and 2—3% die at ages 1.0—6.0 years."5

Example 1b: "Large health surveys use subjective (self-reported) and objective (biomarkers) measures to assess health status. However, the linkage or disparity of these measures has not been systematically studied in developing countries."6

Example 1c: "Confidentiality is known to be a challenging aspect of physiotherapy practice. This paper explores current guidance available to the profession in New Zealand."7

These examples used one to two sentences each to summarize the respective purposes and importance of the research.

Objectives: You may use one sentence to summarize the aims or objectives of the article. Some journals do not include background material in their abstracts, so the objectives may be the opening section of the abstract.

Example 2a: "To describe the use of mifepristone in combination with buccal misoprostol in women undergoing an early medical abortion (EMA) in Australia."8

Example 2b: "This study explored the transition to parenthood and the relationship between parenthood and family functioning in first-time mothers and fathers."9

Example 2c: "The purpose of this study was to evaluate the effectiveness of a community-based health promotion program targeting people with hypertension and high cholesterol."10

Methods/Setting/Work Done: In this section, you are expected to provide a concise description of study design & methodology used in the study. Because this section provides a lot of information, it should be generally comparatively longer than the previous two sections. Further examples will illustrate this:

Example 3a: "Using data from the Philippine Quality Improvement Demonstration Study, QIDS, this study evaluated the associations between General Self-Reported Health Status (GSRH) and height, weight, hemoglobin, red blood cell folate, C-reactive protein, and blood lead levels. The authors modeled each biomarker as a function of GSRH controlling for socioeconomic status and selection effects. Changes in biomarkers and GSRH in children who had previously been hospitalized were also examined."6

Example 3b: "We conducted a double-blind, multicenter trial involving 3020 patients with recent symptomatic lacunar infarcts identified by magnetic resonance imaging. Patients were randomly assigned to receive 75 mg of clopidogrel or placebo daily; patients in both groups received 325 mg of aspirin daily. The primary outcome was any recurrent stroke, including ischemic stroke and intracranial hemorrhage."11

Example 3c: "Participants in this cluster-randomised trial were pre-school children in the defined catchment areas of 8338 state-staffed village child-care centres (under-5 population 1 million) in 72 administrative blocks. Groups of four neighbouring blocks (clusters) were cluster-randomly allocated in Oxford, UK, between 6-monthly vitamin A (retinyl acetate capsule of 200 000 IU retinyl acetate in oil, to be cut and dripped into the child’s mouth every 6 months), albendazole (400 mg tablet every 6 months), both, or neither (open control). Analyses of retinol effects are by block (36 vs 36 clusters). The study spanned 5 calendar years, with 11 6-monthly mass-treatment days for all children then aged 6—72 months. Annually, one centre per block was randomly selected and visited by a study team 1—5 months after any trial vitamin A to sample blood (for retinol assay, technically reliable only after..."
mid-study), examine eyes, and interview caregivers. Separately, all 8338 centres were visited every 6 months to monitor pre-school deaths (100 000 visits, 25 000 deaths at ages 10—60 years [the primary outcome]). This trial is registered at ClinicalTrials.gov, NCT00222547.95

One of the pitfalls of this section includes omitting vital information on the methods used in attempt to reduce word count. Rerphrasing sentences could be helpful while words and phrases that do not add to the understanding of the abstract should of course be removed.

**Results:** This is usually the longest section of the abstract. Occasionally it may be as long as or shorter than the methods section. You should concisely present your findings including real data! An abstract that contains no real data is not complete. However, abstracts should not contain tables and figures. Presented below are good examples:

**Example 4a:**

“In developing countries, mean HAZ improved from −1.86 (95% uncertainty interval −2.01 to −1.72) in 1985 to −1.16 (−1.29 to −1.04) in 2011; mean WAZ improved from −1.31 (−1.41 to −1.20) to −0.84 (−0.93 to −0.74). Over this period, prevalences of moderate-and-severe stunting declined from 47.2% (44.0 to 50.3) to 29.9% (27.1 to 32.9) and underweight from 30.1% (26.7 to 33.3) to 19.4% (16.5 to 22.2). The largest absolute improvements were in Asia and the largest relative reductions in prevalence in southern and tropical Latin America. Anthropometric status worsened in sub-Saharan Africa until the late 1990s and improved thereafter. In 2011, 314 (296 to 331) million children younger than 5 years were mildly, moderately, or severely stunted and 258 (240 to 274) million were mildly, moderately, or severely underweight. Developing countries as a whole have a 5—10% chance of meeting the MDG 1 target; but 61 of these 141 countries have a 50—100% chance.”12

**Example 4b:**

“The participants had a mean age of 63 years, and 63% were men. After a mean follow-up of 3.4 years, the risk of recurrent stroke was not significantly reduced with aspirin and clopidogrel (dual antiplatelet therapy) (125 strokes; rate, 2.5% per year) as compared with aspirin alone (138 strokes, 2.7% per year) (hazard ratio, 0.92; 95% confidence interval [CI], 0.72 to 1.16), nor was the risk of recurrent ischemic stroke (hazard ratio, 0.82; 95% CI, 0.63 to 1.09) or disabling or fatal stroke (hazard ratio, 1.06; 95% CI, 0.69 to 1.64). The risk of major hemorrhage was almost doubled with dual antiplatelet therapy (105 hemorrhages, 2.1% per year) as compared with aspirin alone (56, 1.1% per year) (hazard ratio, 1.97; 95% CI, 1.41 to 2.71; P<0.001). Among classifiable recurrent ischemic strokes, 71% (133 of 187) were lacunar strokes. All-cause mortality was increased among patients assigned to receive dual antiplatelet therapy (77 deaths in the group receiving aspirin alone vs. 113 in the group receiving dual antiplatelet therapy) (hazard ratio, 1.52; 95% CI, 1.14 to 2.04; P=0.004); this difference was not accounted for by fatal hemorrhages (9 in the group receiving dual antiplatelet therapy vs. 4 in the group receiving aspirin alone).”11

**Example 4c:**

“Estimated compliance with 6-monthly retinol supplements was 86%. Among 2581 versus 2584 children surveyed during the second half of the study, mean plasma retinol was one-sixth higher (0.72 [SE 0.01] vs 0.62 [0.01] µmol/L, increase 0.10 [SE 0.01] µmol/L) and the prevalence of severe deficiency was halved (retinol <0.35 µmol/L 6% vs 13%, decrease 7% [SE 1%]), as was that of Bitot’s spots (14% vs 3.5%, decrease 2.1% [SE 0.7%]). Comparing the 36 retinol-allocated versus 36 control blocks in analyses of the primary outcome, deaths per child-care centre at ages 10—60 years during the 5-year study were 3.01 retinol versus 3.15 control (absolute reduction 0.14 [SE 0.11], mortality ratio 0.96, 95% CI 0.89—1.03, p=0.22), suggesting absolute risks of death between ages 10 and 60 years of approximately 2.5% retinol versus 2.6% control. No specific cause of death was significantly affected.”12

**Conclusion:** Here you should present a brief interpretation of the results, stating the implications and making recommendations for action. The conclusions should be supported by the results presented. Limitations of the study may be briefly highlighted. One or two sentences will be okay for this section.

**Example 5a:**

“DEVTA contradicts the expectation from other trials that vitamin A supplementation would reduce child mortality by 20—30%, but cannot rule out some more modest effect. Meta-analysis of DEVTA plus eight previous randomised trials of supplementation (in various different populations) yielded a weighted average mortality reduction of 11% (95% CI 5—16, p=0.00015), reliably contradicting the hypothesis of no effect.”95

**Example 5b:**

“Macroeconomic shocks, structural adjustment, and trade policy reforms in the 1980s and 1990s might have been responsible for worsening child nutritional status in sub-Saharan Africa. Further progress in the improvement of children’s growth and nutrition needs equitable economic growth and investment in pro-poor food and primary care programmes, especially relevant in the context of the global economic crisis.”12
Example 5c:

“In addition to being a measure of overall child health status, GSRH may be a useful and inexpensive screening tool for identifying children that need further health testing.”

Form, Style, and Grammar

Though the abstract is usually the last section of the article to be written, it should not be done in a hurry. Attention to detail with respect to language is important. The abstract should preferably be written in the active voice, objectively, and briefly. Abstracts generally capture the interest of readers by using a simple language appropriate for conveying information in the discipline. Authors as their own editors should read and proofread their abstract and be satisfied that it is a true summary of the text. Submitting the article and, in this context, the abstract to colleagues to proofread may be helpful. Authors should remember that brevity and conceptual precision is important!

The authors should refer to the journal's instruction to authors to ensure the abstract is in the right format. Some journals have their abstracts structured, with specified subheadings. Others use unstructured format. Whatever the format recommended by the journal, the concepts presented in this article are applicable.

Coping With Word Limits

The word limit required for the abstract varies from one journal to another but generally lies between 100 and 400 words. The authors of this article recommend that the draft of the abstract be written completely, and then edited to remove unnecessary sentences and words. Sentences could be restructured to clarify their meaning or reduce the word length. This should continue until the required word length is achieved without removing important points of the abstract.

Conclusion

Writing an abstract could be fun, but it could also be daunting to the inexperienced writer. This article has provided an illustrated guide to abstract writing. The unique features of each section were stressed, as well as the need for brevity, objectivity, comprehensiveness, logical organization, and good grammatical writing. Compliance with a journal's specifications was also stressed, in particular word length and structuring. This article could be a learning resource for faculty development in writing skills.

References


3. Pierson DJ. The top 10 reasons why manuscripts are not accepted for publication. Respir Care. 2004;49(10):1246-52. PMID: 15447812.


Australia and New Zealand’s support for skilled health workforce in maternal, newborn and child health in the Pacific

Shanti Raman*
Alec Ekeroma
Jed Horner
Glen Mola
Graham Roberts

Corresponding author: Shanti.Raman@sswohs.nsw.gov.au.

Abstract

Objectives: Australia and New Zealand (ANZ) have a long history of involvement in Pacific Island countries (PICs), which face a disproportionate burden of maternal, newborn and child health (MNCH) morbidity and mortality. We aimed to identify current training and support initiatives in PICs in MNCH, by ANZ peak bodies, explore gaps in geographical reach and highlight examples of good practice to inform planning.

Methods: We carried out in-depth interviews with key informants from peak professional bodies representing skilled MNCH workers across ANZ and a scoping review of the literature. Thematic analysis was carried out triangulating findings from interviews and literature.

Results: Training initiatives were most commonly identified as visible support for Pacific MNCH workforce. Gaps were identified in specific training needs, including in population health and planning. Major geographical inequities were identified in workforce distribution, a complex migration dynamic exacerbating workforce stresses. There is significant bilateral investment by ANZ governments in the provision of health services; but a breakdown of MNCH-specific funding is unavailable. While there was widespread good will from all peak bodies, sustained commitment was limited to initiatives supported by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Cultural ties, leadership and commitment were crucial for successful engagement with PICs.

Conclusions and implications: A collaborative approach to training and support of skilled MNCH workers in PICs, mapped to population needs, is urgently required. Targeted commitment by ANZ peak bodies working in partnership with global agencies can support the skilled workforce in MNCH in the region.--(PHD 2012; Vol 18(2): p146-153)

Key Words: Pacific Island countries, human resources for health, maternal newborn and child health

Introduction

As we rapidly advance towards 2015, the possibility of achieving the Millennium Development Goals (MDGs), particularly goals four and five that relate to children and women remain a dream for many Pacific-Island Countries (PICs) in our region. Maternal and child morbidity and mortality remain unacceptably high in many PICs particularly in Melanesia, with significant proportions of women delivering alone or with a poorly skilled attendant. Particular challenges for reproductive health in the region include adolescent health, with Melanesia, alongside Sub-Saharan Africa, being the only other world region predicted to have a ‘youth’ population higher than 40% by 2015. Countdown to 2015 reports suggest that much more can and should be done to address reproductive and child health; coverage of interventions related to family planning, care around childbirth, and case management of childhood illnesses which require skilled health workers is critical. It is clear that in the high mortality burden countries of the Pacific, to meet the clinical and public health gaps, there is a need for an increased focus on training needs of MNCH health workers.

There are persistent challenges in training, retaining and providing adequate professional development opportunities for skilled MNCH workers in PICs. Many factors contribute to the health workforce constraints in PICs, including outward migration, poor retention incentives and a lack of opportunities for in-country training. Significant levels of skilled health worker migration contributes to chronic staff shortages, often in the areas with the highest levels of need and the fewest available skilled healthcare workers, effectively impeding the ability of certain countries to deliver ‘affordable, accessible and acceptable’ healthcare services for their populations. This exacerbates existing inequities
in health and healthcare, consequently impedes the achievement of the MDGs relating to MNCH.

Australia and New Zealand (ANZ), as high-income countries in the Asia-Pacific region, have a long history of involvement in providing training, support and opportunities for collaboration for MNCH workers from PICs, mainly through supporting the Fiji School of Medicine (now Fiji National University) and the University of Papua New Guinea (UPNG).\textsuperscript{11-13} Substantial input from committed individuals and supporting organisations have built up a sustainable surgical program in PICs,\textsuperscript{14, 15} considerably strengthened paediatrics in PNG,\textsuperscript{16-18} and child survival initiatives in PICs.\textsuperscript{19,20} We know from internationally available evidence that availability of appropriately trained doctors, nurses and midwives is positively correlated with coverage of skilled birth attendance and therefore positive outcomes in MNCH.\textsuperscript{21} There have been numerous calls to action at a global level, with the adoption of a Global Code of Practice on the International Recruitment of Health Personnel by the World Health Assembly in 2010.\textsuperscript{22} However, there is a paucity of research concerning the initiatives underway to address these issues at a regional level, in countries such as Australia and New Zealand, which are recipients of significant numbers of skilled healthcare workers from neighbouring low and middle income countries.\textsuperscript{23} We aimed to address this lacuna, through exploring the initiatives currently undertaken by ANZ peak bodies, in the area of training, support and collaboration for MNCH health workers in PICs.

Methods:

Using qualitative research methods emphasising “exploration, discovery and inductive logic”\textsuperscript{24} we conducted semi-structured interviews by telephone with key informants (n=9) affiliated to the major medical and nursing educational institutions in Australia and New Zealand in MNCH and the two educational institutions in the Pacific namely Fiji National University (FNU) and UPNG that trains MNCH workers. We also undertook an augmented ‘scoping review’,\textsuperscript{25} using a combination keyword search of the major regional journals, supplemented by snowballing from references identified within existing literature and document referrals from those we interviewed. Inclusion criteria were that the project, initiative or policy (1) involved the provision of institutional support, training or collaboration opportunities, on the part of a government agency, health professional training body, or community-based organisation, in the area of MNCH and (2) occurred within the past twenty years.

Data analysis

For the first phase of data analysis, employing an iterative approach, we collectively reviewed articles and strategic documents of potential relevance to the study, identified through the search results of the scoping review, which included document referral from key informants. During the second phase of analysis, the key informant interview transcripts were thematically analysed, with common themes identified during this phase of analysis. Finally, we undertook a form of ‘data-source triangulation’, with the findings of the document review and key-informant interviews considered in light of each other, and in relation to our overarching research questions.

Ethics approval for this project was received from the University of New South Wales Human Research Ethics Advisory Panel.

Findings

Goodwill and cultural ties

A recurring theme from all respondents from ANZ peak bodies, as well as UPNG and FNU, was the abundance of goodwill from individuals and agencies flowing towards PICs and Pacific health workers. Much of the support was informal and based on personal relationships, historic and cultural ties. Personal connections between Obstetrics and Gynaecology (O&G) specialists from ANZ and their Pacific peers were a powerful force in shaping the Royal Australian and New Zealand College of Obstetricians and Gynaecologists’ (RANZCOG) commitment to the region; this has been formalised and resourced for the past 20 years. There were similar connections between ANZ paediatricians and PIC paediatricians, the Paediatric workforce in PNG and Fiji attesting to reciprocal respect and friendship. The terms of reference for the South Pacific Committee of the Royal Australasian College of Physicians has recently been drafted, and awaiting finalisation. Table 1 lists the key activities undertaken by ANZ bodies in supporting health workers in MNCH.

Training as most visible form of support

The most frequently cited form of practical and professional support provided by ANZ institutions was training. Taking the lead in this area, RANZCOG offers a number of training and support programs and initiatives, administered, monitored and evaluated by the RANZCOG Asia Pacific Committee (table 1). As the current President of RANZCOG put it “training is what we are here for, training is what we do best”. Significant support for MNCH training at undergraduate level came from AusAID and New Zealand Aid through the support of the Pacific medical and nursing schools.\textsuperscript{26,27} Respondents also suggested that many training initiatives were ad-hoc and poorly planned. As with other support initiatives personal links and cultural connections played a part in organising specific training activities. The need for a more concerted effort placed on midwifery training was seen as crucial, both the Australian and New Zealand Colleges
<table>
<thead>
<tr>
<th>Organisation</th>
<th>Pacific Committee</th>
<th>Key activities</th>
<th>Training</th>
<th>Innovations</th>
<th>Budget</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RANZCOG1</td>
<td>Asia Pacific Committee</td>
<td>active for over 20 years</td>
<td>Reports to RANZCOG Board</td>
<td>Defined terms of reference</td>
<td>Academic support for Pacific medical schools, especially those in the Pacific region</td>
<td>Systematised through liaison with Pacific medical schools</td>
</tr>
<tr>
<td>RACP2 (Paediatrics Child Health Division)</td>
<td>South Pacific Committee</td>
<td>just being formed, terms of reference being finalised</td>
<td>Informal relationships and professional support</td>
<td>Drivers for activity are Pacific background physicians living in New Zealand</td>
<td>informal links with Pacific medical schools and physicians</td>
<td>Scholasrics for Pacific medical students to attend conferences and workshops</td>
</tr>
<tr>
<td>New Zealand College of Midwives</td>
<td>New Zealand College of Nurses</td>
<td>No</td>
<td>Informal links with Pacific midwives</td>
<td>Scholarships for Pacific midwives to attend conferences</td>
<td>Pacific midwives being trained in Pacific countries</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand College of Nurses</td>
<td>Australian College of Midwives</td>
<td>No</td>
<td>Informal relationships and professional support</td>
<td>Scholarships for Pacific midwives to attend conferences and workshops</td>
<td>Pacific midwives being trained in Pacific countries</td>
<td>No</td>
</tr>
<tr>
<td>RACGP3</td>
<td>No</td>
<td>Tailored GP training program for rural PNG doctors through National Rural Faculty over last 2 years</td>
<td>Offer honorary overseas membership for rural registrars enrolled in PNG training program</td>
<td>Informal links with PNG doctors and physicians in rural and remote areas of PNG</td>
<td>T stringent training program for rural and remote areas of PNG</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand College of Nurses</td>
<td>New Zealand College of Nurses</td>
<td>No</td>
<td>Focus on Maori/Pacific nurses working in New Zealand</td>
<td>Informal links with Pacific midwives</td>
<td>Pacific midwives being trained in Pacific countries</td>
<td>No</td>
</tr>
</tbody>
</table>

1. RANZCOG: The Royal Australian and New Zealand College of Obstetricians and Gynaecologists
2. RACP: The Royal Australasian College of Physicians
3. RACGP: The Royal Australian College of General Practitioners
4. ICM: International Confederation of Midwives

Table 1: Support provided by Australian and New Zealand bodies for skilled maternal, newborn and child health workforce in the Pacific Region
of Midwifery acknowledging their potential roles in leadership in this regard.

Limited human resources base

There is a small pool of people who have the requisite qualifications to enter the healthcare workforce in PICs, attributed to the shortage of training facilities at country level. A recent World Health Organisation (WHO) country report on Papua New Guinea (PNG), noted that despite significant bilateral aid from Australia, New Zealand, Japan and the European Union (EU), there remain enduring gaps in healthcare resourcing, characterised by an “inappropriate distribution of healthcare staff” and compounded by “education and training which do not always meet the healthcare system needs”. Smaller Island states, such as the Solomon Islands, have greater struggles in training and retaining skilled healthcare professionals such as paediatricians, which poses long-term challenges to the viability of child-specific services in these countries. PNG lost most nursing schools in the 1990s, when all nursing schools were obliged to have university affiliation, the already critically endangered workforce in PNG had a real-time loss of nurses and community health workers between 2004-9. Potentially exacerbating this problem is the provision of ANZ aid scholarships to highly trained and skilled PIC professionals, which results in not only a temporary loss of skills, but contributes to brain drain.

A complex migration dynamic

Respondents generally agreed as has been shown in the literature, that migration from PICs of skilled health workers benefitted Australia and New Zealand. One informant commented that, in the New Zealand context at least, many of these supposed gains were offset by losses of domestic nursing and medicine graduates to the overseas ‘market’, including Australia, rendering the human resource dynamic in the region much more complex to both gauge and address. There were also concerns about active ‘poaching’ of health professionals from PICs. There were some caveats, however, with another informant noting that due to the NZ system of registration for medical practice only offering a two-year window for registration and practice (during the course of study), unless these individuals become fellows, they have to return to their respective countries in the allocated time. Finau advocated for a deliberate policy of encouraging mobility of PIC healthworkers between Pacific countries to reduce isolation, enhance sharing and appropriate skills transfer. While this is happening to some extent, it is largely unplanned and reactive, rather than planned and coordinated.

Specific skills shortage

Specific clinical skills shortages were acknowledged such as in ultrasonography, laparoscopic surgery, vacuum and forceps aided delivery. Training and professional support for specific skills was more likely to be provided by training institutions such as RANZCOG. Primary healthcare, paediatric nursing, mental health support were all felt to be lacking in PICs. There was an acknowledgement generally of poor support for midwives, although the current AusAID initiative in PNG around midwifery support was acknowledged. An overwhelming need for adequate resourcing and planning MNCH interventions in PICs was appropriate public health expertise, which was significantly lacking, particularly in PNG. In the mid 1990s, Finau advocated for a reorientation of the health workforce in PICs with improved skills in public health in order to respond to modern health problems. Interestingly, the best funded research institute and one producing the most reproductive health research in PICs, is the PNG Institute of Medical Research which receives dedicated funding from AusAID. Research skills in reproductive health were likewise a major lacuna, in spite of suggestions from regional WHO that ANZ research councils should provide support for research training opportunities in the Pacific. Clinically relevant research skills, including in quality improvement initiatives have been the focus of the last

Lack of engagement with Pacific health needs

The issue of geographical inequity in relation to MNCH service delivery in PICs was raised by many participants, this inequity is most pronounced in PNG. The use of uniform physician/patient ratios in small Island-nations such as Tonga, with clustering of health professionals in capital cities could pose particular problems for populations on other islands. On the flip side, due to the very small populations in many islands it is not feasible to staff them each with a full complement of doctors. The generally weak health infrastructure and support systems in the PICs were often not factored in while planning or delivering health and support initiatives, such that some were doomed to fail from the start. Similarly, not understanding the ‘Pacific way’, respecting cultural values and social strengths of PIC communities can lead to mismatches between ANZ support offered and the needs on the ground.

Funding for MNCH initiatives

Both Australia and New Zealand, through their respective Aid agencies, have made significant financial contributions to the delivery of healthcare services, and the construction of healthcare facilities, in PNG and Fiji through the Health Sector Improvement Programmes. A breakdown of MNCH specific funding is difficult to derive however, in spite of both aid
programs listing MNCH as priority, either by focusing on the MDGs or sexual and reproductive health.\textsuperscript{27,36,37}

One MNCH-specific contribution from NZAid targeted at midwifery curriculum development and mentoring for local graduates alone totalled $670,000. However, a recent independent report on the MNCH work-program raised concerns, noting that “although 60% of project funds have been expended, the lack of documentation of actual expenditures makes it difficult to determine effectiveness, efficiency, impact or sustainability”\textsuperscript{38}

**What is working well?**

Case study

The Pacific Society for Reproductive Health (PSRH) is an example of an enduring and successful partnership between the reproductive health workforce of Pacific Island Countries and colleagues and institutional bodies in both Australia and New Zealand. Founded in 1993, with funding from AusAID and the Fiji School of Medicine, the PSRH held its inaugural meeting in 1995 in Vanuatu.\textsuperscript{39} Membership of the PSRH is currently “open to all those involved in reproductive or neonatal health care in the Pacific” and the activities of the organisation are supported by an active Secretariat. The formal programs initiated by the PSRH, beyond active efforts to build a cadre of engaged members and maintain communication with stakeholders through regular newsletters, include country-specific action plans adopted at PSRH conferences, which aim to address local MNCH needs. However, there is variable implementation of these action plans, primarily due to the lack of professional and financial support available to those tasked with carrying them out at country level. The last two scientific meetings have focussed sharply on building clinical research and audit capacities of PIC health workers.\textsuperscript{40}

Discussion

The WHO estimates that 4.3 million more health workers are required to meet the health MDGs by 2015.\textsuperscript{41} This alarming figure significantly underestimates the global need for human resources because the WHO only accounts for shortages in 57 countries,\textsuperscript{42} omitting consideration of critical shortages faced by small and medium sized PICs. Indeed, all PICs have a shortage of health workers, some more severe than others. We found that whilst a rhetorical commitment to providing support and training opportunities to PICs exists within ANZ peak bodies, material plans and resourcing to advance these stated objectives are largely lacking, on the part of major institutional training bodies and government agencies in ANZ.

Evidence-based packages of integrated healthcare targeting the perinatal continuum including acute clinical care (reproductive health, obstetric care, and care of sick newborn babies and children) and outpatient care (reproductive health, antenatal care, postnatal care and child health services) can significantly improve MNCH outcomes in low/middle income countries.\textsuperscript{43} Ideally these evidence-based healthcare interventions are best supported by targeted training and mentorship. Although training initiatives loomed large in the scope of what ANZ bodies deliver, and training has been seen as an important need for MNCH workers in PICs,\textsuperscript{19} we found that training is not always delivered in a planned, coordinated fashion. RANZCOG as the regional training institute for obstetrics and gynaecology does take its role in the Pacific seriously. Indeed RANZCOG’s sustained commitment not just to training, but also collegial support to MNCH healthworker and initiatives in PICs, provides leadership and a way forward for other academic and professional organisations.

Australia and New Zealand as two of the most significant ‘receiving’ countries of regional healthworker migration,\textsuperscript{10} have an ethical responsibility to respond to the challenges of delivering equitable and quality MNCH services in the region. With continued pressure likely to be placed on MNCH services, sustainably managing the migration of skilled healthcare workers, and improving levels of retention, through support and collaboration initiatives across the region, will play a strong role in the ability to resource domestic healthcare services in PICs. Respectful and meaningful partnerships on an equal footing with Pacific health workers and regional organisations are one way of achieving this. The PSRH as a regional organisation with a big mandate can be more effective if appropriately supported by ANZ governments, by tackling training and research needs in MNCH for the whole region. Recent literature has highlighted that reciprocal training opportunities in low resource settings may provide substantial benefit to junior doctors and trainees in MNCH.\textsuperscript{44,46} Goenka et al go as far as suggesting that in future, paediatric training in the United Kingdom may include core elements of global child health, as well as designated ‘tracks’ for those wishing to develop their career in global health further.\textsuperscript{45} Political will has been identified as a major factor, in either enabling or impeding the achievement of both the MDGs and reducing inequities in health and wellbeing.\textsuperscript{47} Building a broad, community-based coalition of support across PICs, can only be possible if we engage with regional and in-country organisations. This must not add to already overloaded health workers’ and managers’ workloads, as many PIC health meetings have tended to be; with unhelpfully mixed mandates, and duplicate areas of focus with other governance mechanisms.\textsuperscript{48} There is already concern from Pacific health researchers, about the dominance of expatriates or non-PIC researchers leading publications in health...
research in Fiji.\textsuperscript{49} True partnership and engagement with PICs’ women and children, must be culturally responsive to their understanding of health,\textsuperscript{50} health worker motivations,\textsuperscript{51} and Pacific health systems.\textsuperscript{35} We need to harness the abundant good will effectively and build on the pioneering leadership of individuals who have contributed to MNCH in the past decades. The challenge is to optimally align the workforce needs of PICs and the political willingness that leaders in the public health field espouse, with available resources, to engage in capacity building initiatives that are mutually beneficial. Finau called for strong regional action that would support “Pacifically appropriate” training to produce credible health workers who could think globally, act locally and be recognised internationally.\textsuperscript{31} Mitchell et al have also strongly advocated for formalising training of global health in Australia with the potential to produce fellows with the skills and knowledge necessary to engage appropriately in regional health challenges.\textsuperscript{46}

Conclusion: A call to action

Taking these ideas forward, we propose the following recommendations to address MNCH specifically; a call to action for ANZ peak bodies working respectfully and in collaboration with PICs. These recommendations were endorsed by the recently concluded PSRH conference in Samoa.\textsuperscript{40}

We call for a closer alignment between the activities of regional professional training Colleges involved in reproductive and child health and NZ Aid/AusAID bi-lateral programs. We strongly support ANZ national governments prioritising training within their own countries when domestic shortages of health professionals become intractable issues. We recognise that a regional body well supported by ANZ governments and peak bodies would be well placed to take on the role of training in clinical skills and public health research in MNCH. However such a regional body needs to be adequately resourced and have clear lines of accountability and governance.

Specific strategies to improve MNCH training and support in the Pacific include more PIC-based training opportunities for identified skills deficits, an increase in undergraduate training in medicine, nursing and allied health, supported by regional planning. Peak ANZ bodies need to scale up efforts to respond in an evidence-informed manner to identified professional needs in PICs; this requires regional planning and coordination. Increased professional recognition and opportunities for collegial engagement modelled on the RANZCOG Associate Membership category can easily be transferred to other professional bodies. There is a clear need for an increase in reciprocal training arrangements; there are well recognised benefits to the ANZ workforce from engaging meaningfully in global health initiatives, and such training is already well established overseas.\textsuperscript{46} We call for more direct investment in midwifery and training for midwives, and a multi-disciplinary team approach to maternity care. Strengthening of public health and research capacity for MNCH clinicians and administrators is also a priority training need. Finally and perhaps most importantly we call for targeted and fully transparent resourcing of MNCH specific initiatives in PICs responding to population health needs, again regionally planned and coordinated.

References


40. Innovative approaches for women’s health - are the current initiatives adequate? 10th Biennial Scientific Meeting of the Pacific Society for Reproductive Health; 2013 9-12 July 2013; Apia, Samoa: PSRH,; 2013.


44. Molyneux E, O’Hare B. The value of including Global Health in the training of health professionals. Archives of Disease in Childhood 2013.


47. Jahan R, Germain A. Mobilising support to sustain political will is the key to progress in reproductive health. Lancet 2004; 364(9436): 742-4.


An uncertain future or time for consolidation?

Graham Roberts

The value of a professional health journal in the Pacific region is beyond doubt. The vehicle PHD provides for Pacific health professionals to publish clinical cases, present their studies and observations, describe caseloads and treatment outcomes, raise health policy issues, participate in academic debate and contribute to knowledge has value beyond measure.

This was the original and noble intention and there is no doubt it has been achieved. Credit must be given to all of those who have laboured to keep the PHD alive and to all who have chosen to publish in its pages.

Yet, in forecasting the future of the PHD, it’s clear that important matters emerge as requiring some immediate and sustained attention to secure the future.

1. Review the membership of the editorial committee, introduce new active members and establish process for periodic meetings or communication. Several current members have moved on or changed roles.

2. Formalise the editorial process and proactively plan and manage future editions and calls for papers. The allocation of an officer to this role will assist correspondence, coordination and forward planning.

3. Ensure that the registration of the journal in international journal listings remains current and that copies of recent editions are sent to regional libraries and health ministries.

4. Strengthen IT support to establish systems to track the ‘hit rates’ and ‘opening rates’ of editions and papers listed on the PHD website.

5. Review website access, mail-out listings and journal promotion in the region.

6. Assemble a list of senior academics willing to review submissions.

7. Assess the potential for advertising revenue to support production, printing and dissemination.

The list above is provided without discussion, as the discussion that will eventuate among the ‘owners’ of PHD will seek workable solutions and resourcing.

It occurs to me that with the closing of AusAID’s Knowledge Hubs for Health Initiative in June 2013, through which the HRH Hub was funded, that the role of generating and disseminating health knowledge falls now on those who know it best – the health professionals of the region. In that light, the Pacific Health Dialogue presents an opportunity for a donor to support the voice and dialogue of the region’s health professionals.