

A Perspective

Working in the developing world - A Perspective
Dr. Frank Piscioneri

Research

Health consequences of the Tuberculosis Pandemic and the Impact of HIV/AIDS Co-infection
Tim Sullivan

Google, email and Facebook: Internet literacy to improve the health and well-being of newly arrived refugees and migrants
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Case Reports

News and Topics of Interest

Global and Indigenous Health

Student Education

Student Life

Elective Experiences

Careers

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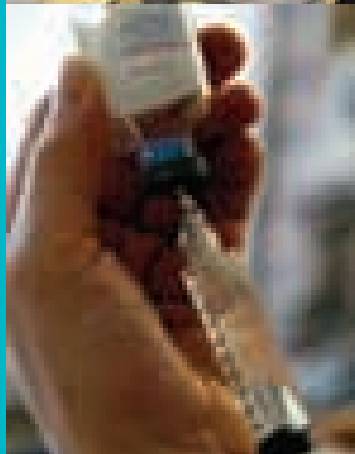
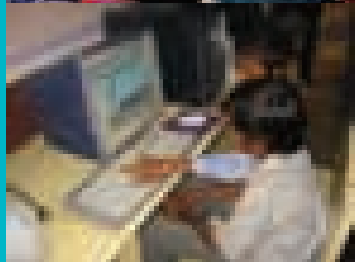
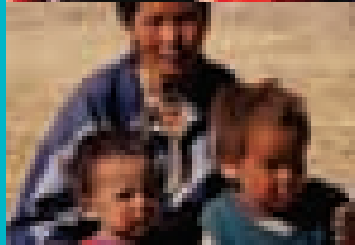
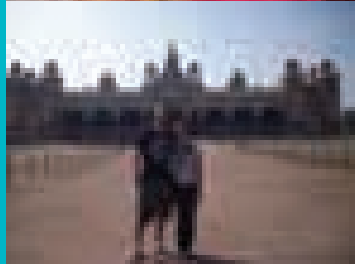
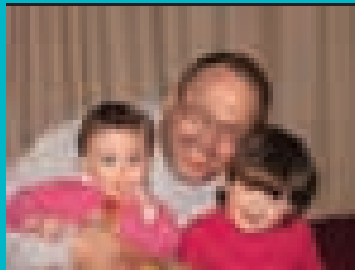
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Editorial Board Volume 2 Issue 2: Parul Bali, Mark Farrugia, Miranda Holmes,
Luke Manestar, Shanti Narayanasamy, Kristen Overton, Katherine Thornton,
Uma Visser and Sheena Wong.





Letter from the Editor

2 Editorial Team

Dean's Message

3 Professor Nicholas Glasgow

A Perspective

4 **Working in the developing world**
Frank Piscioneri

Research

5 **Health Consequences of the Tuberculosis Pandemic and the Impact of HIV/AIDS co-infection**
Tim Sullivan

9 **Google, email and Facebook: Internet literacy to improve the health and well-being of newly arrived refugees and migrants**
Peter Sturgess, Christine Phillips

15 **Too Much, Too Soon? Predictive Genetic Testing and Insurance in Australia**
Stephen W. Martin

Case Reports

19 **Was it really an unusual presentation of renal cell carcinoma?**
Alicia Paul

21 **Acquired Factor VIII inhibitors**
Lauren Nacey

23 **That's what the Anaesthetist said ...**
Klara M Krivanek

News and Topics of Interest

25 **The Medical Student Tsunami**
Jack Purcell

27 **The 2010 Election: An opinion on what this means for Health**
Steve Peterson

Global and Indigenous Health

29 **Preventive strategies for reducing the burden of meningitis in Sudan**
Caroline To

34 **Diabetes and Ischaemic Heart Disease in Australia: Prevention Strategies for Indigenous Communities**
Adam Keighley

Student Education

40 **The mental health burden of mothers of children with X-linked recessive diseases**
Kiran Atmuri

42 **Now Wash Your Steth**
Scott Mills

44 **Indigenous Health Education at the ANU**
Hannah Woodall, Kathryn Stone

Student Life

46 **Birth of a.d.a.p.t.**
Alicia Paul

49 **Internships – An International Perspective**
Jan-Marie Fonseca

50 **Medicine and Parenting – Pleasure or Pain?**
Ben Darby

Elective Experiences

52 **Elective in Apia, Samoa**
Deborah Smith

54 **Adventures in Mysore**
Samuel Roberts-Thomson

55 **United Mission Hospital in Tansen, Nepal**
Yu-Ting Huang

57 **The Mae Tao Clinic – Mae Sot, Thailand**
Michelle Robinson

Careers

59 **How did I get here?**
Christine Phillips

Letter from the Editor



Editorial Team (L-R): Parul Bali, Mark Farrugia, Miranda Holmes, Luke Manestar, Shanti Narayanasamy, Kristen Overton, Katherine Thornton, Uma Visser and Sheena Wong.

Welcome to Volume 2 Issue 2 of the MSJA, which we are pleased to introduce with the theme of International Health.

We have a number of articles encompassing this theme including a report on the teaching of computer skills to refugees, as well as four elective reports spanning across Asia and the Pacific. We also welcome contributions from Assoc. Prof. Christine Phillips and Dr. Frank Piscioneri, which reflect upon their international careers and offer perspectives on working in developing countries.

Volume 2 Issue 2 also heralds a new stage in the evolution of the MSJA, in which we welcome the first publication authored by a medical student outside of the ANU in Tim Sullivan's research piece on HIV and tuberculosis. We hope this marks the beginning of the journal's continued development to eventually encompass nation- and Pacific-wide submissions.

Notably, we have some new features in this edition. Three case reports written by final-year ANU medical students reflect on the transition from pre-clinical campus learning in Years One and Two, to the clinical environment of the penultimate years. We are proud to share the clinical reflection and synthesis displayed by these students. Throughout the journal we have also included anecdotes from clinical experiences and OSCEs that our fellow students have kindly shared. These moments help us to remember that learning is an interesting, varied, and at times humorous process, and we need to be careful not to take ourselves too seriously.

The editorial board this year has been characterised by cohesiveness and exceptional teamwork skills. We have had a fantastic group of students who have not only worked within their own allocated roles but performed beyond expectation. It has been a pleasure to read pieces written by our peers and we have been impressed with the standard and originality of thought.

We hope you enjoy reading this edition of the MSJA and would like to encourage readers to continue submitting pieces for subsequent volumes.

MSJA Editorial Board

Parul Bali, Mark Farrugia, Miranda Holmes, Luke Manestar, Shanti Narayanasamy, Kristen Overton, Katherine Thornton, Uma Visser and Sheena Wong.

From the Dean



This issue of the Journal continues to advance this initiative and reflects very well on all those involved. There is a rich variety of writing ranging from research articles through opinion pieces to narratives.

As I have previously stated, good academic writing is a skill that needs to be developed in all health professional students. To this end the Journal provides excellent opportunities not only for our students but also for students in other institutions. In addition, it provides the editorial team with great experiences in critiquing submitted material. Congratulations to all.

The Journal is going from strength to strength and reflects well on our Medical School.



Professor Nicholas Glasgow

Professor Nicholas Glasgow
MBChB, MD, FRNZGP, FRACGP, FACHPM
Dean, Medicine & Health Sciences
Dean, ANU Medical School
ANU College of Medicine, Biology and Environment

Working in the developing world A Perspective

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I am very honoured to have this opportunity to share my thoughts and experiences with the readers of MSJA.

I have spent a total of twenty-two years working in developing countries. Eleven of these years were spent on long-term placements with the remaining years spent on short-term assignments. The places that I have worked in are Africa, Asia and the Pacific Ocean.

How does one get into this line of work? I did not really go looking for a career in international health but as a young doctor, I was keen to do something different before settling into a long term commitment in Australia.

With short term assignments you have a specific task with a defined start and end point. Your expertise (and you do have more than you realise) gets utilised intensively over a brief period of time, and generally you are able to leave feeling satisfied to have achieved your goals.

With longer-term assignments, you start feeling like a 'local', considering a more enduring commitment and even staying permanently. You are able to transfer knowledge and expertise to many more people. Any changes you make are more sustainable as you are there to pick up the pieces if things don't quite work out. The problem is that you are not a local and at some stage you have to return home.

This brings up two issues. Firstly you may have created a new service or expectation that may not be replaceable after you leave. I have seen this happen many times. This is why it is important

to look at the long term sustainability of any new service that is introduced. The other issue is what happens on your return home. Having got out of the mainstream track, it may be difficult to get back into the career path that your peers are now enjoying. These are important considerations for both you and your family.

Working in developing countries creates lasting memories. In addition, there is the satisfaction of having made some difference for the better. One of my favourite memories occurred in Timor in the nineties. At that time, all of Timor was under Indonesian rule and only two young graduate doctors worked at the highland hospitals. The maternal mortality rate was high, especially because there was no caesarean section service available. On one visit I took one of these young doctors through the procedures of performing a caesarean section on an on an emergency case of footling breech. On my next visit, I

found he had been faced with a similar emergency two days later, and had successfully performed a caesarean section. I like to think that he then went on and not only continued to provide this service but also taught others how to do it.

Nowadays international aid is a huge industry, which has resulted in the commercialisation of some international relief and assistance efforts. Although this may appear to be at odds with the altruistic ideology of aid work, it does mean that services are better structured with more opportunities for doctors to become involved. For example, you can get involved through student electives, WHO, AusAID, army reserve as well as other not for profit organisations.

To conclude, I thoroughly recommend taking some time to get exposure to medicine in developing countries, as an experience that will enrich your future career.

Chitkul, India



Image Source: Uma Visser

Health Consequences of the Tuberculosis Pandemic and the Impact of HIV/AIDS co-infection

A Review

Tim Sullivan*

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Sixteen years after being declared a WHO global health emergency, tuberculosis persists in pandemic proportions. In 2006 there were an estimated 9.2 million new cases, 14.4 million active cases¹, and 2 billion latent cases². Unfortunately, given the vulnerability of medically and economically deprived populations, over 95% of new cases and associated deaths occur in developing regions³. The resurgence of tuberculosis has significant direct and indirect health implications pertaining to morbidity, mortality, and health economics. The underlying problem has been further exacerbated by the development of multi drug resistant tuberculosis (MDRTB)/ extensively drug resistant tuberculosis (XDRTB) and, most notably, the evolution of the HIV/AIDS 'co-epidemic'. The current situation has been described as "a blot on the conscience of mankind"⁴. While the 'Stop TB' program launched by the WHO in 2006 has improved access to treatment, recent estimates suggest that between 2002 and 2020 one billion people will become infected, 150 million will contract active disease and 36 million will die⁵. These figures highlight the need to strengthen prevention and treatment efforts.

TUBERCULOSIS

Tuberculosis is a chronic communicable granulomatous disease caused by *Mycobacterium tuberculosis*. The pathogen is primarily spread via a respiratory route by patients with active pulmonary disease. On average, active patients infect 10-15 people per year⁶ with transmission potentiated by environmental (e.g. close living conditions) and host (e.g. immune competence) factors. The clinical outcome of infection depends upon

ABSTRACT

Sixteen years after being identified as a World Health Organisation (WHO) global health emergency tuberculosis persists in pandemic proportions. Potentiated by the Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) co-epidemic, tuberculosis has significant health consequences that permeate every level of society. While the 'Global Plan to Stop TB' has made progress, continued action is vital.

MSJA 2010, 3

the integrity of the host immune system and may range from primary disease, to latency with the potential for secondary reactivation, to complete eradication. Pulmonary tuberculosis, the most common manifestation, is characterised by chest pain, cough with haemoptysis, fever with night-sweats and weight-loss. Primary pulmonary infection may provide a focus for dissemination culminating in miliary disease.

IMPACT OF TUBERCULOSIS

The consequences of tuberculosis relate directly or indirectly to morbidity and mortality. In 2003 tuberculosis was the third leading cause of both these measures in those aged 15 to 59 years, accounting for 28.38 million disability adjusted life years (DALYs) and 1.036 million deaths⁷. Although the incidence of tuberculosis has fallen since 2003 the total number of cases continues to increase with tuberculosis implicated in an estimated 1.7 million deaths in 2006¹. Despite a degree of globalisation through demographic forces such as urbanisation, travel and migration⁸, tuberculosis remains a disease of poverty. In 2006 Africa, South-East Asia and the Western Pacific Region accounted for 30.7%, 33.9% and 20.1% of global inci-

dent cases respectively with respective prevalences of 547, 289 and 199 per 100,000 and mortality rates of 83, 30 and 17 per 100,000¹. As such the burden of disease falls on those least able to carry it⁹.

The impact of tuberculosis permeates all levels of society. From a local perspective, 75% of the burden falls on economically viable adults in the 15-54 year age-bracket^{10,11}. With treatment the average patient misses 3-4 months of work¹⁰, without treatment up to two thirds of patients die within 5 to 8 years, the majority within 18 months¹¹. In addition to the considerable stigma and social rejection, tuberculosis morbidity can result in the loss of 8-20% of annual income in treatment costs¹² and 20-30% of annual income¹⁰ in lost wages, while premature mortality is associated with the loss of up to 15 years income. Those forced into the carer role, predominantly women and children, are also subject to loss of income and educational opportunities. From a national perspective tuberculosis reduces GDP by 4-7%¹⁰ and smothers economic growth by discouraging risk-taking and investment in human capital¹³. From a world perspective, the global plan to stop tuberculosis will

Figure 1: Tuberculosis Cases, Sweden 1927



cost US\$56 billion over 10 years¹⁰ while tuberculosis-related expenditure in high burden countries is estimated to surpass US\$3 trillion between 2006 and 2015¹³. Ultimately, tuberculosis morbidity and mortality initiates a progressive, self-perpetuating cycle of poverty and disease that undermines health at local, national and global levels.

MULTI DRUG RESISTANT TUBERCULOSIS / EXTENSIVELY DRUG RESISTANT TUBERCULOSIS

The impact of tuberculosis has been accentuated by the evolution of MDR and XDR strains. MDRTB and XDRTB account for 490,000 and 40,000 annual cases respectively, culminating in 130,000 deaths each year¹⁴. Resistant strains present a considerable management dilemma. Treatment of MDRTB/XDRTB is slow, leading to a prolonged transmission period, is associated with significant side-effects, leading to reduced compliance, and is expensive, with an estimated cost of US\$650 million per year¹⁵. The potential impact of MDRTB/XDRTB is illustrated by a 2005 outbreak in South Africa's KwaZulu-Natal region in which 52 of the 53 infected patients died despite receiving treatment¹⁶.

HIV

HIV remains the "single most important risk factor for the development of tuber-

culosis"¹⁷. Following pulmonary deposition, alveolar macrophages phagocytose, process and present Mycobacteria to CD4+ T-cells culminating in a CD4+ Th1 cell-mediated immune response that eradicates/contains the pathogen. HIV infects CD4+ T-cells leading to gradual attrition of the CD4+ T-cell population resulting in AIDS characterised by impaired cell-mediated immunity. The impact of HIV on the immune system has significant consequences relating to the epidemiology, natural history, diagnosis and treatment of tuberculosis. These effects have been potentiated by the crossover in distribution of tuberculosis and HIV in Africa, South-East Asia and the Western Pacific region¹.

It is estimated that 30-50% of those with HIV are infected with tuberculosis¹⁸. In 2006, HIV-positive patients accounted for 0.7 million of the 9.2 million new cases of tuberculosis and 0.2 million of the 1.7 million tuberculosis associated deaths¹. Not surprisingly, tuberculosis is the leading cause of death in HIV-positive individuals accounting for approximately one-third of AIDS deaths in the developing world and 11% of AIDS deaths worldwide⁶.

The effect of HIV co-infection on tuberculosis is profound. Contrary to popular

belief, HIV-positive patients tend to have a greater prevalence of smear-negative disease (10 times less infective than smear-positive disease¹⁹), and are infective for a shorter period, due to earlier presentation and death²⁰. That said, patients with HIV are 30-100 times more likely to develop infective active disease following infection²¹ and are at greater risk of reactivation of latent disease and recurrent disease¹⁸. Subsequently, at a population health level, HIV co-infection has perpetuated the tuberculosis pandemic. The presentation of tuberculosis is also markedly different in HIV patients. The CD4+ T-cell count is the most influential determinant of presentation^{22,23}. While patients with CD4+ count >500 invariably present with 'typical' pulmonary tuberculosis, patients with a CD4+ count <200 generally have few respiratory symptoms, instead presenting 'atypically' with pyrexia of unknown origin (PUO), 'wasting syndrome' and extra-pulmonary disease²². Not surprisingly, patients co-infected with HIV and tuberculosis are at greater risk of rapid progression and death¹⁸.

The effects of HIV on tuberculosis are potentiated by the effects of tuberculosis on HIV. In vitro and in vivo studies have demonstrated the capacity

of tuberculosis to increase HIV viral replication in co-infected patients²⁴. Correspondingly, from a clinical perspective, tuberculosis has been shown to accelerate the course of HIV, increase the risk of additional opportunistic infection and increase the risk of death^{25,26}. As such, tuberculosis can be seen to potentiate HIV infection resulting in cyclical degradation of the immune system which, in turn, further increases susceptibility to tuberculosis.

In addition to accentuating the impact and altering the natural history of tuberculosis, HIV/AIDS has necessitated reevaluation of the clinical approach to tuberculosis.

Bacillus Calmette-Guerin (BCG) vaccination has been used in the prevention of tuberculosis. While variable in efficacy, the vaccine has been shown to reduce the risk of tuberculosis by 50% and reduce the incidence of tuberculous meningitis, miliary tuberculosis and death, predominantly in young children²⁷. The impact of HIV/AIDS on BCG vaccination has been two-fold. Firstly, the potential for disseminated BCG disease has led

the WHO to contraindicate vaccination in HIV-positive infants^{28,29}. Secondly, HIV-induced impairment of cell-mediated immunity reduces vaccine efficacy³⁰.

HIV is also diagnostically problematic. In addition to altering the clinical presentation of tuberculosis, HIV reduces the accuracy of diagnostic tests. By reducing the CD4+ T-cell population HIV impairs the cell-mediated immune response to tuberculosis antigen thus reducing the sensitivity of tests based upon immune mechanisms. The extent of this problem is inversely proportional to the CD4+ count²². HIV infection reduces the sensitivity of Mantoux testing from 95% to 50%^{31,32} and the sensitivity of sputum microscopy from 35-70% to 20%³². Radiographic changes are generally atypical and are easily confused with those associated with opportunistic pulmonary infection, compromising both sensitivity and specificity^{22,33,34}. Furthermore, while sputum culture, the gold standard, is sensitive for pulmonary disease, it is relatively insensitive in cases of extra-pulmonary disease, which often predominates in patients co-infected with HIV. Due to

the diagnostic difficulties involved, concurrent HIV often slows the diagnosis of HIV leading to increased transmission, and necessitates empirical therapy leading to increased expense.

Treatment of tuberculosis in the context of HIV co-infection is similarly problematic.

Pharmacologically, the interaction between rifamycin antibiotics (e.g. rifampicin and rifabutin) and antiretroviral agents (namely protease inhibitors (PIs) and non-nucleoside reverse transcriptase inhibitors (NNRTIs)) is difficult. Rifampicins induces CYP3A enzymes leading to decreased antiretroviral activity necessitating dose augmentation^{35,36}. The combined side-effect profile of concurrent tuberculosis chemotherapy (TCT) and antiretroviral therapy (ART) is also challenging and has significant implications with respect to compliance. One study found that 54% of patients on concurrent regimens experienced significant side effects with 34% interrupting therapy³⁷.

Figure 2: Mantoux Test



Figure 3: Mantoux Result



The potential for the development of Immune Reconstitution Inflammatory Syndrome (IRIS) on the commencement of treatment is another complicating factor. These issues are further compounded by the logistical difficulties associated with simultaneously coordinating two complex treatment regimes.

CONCLUSION

In endemic countries the effects of tuberculosis permeate every level of society with dramatic consequences that have been accentuated by the HIV/AIDS epidemic. Despite this, the problem fails to attract mainstream attention. While the 'Global Plan to Stop TB' has made progress, continued action is vital if the "blot on the conscience of mankind"⁴ is to be erased.

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Google, email and Facebook: Internet literacy to improve the health and well-being of newly arrived refugees and migrants A Pilot Study

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In 2007-08 Australia's net overseas migration was estimated at 206,135 persons. Of these, Skill Stream migrants accounted for 53%, Family Stream migrants 24% and Humanitarian Program (refugees) accounted for 6%¹. For many refugees and migrants, relocation to Australia comes at a cost, with rates of significant psychological distress three times that of the Australian population^{2,3}. Generally this can be attributed to the relocation process itself and leaving friends, family and familiar things behind⁴. Additional stressors associated with settlement include: difficulty finding employment, difficulty building community networks, racial, ethnic or religious discrimination and difficulty gaining acceptance into civil society, social isolation, and difficulty obtaining access to information that should easily accessible such as housing, education, and mental health facilities⁵. All these factors add together to undermine their sense of identity and control over their lives.

Using computers and the Internet is an everyday part of life for most Australians. The Internet has become a primary source of information regarding many aspects of daily living such as employment, housing, health, news, business, banking, shopping and entertainment⁶. The use of email and social networking sites such as Facebook has also revolutionised the way people keep in touch with family and friends^{7,8}. While the use of computers and the Internet is second-nature for most Australians, many newly arrived refugees and migrants have never used a computer before, therefore this technological knowledge gap poses an additional stressor to the acculturation process.

Studies in the United States⁹ and the United Kingdom¹⁰ have shown that use of computer technologies and the Internet can enhance the settlement process of immigrants and refugees through bringing awareness of employment opportunities, exploring new opportunities and providing ways of keeping connected with their communities in their home country. The primary researcher has over three years experience in teaching and coordinating introductory computer courses for newly arrived refugees and migrants in Sydney¹¹. Through these courses, many participants appeared able to settle in their communities better, were more confident at using computers and had greater employment prospects.

ABSTRACT

Issues addressed: Internet literacy is investigated as a strategy for enhancing the health and well-being of newly arrived refugees and migrants.

Methods: Three month training program covering Google, email and Facebook applications with one hour per week of teaching with one-to-one tutors, for newly arrived refugees and migrants. Evaluation using Participatory Action Research (PAR): health and well-being changes assessed using questionnaire with closed and open-ended questions addressing well-being, health and use of internet at baseline, immediately after and 3 months.

Results: In this pilot study of 5 cases, the intervention increased participants' confidence at using the Internet. Email and Facebook assisted in locating and keeping in touch with family and friends in Australia and overseas. Health and well-being of refugees continued to improve 3 months after the intervention.

Conclusions: This pilot study showed that a brief Internet literacy program can be used for newly arrived refugees and migrants to reduce acculturation stress, and can improve the health and well-being of refugees. A larger study is recommended to investigate these findings and quantify the effects of this intervention.

So what?

Australia has a large intake of migrants and refugees each year and the relocation process can be distressing, especially for those who come from computer-illiterate backgrounds. After arrival they face a barrage of additional stressors including social isolation and difficulty finding employment. A brief Internet literacy program can be used to reduce the acculturation stress, provide a method of keeping in touch with family and friends and may improve health and well-being of participants.

MSJA 2010, 3

This initial pilot study aimed to examine the feasibility of conducting a study to assess the impact of an Internet literacy intervention program (using Google, email and the social networking utility, Facebook) on skills acquisition and health and well-being newly arrived refugees and migrants to Australia. Firstly, we report whether completion of the program had a lasting effect on the participant's confidence at using the computer and the Internet. Secondly, we report the uses of the Internet by participants gaining Internet literacy. Lastly, we report the effect that the intervention appeared to have on the participants' health and well-being.

METHODS

Participants and recruitment

The target population were refugees or migrants who had arrived in Australia over the last five years. Inclusion criteria were: capable of speaking and reading English at Level (2) competence or above¹², as assessed by Migrant and Refugee Settlement Services (MARSS) staff, and poor self-reported capability of using the Internet, email and Facebook applications.

A two-step selection process was used, with case workers and English teachers of MARSS advertising the introductory Internet course to their clients and compiling a list of potential participants. The primary investigator then met with the candidates and Case Workers to explain details of the course, answer any questions and obtain consent. Due to limited facilities and computing resources at MARSS, only five participants were included in this pilot project.

Intervention – the computer course

heoretical approach: this project uses Participatory Action Research (PAR) with participants being actively involved in a dynamic research process^{13,14}. The PAR method has been shown to be effective in disempowered or oppressed communities^{15,16,17}. Key members of the research team included Case Workers at MARSS, some of whom themselves are members of the refugee community. The one-to-one mode of teaching of the computer course allows each participant to have input into the direction and pace of each class. Therefore this method theoretically empowers the participants and results in a gain of self-confidence and self-esteem.

Structure:

This course was a competency-based program taught in one-to-one mode with each student being assigned one teacher. This allowed consistent teaching at the student's own pace, while fostering a strong relationship between student and teacher. The course consisted of around 12 x 1 hour classes that ran once per week for three months. However, the course was open-ended, learner-sensitive and participants did not have to attend a set number of classes

(some required fewer or additional classes to finish the course). Coursework covered basic computer navigation, Internet browsing, using USB memory sticks and using email and Facebook applications. Each teacher was provided a checklist of essential skills that had to be taught during the course.

Assessment:

At the end of the course, the course coordinator assessed each participant for competency in the essential skills of the checklist. Students were also offered the opportunity to show the coordinator any additional skills they had learnt throughout the course. A graduation ceremony for the participants was held following completion of the course.

Evaluation of the course:

Participants completed a formal evaluation questionnaire at the end of the course, addressing whether or not the course met its educational objectives. Participants and teachers also provided informal feedback during the graduation ceremony.

Evaluation of impact of the program on well-being

Data collection on health and well-being of participants:

The instrument to collect data on health and well-being was a questionnaire derived from validated tools used in the Good Starts Study for Refugee Youth of the Refugee Health Research Centre at La Trobe University¹⁸. Questionnaires were modified to make it easy to comprehend for people without extensive proficiency in English. Each question of each questionnaire was fully explained to the participants by the primary investigator, and participants were encouraged to ask questions if they did not understand.

Data evaluating the course and describing health and well-being were collected before, immediately after and at three months after completing the computer course. At baseline, the questionnaire addressed self-reported competence with a range of computer applications, support networks in Australia, well-being and attitudes to the future. The questionnaire at the conclusion of the course included items about confidence with using computers, and the same questions about support networks, well-being and attitudes to the future. The questionnaire three months after conclusion addressed reported frequency of use of the Internet in communication, and the same questions about support networks, well-being and attitudes to the future.

Questionnaire responses used a 4-point Likert scale from NO! no yes YES! to indicate a gradient from disagreement to agreement, a scale validated among refugee youth in Melbourne in the Good Starts Study.

Analysis

Aggregate scores before, after and three months after the intervention were calculated for individuals within groups and compared. Qualitative data entered into a comments area were also assessed for emerging themes and compared.

Ethics Approval

This project was approved by the Australian National University Human Research Ethics Committee.

RESULTS

Participants

There were two male and three female participants. Ages ranged from 21-33 years. There were two refugees from Africa, two migrants from South America and one migrant from the South Pacific. All participants had arrived in Australia within the last three years. The knowledge and experience of using the Internet before participating in the intervention varied between the participants; in general the refugees had minimal experience (never or rarely used the Internet before) and the migrants had comparatively more experience (elementary use of email).

All participants completed the intervention and met the course requirements. All questionnaires were completed with the exception of one questionnaire immediately after the course, which was not completed due to participant illness.

Competence and confidence with using the Internet

All participants reported an increase in confidence at using the computer and the Internet after completing the computer course and retained their increased level of confidence 3 months after the intervention.

Three months post intervention, all participants reported using the Internet to keep in touch with friends and family in Australia and overseas by email and Facebook. Other reported uses of the Internet included: reading the news, searching for information, online shopping, downloading songs and uploading and sharing photos. Some of these tasks had not been formally taught in the course, suggesting that participants were able to extend their basic skills into new domains of Internet use.

Use of Facebook

Three months after the intervention, all participants had a number of friends on Facebook (range 12-51). The two refugees had used Facebook to find friends that they were separated from in their home country and to find new friends from their home country who were settled elsewhere.

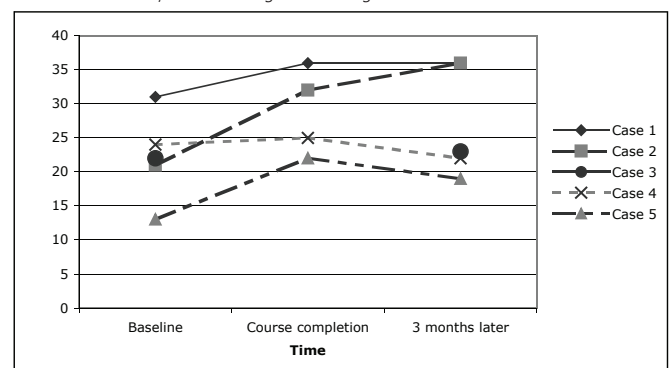
In general the migrants used Facebook less than the refugees but also used Facebook to keep in touch with family and friends and to find new friends in Australia and overseas.

Health and well-being scores

The mean well-being score at baseline was 22.2. All participants who completed the questionnaire had a higher well-being score immediately after the intervention (Figure 1). The greatest increases in well-being scores were from Cases 1 and 2 (refugees from Africa) and Case 5 (migrant from the South Pacific).

Three months after the intervention, the mean well-being

Figure 1: Changes in well-being scores after completion of computer training course for recently arrived refugees and migrants*



*Data for Case 3 immediately after intervention not available

Box 1. Impact of computer skills for one participant

Case 2, male refugee from Africa

This male refugee in his early thirties arrived in Australia in 2006, after spending many years in a very large refugee camp outside his home country. During his time in flight from his home country, and in the process of resettlement to countries with refugee resettlement programs, he had lost contact with many friends and family members.

His knowledge and experience of using the Internet prior to the computer course intervention was elementary. He had not had access to computers in the camp, and very little confidence in using computers.

Immediately after the course he reported an increase in confidence and use of the Internet, and used it for keeping in touch with his friends and family by email and Facebook as well as searching for news.

Three months after completing the course he reported to still be "very confident" at using the Internet. He reported using the Internet for keeping in touch with friends and family in Australia and overseas, searching for information, and online shopping. Facebook had become a valuable networking tool for him, and he had found many friends that he had been separated from after the war in his home country.

"The computer course changed my life because I am confident using the computer at my workplace or at school for research and other things. Using Facebook I have found many friends that were separated from me during the war in my home country."

Figure 1: Students crowd to see photos of San Ramon on their new classroom computer



Image Credit: Wikimedia

score had improved to 27.2, although there was considerable variation between the participants. The two refugees from Africa had either maintained or increased their well-being scores, while several migrants (Cases 3 and 4) had well-being scores which were close to baseline; the final participant had a slight reduction in the well-being score between completion and three month follow-up, but this remained higher than the score of 13 at baseline.

DISCUSSION

The computer course was very successful at meeting its immediate aim of improving the participants' knowledge of using the Internet for searching for information, and for using email and Facebook applications. This study showed that young, newly arrived refugees and migrants with Level 2 English skills can achieve practical levels of Internet literacy within approximately 12 hours of one-to-one tutelage. This study has also shown that the Internet is a valuable tool for refugees and migrants for keeping in touch with their family and friends in Australia and overseas, and for networking

and finding new friends through online networking utilities such as Facebook. This has especially been shown to be the case with refugees, who through Facebook have been able to locate friends and family that had been separated from them due to war in their home countries and the subsequent resettlement process. Through networking for old and new friends, the refugees made a surprisingly large number of friends on Facebook in the three months after completing the course, almost all of whom were members of their own community group spread across the world.

For the first time, this pilot study suggests that such an intervention may also have additional health benefits, especially in the case of young, recently arrived refugees. Although all participants reported an increase in well-being score immediately after the completion of the course, the refugees showed a large improvement, and this score was improved on or maintained at three months after the course. It should be noted that the migrant from the South Pacific also had a large improvement of well-being immediately after the course, and although this dropped at three months post-

intervention, it was still considerably higher than before the intervention.

A larger study with significant numbers is recommended to validate these findings and further quantify the effects of the intervention. It is recommended that further studies be done in classrooms that are large enough to accommodate each student and tutor pair at their computer terminal without disturbing other people nearby. Increasing the number of classes per week may also allow more students to be enrolled and therefore increase the power of the study.

It is possible that improvements in well-being may have occurred without the input of the program. It could also be argued that the improvements in health and well-being may reflect a Hawthorne effect (that is, the improvements may reflect the fact that participants knew they were being observed) or a desire to please the course designer, who was also the researcher. We note that all participants gave evidence of improvement in Internet skills and many were able to extend their skills. They attributed in discussion some of their well-being to their ability to use the Internet. It therefore seems likely that the stated improvements in well-being are real and are attributable in part to their new skills, although this varies between students. This can be verified further with a larger, more powerful study.

The larger improvement of well-being after the intervention for the refugee group and the migrant from the South Pacific may be due to a number of factors. First, the participants are from diasporic countries in which a large percentage of their fellow community members have been dispersed around the world to different host nations and cities. The aspect of “connectedness” from their community back home or in the refugee camp has been disrupted, and their experience in their new host country is often of separation from community and identity. By accessing and belonging to an “online community”, they are able to keep in touch with old friends and make new friends from their own culture or background. The Internet can itself aid in the elaboration or confirmation of a cultural identity among diasporic communities; Wahlbeck¹⁹, for example, has described the enormous growth in Kurdish language websites between 1994 and 2001, providing a platform and home for hundreds of Kurdish organisations¹⁹. Second, the gain in Internet literacy restores a sense of control as they master a skill that had previously seemed too daunting. This can be exemplified by one of the refugees, who at three months reported using the Internet for shopping, and another participant who reported downloading music from the Internet – both skills that were not taught during the course. Third, access to information provided on the Internet itself such as information about their host country, news from back home or information about their hobbies or interests improves the settlement process.

Resettlement is a challenging time. The impoverishment risks and reconstruction (IRR) model suggests that impover-

ishment of resettled populations can arise through an intersection of multiple determinants, including marginalisation, food insecurity, homelessness and community disarticulation²⁰. The Australian Integrated Humanitarian Settlement Strategy for refugees, with its focus on settlement agencies mediating access to housing, school, social services and volunteer support, implicitly uses an IRR model of impoverishment mitigation²¹. Internet use by both the refugees and the migrant from the South Pacific represents a way of counter-acting community disarticulation. It also provides an avenue to enter into the host country through participation in everyday transactions that are carried out on the Internet and through developing a suite of skills that improve employment opportunities. We therefore propose that skills in managing the Internet may be important ways of mitigating resettlement distress and the risk of impoverishment.

The authors acknowledge that one-to-one tutelage is resource intensive, and therefore this model may be difficult to reproduce. There are, however a large number of volunteers in the MARSS database, and all volunteer teachers for this project have been sourced from the Australian National University Medical School. The researchers believe that the one-to-one nature of the course is a vital component of the course, by allowing the student to direct the pace and some content of the course. One-to-one tutelage also allows a strong bond to form between student and teacher that may contribute to the increase in well-being scores.

In order to make the course sustainable, the researchers have linked the computer course to an existing medical student organisation at the Australian National University, Engaging Students In a Global-health Network (EnSIGN)²². With EnSign volunteers, the computer course has continued into its third successful year running, and there is still a large list of refugee and migrant students waiting to enrol.

CONCLUSION

This pilot study has shown that improvements in health and well-being may be used as outcome measures of information technology training programs using one-to-one tutelage for young, newly arrived refugees and migrants. These changes may be more marked in refugee groups or migrants from diasporic countries. This may reflect the facility of participants with Internet skills to counter community disarticulation, better participate in their host country's social transactions and enhance their own employability, leading to an improvement in the overall settlement process. A follow up study is recommended to validate the findings from this pilot study and measure the effects of this intervention.

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Figure 2: Boys getting computer class near Baroda, Gujarat, India



Image Credit: Wikimedia

to thank the Migrant and Refugee Settlement Services of Canberra and Queanbeyan staff for their dedication to their clients, and the migrants and refugees in the ACT region for their continued support for this project. Finally we would like to thank EnSIGN for allowing this project to become affiliated with their organisation and for ensuring this project is sustainable.

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Too Much, Too Soon?

Predictive Genetic Testing and Insurance in Australia

A Review

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INTRODUCTION

The health insurer NIB is currently offering subsidised direct-to-consumer predictive genetic testing for a range of health conditions through the U.S. based genetic testing company Navigenics¹. This move has been controversial, as testing of this type falls outside the normal medical channels for genetic testing in Australia. Navigenics is offering complementary genetic counselling to those who take the test, and clients will receive advice on how to maximise future health based on the genetic testing results.

This paper will explore the nature of the predictive genetic test on offer, the results that clients are likely to receive, and the implications of testing for the health of the individual. The likely impact raises a number of additional questions: Can current predictive genetic testing really help people manage their health? Will individuals be required to disclose the results to anyone? What protections are in place to stop genetic discrimination based on predictive testing?

Diagnostic genetic testing has been used for many years to assist in determining the genetic basis of disease and in empowering patients to allow them to make appropriate reproductive and preventative treatment decisions. It is usually carried out on the basis of medical need, such as a family history of disease or for other risk factors such as maternal age, and is done within the context of a medical consultation².

The new era of genomics, heralded by the sequencing of the Human Genome, has raised the possibility of personalised medicine, where genetic profiling of patients can assist doctors in tailoring optimal treatments depending on the genes a person carries. Predictive genetic testing, as facilitated by NIB through Navigenics, is a form of genetic profiling performed on asymptomatic individuals that allows the identification of genetic risk factors that might lead to future disease. Instead of testing for single gene mutations that carry a high risk of genetic disease, the Navigenics test focuses on determining genetic risk for common, yet complex diseases that involve the interplay of many genetic risk factors (so-called multigenic disorders) as well as often undefined environmental effects. Some of the risk loci have only recently been identified through genome wide association studies³ and the individual risk factors identified in this way usually

ABSTRACT

The health insurer NIB has recently offered subsidised genetic testing to a group of their health insurance policy holders. The testing is being conducted through Navigenics, a U.S. based direct-to-consumer genetic testing company that specialises in estimating risks for complex multigenic disorders. Navigenics will conduct the test and will also provide genetic counselling to help individuals interpret the results. NIB claims it is making this offer to allow its policy holders to make informed choices about improving their health, however the consequences of predictive genetic testing, especially in apparently healthy individuals, raises many issues for the individuals involved, the medical profession and the insurance industry.

This report will look at the type of genetic test being offered, the complexities in the science behind the tests and the implications of such predictive genetic testing for the health of individuals. Additionally, the obligations that disclosure of these results might have for gaining insurance in Australia will be explored, as will possible regulatory options for ensuring that predictive genetic testing is thoroughly assessed before it gains widespread use.

MSJA 2010, 3

have small individual effects on the development of disease. By examining many people who have a given disease against a large set who do not, genetic association studies have nevertheless been used to calculate the risk of disease based on the presence of individual genetic risk factors⁴.

This form of predictive genetic test for common multigenic disorders is a new and emerging method for determining genetic susceptibility to disease and it should be distinguished from established diagnostic genetic testing for more straightforward so-called Mendelian inherited diseases involving only one locus. The rest of this article will focus on predictive genetic testing for multigenic disorders, as this

is the type of genetic testing being subsidised through NIB health insurance in Australia.

ARE THE RESULTS FROM PREDICTIVE GENETIC TESTS RELIABLE?

Using predictive genetic tests for complex multigenic disorders relies on many assumptions. For example, in the calculation of risk for developing heart disease, genome wide association studies have identified regions (called single nucleotide polymorphisms, SNPs) that seem to be more prevalent in patients with coronary artery disease compared to controls³. Navigenics and other direct-to-consumer testing companies must make decisions on which risk factors to include, based on the reproducibility of these associations by independent scientific verification⁵. However there can be disagreement in the scientific community about the utility of certain SNPs for assessing risk^{4, 6-7} and differences between genetic testing companies in the risk factors that are included for a particular disease⁸. Recently, test results on identical samples were compared between Navigenics and another direct-to-consumer genetic testing company. The comparison showed that the risks calculated for nearly half of the diseases tested did not correlate well between the two companies⁸. The two companies were testing for risks associated with the same diseases, but calculated overall risk using different methods and used a different set of risk factors in each test. This lack of concordance between similar tests on identical samples suggests that any calculation of risk from these tests casts doubt on the validity of the results and the assumptions that underlie them. This lack of robustness may potentially result in unnecessary harm being caused to the consumer and their family.

In addition, several factors might in fact alter the risks calculated for complex genetic diseases in the future, with the result of invalidating or altering the results of predictive genetic test results completed today. Firstly, not all genetic risk factors for different multigenic disorders have been identified⁹. For example, the genetic risk factors already found for celiac disease only represent ~40 % of the known heritable component of the disease⁸. This implies that current testing cannot predict the entire genetic risk component of celiac disease, with the potential result of false negative predictive genetic tests and a misrepresentation of the true risk of disease. Secondly, most genome wide association studies have used European populations⁹, with the likelihood that some risk factors will not be the same in different ethnicities. There is plenty of data accumulating to support this contention in complex diseases such as Crohn's disease¹⁰. Thirdly, Navigenics and other companies use a range of assumptions when they calculate risk, including that each of the genetic risk factors for a condition operate independently and that the odds ratio and prevalence of a disease are well known⁵, assumptions that have been called into question⁸. Any of these criteria may change in the future as new information is gathered. In fact, this is acknowledged as part of Navigenics' business plan, which offers an ongoing yearly subscription

service to allow the genetic risks of clients to be updated as new information comes to hand¹¹. The introductory information immediately accessible through the NIB website¹ fails to indicate that the test is neither comprehensive nor complete, nor that it may require revision in the future. To gain a complete picture of the limitations of this genetic testing, the consumer must look through other Navigenics web pages and the Navigenics Terms and Conditions¹².

Overall the interpretation of predictive genetic tests for complex multigenic disorders is complex, with many assumptions underlying the tests and the models used to calculate genetic risk. Future research may improve the predictive power of these tests, but the danger is that a single test taken today may be over-interpreted and used to dictate inappropriate therapies, reproductive decisions or alteration to lifestyle practices.

CAN EFFECTIVE HEALTH ADVICE BE FORMULATED ON THE BASIS OF THESE TESTS?

It is easy to imagine misunderstandings of the complex interplay of genetic risk factors and environment that ultimately lead to the development of disease. One extreme of this would be that clients place too much stock in the genetic aspect of the test. Crude genetic determinism may lead to a denial of the role of environmental factors in disease. Just because someone has a low genetic risk of heart disease, does not mean their diet and physical activity can be neglected or at no risk. On the other hand, clients with no signs or symptoms of disease (the "worried well") might insist on ongoing medical surveillance, such as regular screening, that is not without risks and frequently expensive, on the basis of information that has limited clinical utility¹³.

If we assume that the risk results gained from predictive genetic testing represent real effects that may impact on future health, how would medical advice be tailored to individual clients? There are many examples of health advice through public health campaigns that aim to reduce significant risk factors, such as smoking, obesity, low activity levels and inappropriate diet¹⁴. It is difficult to imagine what extra advice could currently be given that actually makes use of a person's genetic profile through a predictive genetic test. If the genetic test, as already discussed, fails to identify all genetic risk associated with a certain condition, it may in fact work against health by causing people to ignore or undervalue good public health advice if they perceive that they are not at risk.

The interpretation of predictive genetic tests for complex multigenic disorders is still in its infancy. Until a larger proportion of genetic as well as environmental risk factors for these diseases are identified, and until the assumptions inherent in calculating the overall risk of disease have been tested, the technology remains of questionable clinical

value. This raises the problem of who interprets the results and how clients are educated in the meaning of the results. Navigenics offers a complementary genetic counselling service to clients, however seems limited to phone and internet based consultations, so it is not clear that this represents an appropriate level of ongoing continuity of care that might be required to help manage subsequent lifestyle changes and screening tests arising from the genetic test results^{13, 15}. In fact, Navigenics makes disclaimers on its website to the effect that "...any risk estimates or other reports...are for informational purposes only and are not intended to substitute for professional medical advice, diagnosis, or treatment"¹². The interpretation of predictive genetic tests should be performed in consultation with medical professionals, in order to avoid the risk that clients may not fully understand the implications of the results of the test, or are unable to access appropriate continual support.

PRIVACY AND GENETIC DISCRIMINATION

The NIB offer of subsidised genetic testing through Navigenics has raised important issues around the ownership of genetic information and situations where it needs to be disclosed by an individual to a third party. Under the terms of the NIB offer, Navigenics will only disclose the results of the genetic test to the individuals concerned, so NIB will not have access to the information.

Health insurance premiums in Australia are not based on the risk assessment of an individual's present or future health, so as a health insurer NIB would be unable to alter premiums on the basis of genetic test results. Unlike health insurance, life insurance, mortgage protection insurance and disability protection insurance are not community rated in Australia. Instead, the insurance premium is risk rated, and calculated based on a personalised risk assessment of the individual seeking the insurance. The relationship between the life insurance company and the insured person operates under the principle of *uberrima fides*, or utmost good faith. Any omissions of facts pertinent to the calculation of risk that are not disclosed to the insurer at the beginning of the contract can lead to reduced or cancelled insurance payouts when the insured person makes a claim. Another important feature of this insurance is that it is "guaranteed renewable"; once obtained legitimately it cannot be altered, even if new health conditions come to light. The Investment and Financial Services Association (IFSA) that oversees the life insurance industry has a compulsory standard on genetic testing²⁰ that states insurers will not initiate genetic tests on insured persons, which protects the right "not to know" about their genetic predisposition to disease, in accordance with International Human Rights¹⁶. Despite this, the results of genetic tests done prior to the arrangement of life insurance are considered part of the background medical information that could be used in the calculation of risk, and as such are required to be disclosed to the insurer. Disclosure of any relative's genetic test results is also required although

identifying data is not. These requirements raise legitimate concerns about issues of privacy and the potential for genetic discrimination.

The disclosure of genetic test results to insurers in Australia might lead to discrimination that results in an increased premium for those affected, or to a refusal of insurance coverage¹⁷. This has occurred historically when medical necessity has led to predictive genetic testing that must be then disclosed to the insurer, prior to the arranging of insurance. For the most part this discrimination has been based on the presence of rare, severe genetic mutations that demonstrate simple Mendelian inheritance and lead to neurodegenerative diseases or cancers and confer an extremely high probability of contracting disease. Insurance companies in Australia must abide by Federal anti-discrimination laws¹⁸, however the legislation allows insurance companies a specific exemption to discriminate between individuals for the purposes of offering insurance providing the discrimination is based on statistical or actuarial data. This sort of discrimination can lead to a situation where those in most need of life insurance and disability insurance are unable to secure it, even though the refusal of coverage by the insurance company is not illegal.

There are several mechanisms that attempt to safeguard genetic information and regulate the way in which it can be used, both internationally and in Australia. The UNESCO Universal Declaration on the Human Genome and Human Rights prohibits discrimination on the basis of genetic characteristics, requires rigorous standards of informed consent prior to testing and affirms the right of a person not to know the results of a genetic examination¹⁶. In Australia, several recommendations of an Australian Law Reform Commission (ALRC) report¹⁹ into genetics have been implemented, including amending the Disability Discrimination Act¹⁸ to specifically include reference to discrimination on the basis of genetic status when a person is currently asymptomatic, and to preclude employers for asking for genetic information²⁰. Overseas, some countries have moved to block discrimination based on genetic information in the access to insurance. For example, recent U.S. legislation prevents health insurance companies from using genetic tests in individual risk assessments²¹. In the U.K., the Government and the Association of British Insurers reached an agreement that has recently been extended to 2014, which precludes the use of genetic test results in setting premiums for life insurance and disability protection insurance when the policies are below a certain monetary value²².

The likelihood that predictive genetic tests like those offered by Navigenics will be used to discriminate between individuals when calculating risk is low. This is as a result of the difficulties in interpreting the results from predictive genetic tests for complex multigenic disorders combined with the requirement that any discrimination of an individual for the purposes of insurance coverage be based on statistical

or actuarial data¹⁸. The test only reports probabilities of developing disease, and given that a large proportion of the genetic risk factors for each complex disease still need to be determined, it presents an incomplete picture. Additionally, the IFSA standard on genetic testing requires insurers to take into account special medical surveillance and early interventions in preventing future disease²³. There is little if any data about specific lifestyle changes that could mitigate the development of disease, given the specific, personalised set of genetic risk factors identified in predictive genetic testing for complex diseases, therefore the impact of medical intervention on the risk of developing that disease is currently impossible to calculate.

Despite the protection afforded by the anti-discrimination legislation there is arguably more that could be done to offer further protections against genetic discrimination based on data from the use of predictive genetic tests for complex diseases. The methods for calculating risk in the life insurance industry involve commercially sensitive information, and while insurers are obliged to inform individuals about the reasons for their increased premium or refusal of coverage, this does not reveal the actual underwriting methods used. It would be useful to look at some sort of government partnership with the insurance industry, similar to the UK model, where a voluntary moratorium on the use of predictive genetic testing for risk assessment in the life insurance industry would provide time for a detailed and comprehensive study of the validity of information about disease risk gained from predictive genetic tests for complex diseases.

CONCLUSIONS: THE IMPACT OF PREDICTIVE GENETIC TESTING ON HEALTH AND INSURANCE IN AUSTRALIA

The health insurer NIB has introduced a new dimension into health care and insurance in Australia by offering subsidised predictive genetic testing to its customers. The knowledge base and technology underpinning the genetics of risk for complex, multigenic disorders has accumulated rapidly in recent years, yet much of the genetic risk factors for complex diseases remain to be found, and predictive genetic testing for these types of disorders is currently incomplete and likely to be inaccurate. By initiating genetic testing through a direct-to-consumer model, NIB has also by-passed many of the safeguards usually available when genetic testing occurs when offered by qualified medical professionals in Australia. The understanding of the implications of these tests, including their incompleteness and the possibility that risk calculation models and risk factors may change in the future is not made explicit to clients. In addition, there are currently inadequate safeguards to stop the test results being used by life insurance companies in determining premiums based on individual risk of future disease. Given the rapidly changing nature of genetics research and the genetic risk factors that seem to be associated with complex diseases, it would be appropriate to call a moratorium on the use of predictive genetic test results in the insurance industry in Australia.

These predictive genetic tests should only become part of the health and insurance landscape in Australia once the accuracy, reproducibility and utility of the tests is agreed upon between the public, medical profession and insurance industry and appropriate privacy and antidiscrimination measures are in place to afford adequate consumer protection.

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Was it really an unusual presentation of renal cell carcinoma? A Case Report

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At presentation, this case was a diagnostic and surgical dilemma. However, with the value of hindsight and clinical record review, the patient's symptoms were readily explained.

A 78 year old male patient, with a history of 5-vessel coronary artery bypass in 2007, presented to a rural emergency department with right upper quadrant pain and a temperature of 38°C. The severe pain was constant, occurred suddenly, was radiating to the back and increasing on inspiration and recumbency. A week earlier the patient had an indwelling catheter inserted for urinary retention, and had presented four times in the following week complaining of haematuria with clots, diarrhoea and bloating. Investigations revealed moderately elevated liver enzymes (ALT 114, AST 109, GGT 113, ALKP 386), markedly elevated CRP (257) and reduced renal function (eGFR 85). The patient was an ex-smoker with a 30 pack year history, had a previous episode of deep vein thrombosis and a staphylococcal infection following a tibia fracture in 2001. He has a family history of pancreatic cancer and acquired renal disease.

Two days post presentation the patient became jaundiced, developed a soft ill-defined right upper quadrant mass and remained febrile. A chest x-ray reported a raised right hemidiaphragm due to possible congenital eventration, previous surgery or subdiaphragmatic collection. Abdominal ultrasound revealed a normal appearing gallbladder and biliary system. Continued deterioration of the patient prompted a provisional diagnosis of acalculous cholecystitis (AAC), despite the ultrasound confirming a previous finding of a 16cm cyst containing a 2cm irregular calcification appearing to arise from the right kidney. Laparoscopic cholecystectomy was undertaken at the rural location.

Action based on the provisional diagnosis of AAC was reasonable considering its classically non-specific presentation (consisting of right upper quadrant pain, fever, leucocytosis and abnormal aminotransferases, alkaline phosphatase and bilirubin) and relatively poor outcome unless treated promptly. AAC is defined as acute inflammation and necrosis of the gall bladder in the absence of cholelithiasis¹. It accounts for 10% of all acute cholecystitis and typically occurs in critically ill patients in relation to trauma, surgery, shock, burns, sepsis, prolonged fasting or total parenteral nutrition. Despite indistinguishable clinical signs, the mortality rate of AAC of 30% is significantly higher than calculous cholecysti-

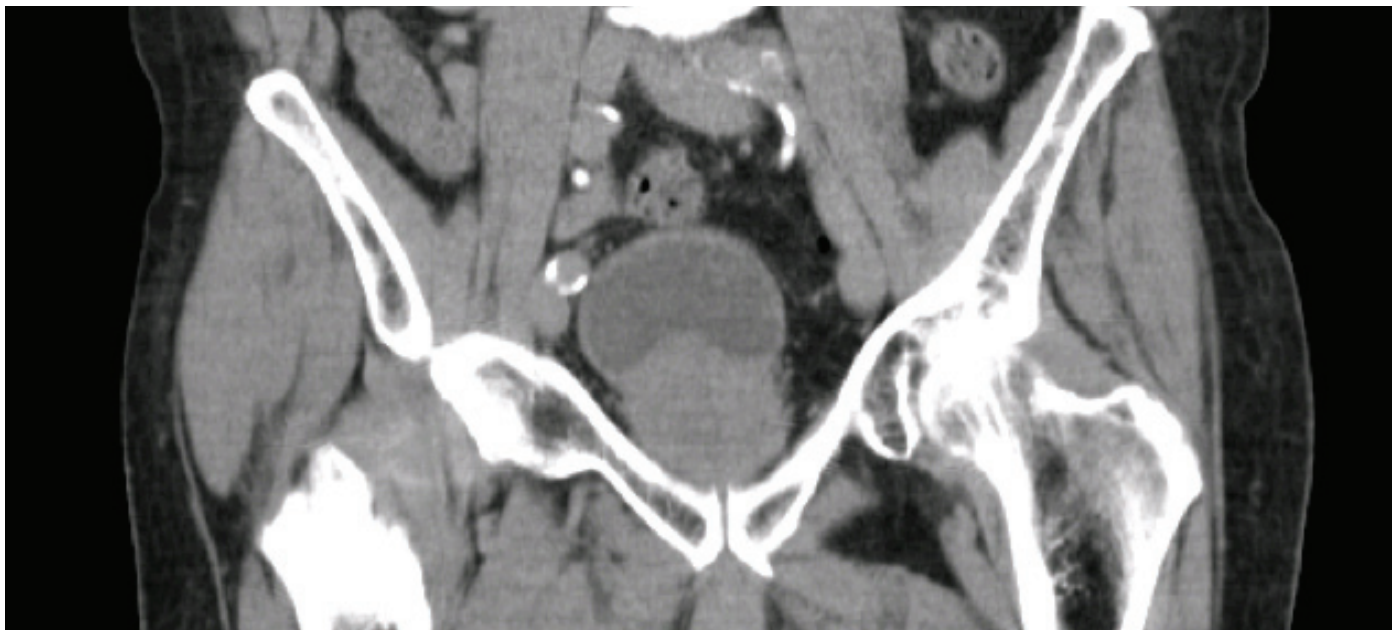
tis. In addition it is associated with severe complications of gangrene, perforation and empyema¹. More recently AAC has been recognised to occur in a substantial number of outpatients, especially in males older than 65 years with risk factors including diabetes, vascular disease and hypertension^{1, 2}. In this population, which includes the patient under discussion, prompt cholecystectomy improves prognosis^{1, 2}. Hepatobiliary iminodiacetic acid (HIDA) scan is the gold standard diagnostic modality for AAC, but was unavailable in this rural location. The diagnostic criteria comprises inflammatory changes found on ultrasound or computerised tomography (CT) scan, however their variable sensitivity rendered the absence of radiological signs unhelpful in this case.

On laparoscopic exploration, the gallbladder and left liver lobe appeared normal, but the right liver lobe showed marked venous engorgement with bile-stained peritoneal fluid. Gross induration and inflammation of the right retroperitoneum sparked the decision to convert to laparotomy, which uncovered a football-sized potentially fragile cyst measuring 200x170mm in the upper pole of the right kidney, compromising venous drainage of the liver. At that stage it was unknown whether the cyst was neoplastic, parasitic or an infected simple cyst. Following interstate urology and radiology phone consultation from the operating theatre, an unplanned right nephrectomy was performed, with the cyst removed intact. The liver appearance vastly improved by the end of the procedure. Fortunately the patient made an uncomplicated recovery.

Review of the patient's clinical records post-surgery revealed that investigations and urology review for painless haematuria and symptoms of bladder outlet obstruction six months prior to presentation had demonstrated a 280mm cyst in the upper pole of the right kidney. The cyst had enlarged and developed calcified nodularity compared to previous CT scans in 2007, but had remained unchanged since 2008 scans (see figure 1).

Although urine cytology showed no evidence of malignant cells, cystic renal neoplasm could not be excluded. However, as the cyst was not thought to be the cause of his haematuria, the patient had only been treated for prostatic enlargement with tamsulosin. In addition, a cardiothoracic referral and investigations in 2008 also showed a lung mass, determined to be a hamartoma, despite growth and calcification on subsequent CT scan.

Figure 1. Renal cyst arising from upper pole of right kidney found on CT scan.



The renal cyst was found to be a large cystic papillary carcinoma of Fuhrman Grade 3, without lymph node, perinephric fat or vascular involvement. The unlikely possibility of metastasis could not be ruled out however, especially considering his known un-biopsied lung mass. The patient was referred to oncology for follow up.

Papillary carcinoma (15-20%) is the second most common type of renal cell carcinoma (RCC), after the clear cell variety (70%). It has a good prognosis with a five-year survival rate of 80-90%, probably because of their generally early stage at presentation³. Cystic changes occur in 4-15% of cases of RCC⁴. Radiological features of the cyst can aid diagnosis by pointing toward a benign or malignant cause. Benign features of a renal cyst on imaging include a thin wall, no septa, calcification or solid components; and no contrast enhancement. A proportion of cystic lesions are indeterminate as they may show marginally suspicious features; 40-60% of these turn out to be malignant cystic RCC⁵. Follow up of progression on CT usually indicates a neoplastic process.

In this case, growth on subsequent CT scans could have triggered biopsy or surgical resection. Percutaneous biopsy has been shown to have a lower risk of peritoneal seeding than previously thought and provides an accurate diagnosis⁵.

Clinical diagnosis of RCC is not necessarily straightforward as the 'classic' triad of haematuria, palpable renal mass and dull aching flank pain only occurs in 15% of cases⁶. It has also been observed that patients with cystic RCC are less likely to experience systemic symptoms of anorexia, weight loss and asthenia compared to patients with non-cystic RCC⁷. Though at the time they did not immediately appear to be linked, in hindsight this patient's protracted presentation included all the classical features of renal carcinoma. Atypically, however,

his abdominal pain appeared to originate in the right upper quadrant and radiate to the back rather than radiating from the flank to the abdomen, and the palpable mass was large enough to appear abdominal rather than retroperitoneal.

Several valuable lessons can be learned from this case. Not only is a thorough history from the patient important, but collateral history by following up previous records and imaging results is vital to making an accurate diagnosis and thus management plan. This is particularly crucial where invasive treatment such as surgery is required, to allow for necessary planning including transportation of the patient to the appropriate facility for diagnostic tests, the surgical procedure and postoperative care. Finally, it is helpful to reflect that while uncommon conditions such as acalculous cholecystitis do occur, common diseases are more likely and known local pathology is likely to be causing current symptoms.

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Acquired Factor VIII inhibitors: A Case Report

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A 65 year old man presented to a rural hospital with a background of acquired factor VIII inhibitors with a seven day history of an uncomplicated irreducible peri-umbilical hernia. He was transferred to a major tertiary hospital for surgical management and observation. At presentation the patient's Acquired Partial Thromboplastin Time (APTT) was 45, and his Inhibitor assay was 2 BU/mL. The patient received factor VIII infusions prior to surgery. A superficial onlay mesh hernia repair was performed to minimise blood loss intraoperatively. The hernia contained only omentum. Following surgery, the patient received continuous FVIII infusions (in conjunction with pre-existing prednisolone therapy) for five days post-op without complications.

HISTORY OF DIAGNOSIS OF ACQUIRED FACTOR VIII INHIBITOR

Three years prior to the aforementioned hernia presentation, the patient presented to a rural hospital feeling generally unwell, and was diagnosed with bilateral pneumonia with clinical antibiotic resistance. The patient required three weeks as an inpatient. Shortly afterwards, he was sent for lung biopsies as the infection was unremitting. The biopsy procedure resulted in a >3-4L blood loss four hours post-operatively, and the patient had to be returned to theatre for surgical repair in conjunction with 3-4L of packed red blood cells. At this time he was discovered to have bilateral haemothoraces and required ICU admission.

There was no previous or family history of easy bruising, epistaxis or bleeding disorders. Spontaneous ecchymoses occurred for two to three months after this admission. A diagnosis of an acquired factor VIII inhibitor was given a year later in the outpatient setting. Since diagnosis, the patient was treated with oral prednisolone continuously, with doses ranging from 5-150 mg daily. Dosing was titrated according to APTT and factor VIII levels, monitored by the local general practitioner in conjunction with specialist review. The patient was unable to be weaned, suffering relapses when steroid dosing was dropped below 7.5mg daily. As a consequence of prolonged corticosteroid use, this patient suffered several side effects including; bilateral cataracts, significant weight gain and cushingoid appearance with typical facies.

ABSTRACT

Acquired factor VIII inhibitor disease is a rare and serious cause of life and limb threatening haemorrhage. This is a case report of a 65 year old man with a history of a prolonged inhibitor disease course, and the trials and tribulations of managing other co-existing medical problems in conjunction with this condition.

MSJA 2010, 3

DISCUSSION

Acquired Factor VIII deficiency

The acquisition of a factor VIII inhibitor, in the absence of haemophilia A, is a rare disease that generally occurs in adults. As compared with haemophilia A patients, who can develop an alloantibody to synthetic or donor blood products, patients with Acquired factor VIII deficiency generally have an absence of haematological disease prior to diagnosis. Disease incidence in the non-haemophiliac population is quoted between 1 and 4 cases per million per year¹. However patients with factor VIII inhibitors are at risk of severe bleeding episodes, attributing to the significant mortality and morbidity of the disease state. Mortality rates vary from 7.9% to 22%, usually from a significant life-threatening bleed within weeks of diagnosis or acquisition of the inhibitor. Age distribution has bimodal peaks, the first of which is 20-30 year old females with postpartum inhibitors (within three months of delivery) and the second peak has no sex predominance occurring between 68 to 80 years².

Acquired Factor VIII inhibitors, or acquired haemophilia A, is an auto-immune phenomenon where autoantibodies are mounted to a domain on the factor VIII protein, preventing or reducing the avidity of the protein to bind to its cofactors, factor X, factor IXa and vonWillebrand factor¹. The aetiology is varied, and up to 50% of cases are still considered to be idiopathic¹. Many conditions have been associated with the production of factor VIII autoantibodies; these include pregnancy, other autoimmune diseases such as systemic lupus erythematosus, inflammatory bowel disease, diabetes, acute hepatitis B & C and varied malignant conditions². The presentation of Acquired factor VIII deficiency/inhibitor is incongruent to the presentation of haemophilia A. The differences

in presentation are namely the early age of onset and spontaneous haemarthroses that are pathognomonic of congenital haemophilia, but are quite rare in acquired disease. The natural history of acquired factor VIII inhibitors is varied. According to a South Australian retrospective case series up to 54% of patients required haemostatic agents following a severe bleed that was life or limb threatening, while one patient had spontaneous remission, and when treated there was an 83% response rate with 33% relapsing. There are two mainstays of treatment; the management of acute bleeds and complications thereof, and inducing remission via an immunosuppressant. Current management of acute bleeds is to ascertain hemostasis via porcine factor VIII and recombinant factor VIIa. Plasmapheresis can be performed for patients with high titres of inhibitor in conjunction with haemostatic agents. Varied immunosuppressants have been used for induction of remission, of which cyclophosphamide and prednisolone, alone or in combination are the most commonly recommended agents for the duration of at least five weeks. However, many reports have noted neutropenic-related infections and deaths from the use of cyclophosphamide in elderly patients. Other treatment options include high dose immunoglobulins and immune tolerance protocols.

Inhibitor activity can be assessed in a few ways; the first being regular activated partial thromboplastin time or APTT. The Bethesda assay is 'based on the inability of normal plasma (in a 50:50 mixture) to correct prolonged APTT (or PT) of patient (test) plasma'. These are the two mainstays of monitoring and therapeutic assessment.

The case at hand

Overall, this case more or less has a happy ending; the patient presented, he was seen, and the problem was rectified. Case reports generally do not report successful management; however there were some interesting aspects to this case worth sharing. The patient had a prolonged disease course with several relapses seen with acute elevations in APTT levels, requiring increasing prednisolone doses. Due to prolonged steroid use, the patient experienced several side effects. As prescribing doctors, we must consider the benefit risk ratio, and weigh whether the side effects of steroid use are amenable to the natural history of the disease. The median time for spontaneous recovery of Acquired factor VIII deficiency is reported to be 14 months; this patient had a prolonged disease course requiring steroids to prevent life-threatening haemorrhage. This raises the issue; at which point does this disease require adjunctive or an alternative therapy? A long course of steroids, high or low dose, is generally not preferable due to its side-effect profile. How long should we prescribe steroids before considering other options? This patient may be suitable for a different regime of immunosuppressant therapy, such as adjunctive cyclophosphamide, or may be amenable to a trial of tolerisation. As this is a rare disease, there are currently no guidelines to form a reference. The second point of interest are the events

Figure 1. Acquired Factor VIII inhibitors



preceding the diagnosis of his coagulopathy; a severe pulmonary infection. The concept of antigenic mimicry precipitating autoimmune diseases is not a new one, but it is rare that we see an autoantibody to a coagulation factor in the absence of repeated stimuli (as is the case of alloantibodies in congenital Haemophilia A). A high proportion of idiopathic disease appears to be precipitated by a preceding infection, and this patient's disease most likely falls into this category. The time course between infection and post-operative haemorrhage (three weeks) was enough to allow sufficient IgG titres to mount with adequate affinity and avidity. Whilst there is little substantiating evidence to support this theory, many other case reports have inferred similar findings of preceding infections¹.

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That's what the Anaesthetist said ... A Case Report

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Most of the time medicine is considered more a Science than an Art; not always a very exact one, mind you, but we try to make it as exact as possible by taking all the possible history we can, following this with a thorough physical examination, and finishing up by ordering lots of tests (especially, so we're told, as junior doctors). After all, there's nothing quite so nasty as a surprise and perhaps this is most true in the realm of surgery. Both surgeons and anaesthetists like to be prepared for whatever might happen, since, when you think about it, putting someone off to sleep, cutting them open, having them bleed, their temperature fall, and severing all those muscles, minor nerves and blood vessels is really not a natural process; which is probably why so many people didn't survive surgery before modern days of anaesthetics and post-operative care. And that's when it all goes to plan.

I was lucky enough to be involved in a case in which things didn't go exactly to plan, and although 'all's well that ends well', it was certainly an exciting moment for me, and a hairy moment for the surgeon and anaesthetist. The patient was a seventy-two year old woman in fine health, with no ongoing medical issues and no regular medications. She had a rather extensive surgical history, including several abdominal surgeries: an appendectomy, hysterectomy, ureteric reimplantation, and umbilical hernia repair, but all of this was some time in the past. However in the last two years, she had been experiencing increasingly frequent and severe periumbilical pain, bouts of which would last for 4 or 5 hours at a time. She rated the pain as severe (7/10), and described it as constant and non-radiating. This pain was accompanied by vomiting of a clear, odourless fluid, following which the pain would dissipate. Her bowel habits had also changed, from being very regular, to becoming intermittently constipated with ribbon-like stools and then having watery diarrhoea.

She had seen a number of doctors with regards to this complaint, beginning with her GP and then various specialists including general surgeons and a gastroenterologist. The GP initially suggested a colonoscopy, and also took stool samples for a Faecal Occult Blood Test, which returned positive. The first of her general sur-

geons suggested a barium meal might be helpful, but it revealed no abnormality. She then saw a second general surgeon, who again suggested a colonoscopy, and added that a gastroscopy was indicated given the vomiting, which suggested a possible small bowel obstruction, although the barium meal was normal. An abdominal x-ray was also performed, but again was normal. Her gastroenterologist performed both the colonoscopy and gastroscopy, but nothing abnormal was found.

Throughout this time, these episodes of intense paraumbilical pain continued, sometimes with breaks of weeks, but always recurring. Finally, the gastroenterologist suggested a 'pill cam'. So far, no imaging had been able to pinpoint an abnormality, but the pain, its location and frequency, and especially the vomiting, suggested a possible obstruction. Gastroscopies can allow observation of the GI tract as far as the duodenum, and colonoscopies can visualise as far as the very distal end of the small bowel, when luck and skill

Figure 1.
Physicians perform laparoscopic stomach surgery. The surgery will involve the removal of the gall bladder to help alleviate acid reflux disease.
Image Credit: Wikimedia (Samuel Bendet, US Air Force)



are on the operator's side. However the vast majority of the small bowel cannot be imaged in this way. A 'pill cam', or capsule endoscopy, involves swallowing a tiny camera (with an accompanying light source) which is the size of a large pill or capsule. This camera takes pictures at timed intervals as it makes its way through the bowel and is excreted. These pictures are then examined for abnormalities throughout the entire gastrointestinal tract, but especially in the small intestine, which can only be otherwise visualized indirectly through techniques like contrast CT, MRI, or barium swallows.

The patient was told to look out for the camera in the toilet within the next 24 hours, but it never appeared. She returned to her first general surgeon, who determined that the camera must be stuck in a stricture of the bowel, and needed immediate removal. He also had the benefit of pictures from the camera's journey through the GI tract, as far as it got, from the accompanying data recorder. It did appear that there was a narrowing of the small bowel, but exactly the nature of the obstruction remained unclear. With the patient's history of numerous abdominal surgeries, the most likely aetiology of the obstruction was adhesions caused by scarring, resulting in an extra-luminal narrowing of the small bowel. But until the patient was opened up, it would not be clear.

The theatre was booked, pre-op assessments by surgeon and anaesthetist were performed, and the patient was found to be in excellent health apart from her recurrent severe abdominal pain. As the patient was prepped, the surgeon and anaesthetist discussed the possible things that they might find when the patient was opened up.

"Well it could just be adhesions," the surgeon pointed out.

"Yes, that, or maybe a tumour? She's in the right age group," the anaesthetist opined. Then turning to me, "so what are the possible tumours of the small bowel?"

I thought frantically of the layers of the small bowel, and came up with some extremely unlikely possibilities. "Uh, well, there's smooth muscle... maybe a leiomyosarcoma?" The surgeon and anaesthetist both choked back amusement.

"The most common small bowel tumours are adenocarcinoma, carcinoid, lymphoma and GIST, in that order," the surgeon explained.

"Let's take bets!" said the anaesthetist.

"Well then I'm going with adhesions," said the surgeon.

"I'll take carcinoid, just for the fun of it!" said the anaesthetist. Fun was an interesting way of putting it. If the anaesthetist was right, it would certainly make his life harder.

Carcinoid tumours are neuroendocrine tumours arising from neural crest cells, which can produce serotonin. In fact, about 80-90% of serotonin is produced in the gastrointestinal tract, where it helps to regulate motility and appetite. But when regulation of cell replication gets out of hand and a carcinoid tumour arises, the high levels of serotonin can cause problems. Most of the time, the liver handles the extra serotonin being produced, and the patient remains asymptomatic. But during surgery, when the tumour is handled, large amounts of serotonin may be released, causing a profound hypotension and tachycardia, which can be fatal. So, fun indeed.

"What are you going with, medical student?" The anaesthetist turned to me. "Um, well if adenocarcinoma is most common, maybe that?" I said, thinking 'well at least I'm learning something!'

"Boring!" put in the theatre nurse. So, all bets placed, the surgery began.

As the surgeon started to operate, it became clear that there were indeed many adhesions from the patient's previous surgeries, which made accessing the small bowel difficult. He patiently dissected through these, making his way to the area of interest, where a discernable lump could be felt. As he ran his fingers along this area, the anaesthetist poked his head over the curtain.

"What are you doing in there?" he asked. "Her blood pressure is fluctuating wildly!"

"Really?!" The surgeon was concerned. "Maybe you were right... Carcinoid!"

He very carefully opened the small bowel in the region of the mid ileum, trying to handle it as minimally as possible, to reveal a large cicatrizing tumour protruding into the lumen. As he moved down the bowel, more and more smaller tumours could be seen. At final count, thirteen tumours were identified. The section of bowel containing the tumours was carefully removed and sent for frozen section, which revealed that the anaesthetist had indeed been right – the diagnosis was a primary carcinoid tumour with 12 satellite tumours all in the mid-ileum. The main tumour had been causing the patient's intermittent obstructive symptoms... and had caught the pill cam. The surgeon neatly anastomosed the two ends of the ileum, and was pleased to hear that the patient's blood pressure was completely stable. He closed her up, and the excitement was over.

The next day, I went to speak to the patient. "Thirteen tumours, were there?" she said. "No wonder they caused me some grief!" She was looking well, feeling well, and apart from some pain from her scar, she had no complaints. "I'm just looking forward to going home, now," she said. "I'm a retired nurse, you see, and I'm over hospitals!" Luckily, the surgeon agreed.

The Medical Student Tsunami

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Professor Frank Bowden wrote in the Sydney Morning Herald on the 11th of September 2009 about the balance between appropriate working hours for junior doctors in order for them to acquire sufficient training and experience, and the potential safety and quality of care issues surrounding junior doctors working increased hours while inexperienced, fatigued and stressed. In the latter part of his article, Professor Bowden rounded onto the real crux of the situation facing junior doctors leaving medical school in the coming years; that there is in fact going to be a glut of graduates released into the workforce with too few senior practitioners to provide training and too few hospital positions to accommodate graduate numbers.

To members of the public, there is no cause for alarm here. The quality of education Australian medical students receive in 2010 is as strong and all-encompassing as it ever has been. There is arguably more content being taught to students in their medical degrees than in previous decades if you consider the additional medico-legal, population health, psychological and evidence-based-medicine aspects of our training.

To upcoming graduates of medical programs, there is cause for alarm here. Without adequate training and hours spent in hospitals in the early and crucially formative years post-graduation, there can be no guarantee that what qualified as a resident 20 years ago will parallel what qualifies as a resident in 2010. Here are the facts; there are 3400 medical students who will finish their university education in 2012 seeking internships in 2013, whilst at present there are 2030 internship places currently available in Australia¹. The reason for this disparity is the huge increases in medical school intake quotas and the opening of new medical schools around Australia since 2004. Tiffany Fulde, the former president of the Australian Medical Students Association (AMSA) announced in October 2009 that unless the urgent issues surrounding placements for medical graduates are addressed expeditiously "this medical student tsunami will strike us unprepared"¹.

In order for Australian medical schools to increase student numbers a major source of funding has been from a growing body of international students. Currently 19% of Australia's medical students are international, increased from 10% in 1999². It would seem that the primary purpose served by international students is to prop up universities who are unable to attain adequate levels of funding from state and federal education budgets³. The annual fees of an interna-

Figure 1. Behind the Great Wave at Kanagawa



Image Credit: Wikimedia

tional student to attend medical school in Australia may exceed \$40 000³. This may seem like a lucrative solution for under-funded medical schools if it were not for the problem of finding internship places in Australia for these students after they graduate. In 2010, not a single international student was granted an internship position in NSW⁴. This hardly seems fair given the amount of time, energy and money these students have contributed. However, this is most likely a portentous sign of things to come. First it will be the international students who miss out on intern places, and then it will be the local students.

The years of studentship in medicine do not pass by breezily amid a constant process of examination, evaluation and re-evaluation. One important difference with today's medical students that separates us from our senior clinicians is that we pay more for our degree today as do all other non-scholarship students in Australian university courses since the introduction of the Higher Education Contribution Scheme (HECS). This is pertinent to the profession of medicine which asks of its members to act altruistically at all times; that is, to put the priority of the person under your care ahead of your own. If you combine this with the fact that most medical courses are post-graduate entry programs, requiring that every student must achieve a bachelor degree or higher qualification before commencing medicine, the present day medical student must have a firmly focused desire to enter into a medical career before they embark on this very long unpaid journey. As the pressures of starting a family, buying a home, funding your studies and living costs (many students often move inter-state to attend hotly contested university placements) begin to mount before a cent has been earned in your chosen career, there is a lot of time to con-

sider the possible ways to circumvent the debts and rectify the lifestyle sacrifices that have accumulated over the years. A backlash may occur in the behavioural trends of doctors as the incentive to repay the community and government that supported them is replaced with a desire to self-serve. New doctors will be more conscious of the need to earn as much money in as little time to off-set their debts. This will cause under-staffing and under-resourcing in areas of need.

The most recent estimates from the National Health Workforce Taskforce are that Australia has a shortage of 4500 doctors⁵. Whilst the rationale behind increasing medical student numbers to amend the shortage of doctors observed in Australia is sound, there must now be execution of strategies to increase post graduation training places to preclude a situation in which we are left with medical graduates who are unable to practice despite the clear requirement for more doctors in Australia. Dr Andrew Pesce, president of the Australian Medical Association (AMA) recently expressed his fears that Australian graduates will be forced to travel overseas to complete their training⁵. This is the direct opposite outcome of what the government originally set out to achieve.

Former Prime Minister Kevin Rudd labelled the Australian healthcare system to be "universally bleak"⁶, which may be for a host of reasons. However, was it beneficial for Kevin Rudd to label this huge section of the workforce a wasteland? This is not going to attract potential nurses, technicians, orderlies, laboratory staff, administrative personnel or any individual considering a career in healthcare. With a large proportion of the population approaching retirement age and carrying the associated health issues this period of life brings, the priority of federal and state politicians should be to rally the workers of the healthcare system. This would reinforce the value of being a healthcare worker in the community.

The 2010 federal election failed to address the internship crisis in any direct way. In fact, on the combined web pages of the Australian Institute of Health and Welfare (AIHW), Australian Labour Party (ALP) and 'yourHealth', a website setup for people to share their ideas on health reform with the government, the word 'intern' is not mentioned once⁷⁻⁹. The government's focus is on increased training positions for General Practitioners and Emergency Medicine staff, which occurs one to two years after internship. This reflects the government's band-aid attitude to health policy, failing to see the training process in full.

The combined Deans of Australia's medical schools have supported a move towards a capping on medical student numbers, such that they remain frozen until an adequate number of internship places have been established¹⁰. Australian universities have undertaken massive reforms to increase the intake of medical students receiving training around Australia in order to address the dire shortage of doctors in the current health system. Now it is the turn of the hospitals' to

undergo reforms to complete the next step in the process. Private hospitals represent a significant potential resource for graduate positions. As it stands, private hospitals account for more than 40% of hospital admitted patients and perform 64% of elective surgeries in Australia¹¹. This affects junior medical staff as they effectively miss out on the benefits of observing and assisting in the treatment of a huge portion of patients. Furthermore, based on the anecdotal experience of my colleagues, the patients within private hospitals are often just as willing to assist in the learning process of medical students and junior doctors. Tapping into the private hospital patient and clinician pool must become a viable option to aid students and junior doctors in their learning.

Another possible solution to the increased number of medical graduates and the potential limited exposure to clinical learning would be to make use of patient simulators. The use of these for students and recent graduates may be a viable tool for education and gaining experience in many clinical situations. Simulators may be more cost-effective than other alternatives and allow inexperienced doctors to make 'mistakes' without the weight of real-world consequences befalling them.

In any event, the prospects of medical students in Australia as they move into the workforce are justifiably comparable to a natural disaster. The waves of graduates about to leave universities around Australia are keen to contribute to the health system to the full potential of their ability. It is only appropriate that the hospital systems accommodate and reciprocate this feeling.

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The 2010 Election: An opinion on what this means for Health

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When Australia awoke to the political anarchy of a hung parliament, the average medical student may well have expressed confusion as to what this would mean for health policy. Health policy was a big issue after the last election, as former Prime Minister Kevin Rudd attempted to capture the imagination of the nation with a major overhaul of public hospital funding. However, his plan was watered down by the Labor Premiers and derided by the Opposition. The ultimate result was that Rudd's health plan failed to be a major Labor selling point and after the Gillard coup, health policy sadly took a back seat in the campaign.

However, the election is now well past and the government formed by Labor in coalition with the Independents and Greens will attempt to get their health policy through. Labor had declared that they will complete their 60% take over plan of public hospitals, funded by a clawback of nearly a third of the state's GST¹. In order to achieve this, they

will need to get the West Australian Government on board, which so far has vigorously opposed the proposition. Part of Labor's plan includes the formation of local networks in a similar manner to what currently exists in NSW, the idea being that these linked hospitals will support each other by sharing expertise and resources.

This will rigorously be opposed by the Coalition who sees this as merely extra red tape and public servant jobs. They prefer community boards made up of hospital employees and nominated local citizens to run hospitals. The Coalition, had they formed government, might have attempted to force a proposed 100% federal take over of hospitals, and would also have been likely to fund more hospital beds and boost GP services¹. Their proposals included payments to after hours GPs, help for GPs to expand their practices, rebates for longer consultations and paying hospitals directly to make more beds available. In their proposed budget, La-

Figure 1. Prime Minister Julia Gillard



Image Credit: Wikimedia

Figure 2. Tony Abbott, Leader of the Liberal Party of Australia



Image Credit: Wikimedia

bor also had money set aside for similar GP and hospital bed promises, so some sort of agreement is likely to be worked out. The Coalition's big-ticket health announcement was \$1.5 billion for frontline mental health services¹, and an unlikely alliance of Greens and Liberals on this proposal may well get this through even with a Labor Prime Minister. What effect this would have on the government's budget remains to be seen.

To form Government, there has been horse-trading with the five Independents and health may well have been part of the bargaining. Voters in Denison, New England and Lyne are now likely to see the material benefits of their independent representatives being wooed in a bid to secure their loyalty to a fragile government. At least one MP, Tony Windsor from New England, has nominated rural health as an area of particular interest to him.

The other elephant in the room are the Greens, who have fulfilled a long held ambition to hold the balance of power in the Senate. Some of their more attention-seeking policies such as taxes on junk food advertising and bans on TV advertisements may not eventuate, but we can expect the Greens will try to push their National Dental Care - Denticare scheme through¹. Denticare is a long cherished Greens idea to provide a Medicare-style federal funding offset for basic dental services that is also likely to appeal to the Independents.

To take government is both a triumph and a risk. If the Independents and minor parties thwart the government's agenda, they are likely to lose the next election and history suggests that once out of federal government, you tend to stay out for a while. Labor needs some runs on the board, and health policy may be one area where it can cobble together the numbers necessary to make it happen. The medical student would do well to stay informed about what actually transpires.

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Anecdote

Scott at the Radiology station

Scott [pointing to the stone]: It's not the right opacity to be a calcification, so on that basis, I consider this to be a tampon.

Examiner: Not a calcification? Are you sure?
Me: It could be calcified.

Examiner: And what is this structure here?
 [pointing to a distended bladder]

Scott: A distended bladder - perhaps it could be a stone in the bladder.



Will at the Paediatric cardiovascular examination

Will [whilst holding my hands out]: "Hey patient X, can I get you to stick your hands out like this for me so I can have a look please?"

Patient X: "Ok, but why are your hands shaking so much?"

Prof: *sniggers*

Preventive strategies for reducing the burden of meningitis in Sudan

A Review

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INTRODUCTION

Meningitis is a potentially severe acute infectious disease which can be caused by several types of micro-organisms, primarily viruses and bacteria¹. Globally, meningitis represents a significant cause of morbidity and mortality, with the greatest burden falling on countries in the "African meningitis belt"¹⁻³ (see figure 1). Bacterial meningitis is responsible for the greatest number of deaths and sequelae, making it an important public health issue². The world-wide incidence for meningitis, reported in the World Health Organization (WHO) Global Burden of Disease (GBD) 2004 was 700 000 episodes; over 40% of the episodes were from Africa⁴. It is estimated that there were 156 000 deaths in Africa alone in 2004, and 340 000 worldwide⁴.

BACTERIAL MENINGITIS

Worldwide, the major pathogens implicated in bacterial meningitis are: *Haemophilus influenzae* type b (Hib), *Streptococcus pneumoniae* ("pneumococcal") and *Neisseria meningitidis* ("meningococcal")^{3,6,7}. *Meningococcus* is considered to have the greatest potential for causing epidemic meningitis^{2,5}. Although pneumococcal meningitis also causes a significant proportion of meningitis and has a high case-fatality rate, there is little data on its burden in the African meningitis belt⁸. Hib meningitis has an estimated incidence rate of 46 per 100 000 (see Table 1).

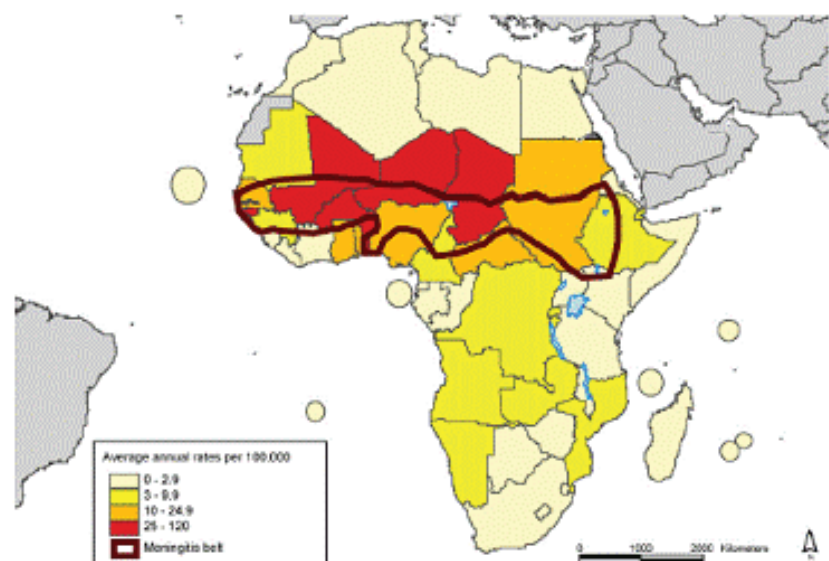
In Africa, meningococcus serogroup A is implicated in most of the epidemics; these are one of the leading causes

ABSTRACT

Meningitis is a major cause of morbidity and mortality in Africa, most notably in the so-called "meningitis belt", where it represents an important health problem. There are a number of factors involving the host, environment and organism that predispose this area to epidemic and endemic meningitis. Historically, *Neisseria meningitidis* Group A has been of particular interest due to its implication in major epidemics in Africa. Despite widespread use of polysaccharide vaccines, meningitis remains an unresolved public health problem. This paper describes the epidemiology of meningitis and suggests an approach to a strategy for reducing morbidity and mortality of meningitis in the region. This strategy will encompass primary and secondary levels of intervention although tertiary prevention will also be discussed. Predominantly strategies for prevention of bacterial meningitis will be discussed as it tends to cause the most morbidity and mortality and in particular, the imminent emergence of a conjugate vaccine for meningococcal A has been heralded as an important step towards elimination of epidemic meningococcal meningitis. However, there is much to be done to implement mass vaccination, surveillance and evaluation of intervention strategies in this resource-poor setting.

MSJA 2010, 3

Figure 1. Outline of meningitis belt in Africa showing annual attack rates⁵



of death for people under 15 years¹⁰. Epidemics occur every 8-10 years¹¹. Epidemiology varies significantly by geographical area and season, during non-epidemic periods, incidence is approximately 20 cases per 100 000 people per year but can increase to 1% during epidemics¹². Without treatment, case-fatality rate varies between 50 and 80% and can be reduced to 8-15% with treatment¹²⁻¹⁴. Between 10-20% of survivors suffer from long-term sequelae such as intellectual impairment, hearing loss, hemiplegia, seizures and learning disabilities^{15,16}. Furthermore, the social and economic burden of survivors with neuropsychological sequelae has been minimally studied in Africa⁷.

Meningitis is clearly an important area for disease prevention and control, particularly given the consideration that the majority of bacterial meningitis is vaccine preventable.

VIRAL MENINGITIS

The annual incidence of viral meningitis exceeds the total number of cases of meningitis of other aetiologies¹⁷, however viral meningitis is rarely serious and recovery is usually complete^{2,18}. It occurs world-wide in sporadic and epidemic forms with the incidence during non-epidemic periods rarely being known². Furthermore, no specific control measures exist. Mainly infants and children are affected and the majority of cases occur in

children under the age of five years^{2,17}.

MENINGITIS IN SUDAN

Sudan is located in the meningitis belt¹⁹. Several factors increase the risk of meningitis and epidemics in Sudan, these are important to consider in planning preventive strategies. The requirements for epidemics are often discussed in terms

of host, environment and organism interactions²⁰; these elements have been incorporated in table 2.

POSSIBLE STRATEGIES TO REDUCE BURDEN OF MENINGITIS IN SUDAN

There are various strategies in existence that are aimed at reducing morbidity and mortality of meningitis

Table 2 – Factors which influence risk of meningitis in Sudan

Individual level – host characteristics	
Age – children less than 2 years do not respond strongly to polysaccharide vaccines in general; immature immune systems ⁷	
Immunological susceptibility from poor nutrition ⁷	
Concurrent infection – viral upper respiratory tract infections	
Household level	
Overcrowded housing; poorly ventilated ²⁰	
Low socio-economic status ²⁰	
Community level	
Population displacements due to war and conflict ²¹ – densely populated urban areas/refugee camps-mature immune systems ⁷	
Mobile population due to pilgrimages and traditional market places ²¹	
National level	
Political factors including government not supportive of foreign intervention	
Economic crisis and breakdown of essential services ²¹	
Environmental conditions	
Particular climatic conditions: December to June dust winds/storms, cold nights, drought enhance bacterial invasion by damaging mucosa directly or inhibiting defences ²⁰⁻²¹ ; unfavourable conditions also result in crowding in poorly ventilated areas	
Organism	
Some strains of bacteria are more virulent than others ^{10, 20}	

Table 1 – Aetiologies and case-fatality ratios for acute bacterial meningitis, by patient age group, in Burkina Faso (2002-6) and Togo (2003-6)⁸

N (%) of cases of aetiology					N deaths/N cases with known outcome (case-fatality, %), by aetiology		
Age group, years	No. of cases with known aetiology	Streptococcus pneumoniae	Haemophilus influenzae type b	Neisseria meningitidis	Streptococcus pneumoniae	Haemophilus influenzae type b	Neisseria meningitidis
<1	283	99 (35)	133 (47)	51 (18)	41/79 (52)	29/118 (25)	6/46 (13)
1-4	224	71 (32)	59 (26)	94 (42)	29/58 (50)	14/47 (30)	14/79 (18)
5-14	282	95 (39)	27 (10)	162 (57)	36/80 (45)	7/21 (33)	14/122 (11)
>15	287	189 (66)	12 (1)	86 (30)	64/145 (44)	2/9 (22)	6/56 (11)
Unknown	19	9 (47)	3 (16)	7 (37)	1/1 (100)	0/0 (0)	2/3 (67)
Total	1097	463 (42)	234 (21)	400 (35)	52/195 (27)	52/195 (27)	42/306 (14)

in Africa. All of these involve bacterial meningitis and the majority are aimed at meningococcal meningitis since this is the pathogen implicated in epidemic meningitis. Table 3 below, incorporates a collection of strategies for reduction of meningitis disease burden by classification into primary, secondary and tertiary levels. There is some overlap in terms of secondary and tertiary levels of prevention.

Public health strategies ultimately are best served by involvement of many stakeholders including local health workers, health policy makers, humanitarian organisations, donor agencies and pharmaceutical manufacturers. In countries like Sudan, political factors may significantly limit potential interventions. In the absence of dramatic changes to the political climate and living conditions, large-scale vaccination is the most im-



Figure 2. Map of Sudan
Image Credit: Wikimedia

Table 3 – Preventive strategies for reducing disease burden of meningitis in Sudan

Level of prevention	Strategy
Primary	<p>Current</p> <ul style="list-style-type: none"> • Encourage good hygiene practices such as hand-washing (viral meningitis) • Preventive vaccination for Hib (universal vaccination recommended by WHO in 2006; adopted in 2008)^{7, 22} • Preventive (routine) vaccination for meningococcal^{3, 10, 15} - Routine vaccination of all school children (in Sudan) - Currently limited to polysaccharide vaccines (currently marketed: A/C, A/C/W135 or A/C/Y/W135 multivalent products)⁵
Secondary	<p>Current</p> <ul style="list-style-type: none"> • Reactive (emergency) vaccination^{2, 11, 13, 21, 23-24} – requires several elements: <ul style="list-style-type: none"> - Active surveillance to allow early detection of epidemics (using thresholds for alert and for an epidemic) - Adequate laboratory facilities to confirm serotype involved - Sufficient supply of vaccines - Ability (including field workers) to execute rapid mass vaccination campaigns • Chemoprophylaxis with antibiotics as well as vaccination² <ul style="list-style-type: none"> - Recommended in non-epidemic settings for contacts of household members, institutional contacts (e.g. army), child-care centre contacts and those who have had contact with the patient's oral secretions - Not recommended during epidemics since contact numbers will be large and those who receive prophylaxis can still be infected; increased adverse effects for minimal benefit; meningococcal dissemination occurs from carriers¹⁰
Tertiary	<p>Current</p> <ul style="list-style-type: none"> • In individuals, early identification and management of cases would aid in reducing disease-related complications by allowing effective case management with appropriate antibiotics²⁴ • Setting up "meningitis centres" in the case of epidemics so diagnosis and treatment can be carried out¹³ • Temporary treatment centres to manage overflow from established centres²

portant preventive measure. It is considered the most effective method of primary prevention of bacterial meningitis in children¹. This strategy combines short-term (generally secondary prevention) with long-term approaches (primary prevention).

Short-term - Reactive vaccination campaigns

On a population level, secondary prevention involves identifying an outbreak and attempting to limit the size of the epidemic. Although it is ideal to prevent epidemics, it is likely to take some time before large-scale vaccination with a conjugate vaccine is complete. Identification of an outbreak involves defining a threshold for declaring an epidemic. The definition varies somewhat, based on population size and previous epidemic; for a population larger than 30,000, the threshold is 15 meningitis cases per 100,000 people per week^{2, 11, 24-25}. At the identification of an epidemic or threatened epidemic, MSF needs to organise supply of vaccines from manufacturers, set up the cold chain to ensure vaccine effectiveness, deploy more field workers and ensure vaccination of the population at risk in the epidemic area. At the laboratory level, the type of meningitis

needs to be identified so that the correct vaccinations are used. This identification is also important in terms of case reporting and surveillance.

Long-term approaches

1. Preventive vaccination

Introduction of vaccines that provide long-term protection is the most viable way of preventing epidemics¹⁵. The development of a conjugate vaccine for the prevalent meningococcal strains (namely meningococcal A) is now well advanced and in trials in Africa¹⁵. Phase I and II trials suggest that the meningococcal A vaccine targeted at 1-29 year-olds (accounts for 90% of meningococcal disease) will result in herd immunity and reduce carriage and hence transmission and incidence⁵. This conjugate vaccine will provide longer-lasting immunity and be more reliably immunogenic in children aged less than two years¹².

It is projected this vaccine will be available at the end of 2010. While mass vaccination targeting the main at-risk group (babies to young adults) should be carried out to generate herd immunity, it is also important that future newborns be protected over time. It has been proposed that the vaccine be incorporated into the Expanded Program on Immunization (EPI) schedule⁵. Cost analysis has estimated that in Burkina Faso, another meningitis belt country, that introduction of the meningococcal A vaccine would save \$US7 million in an epidemic year, from treatment, diagnostic and laboratory costs⁵. While resources are limited, there would be similar substantial savings from prevention of epidemic meningitis in Sudan. Funding for this should be sourced from within Sudan as well as internationally.

2. Advocacy for better living conditions

As a non-government organization, MSF also has the job of acting as an advocate for better living conditions for Sudanese people living in overcrowded housing and camps. This is thought to be a risk factor for spread of bacterial meningitis^{2, 20}. MSF recommends that the minimum area of a refugee camp should be

30 square metres per person and also a minimum dwelling space of 3.5 square metres per person²⁶. It is thought that rapid contagion is significantly less likely if these conditions are met.

3. Epidemiological surveillance

Epidemiological data is vital to planning prevention. Traditionally, disease surveillance has been quite heterogeneous in nature²⁷. There has however been improvement in this situation with more uniform data collection using Standard Operating Procedures (SOPs) in some meningitis belt countries. Striving for high quality and comprehensive data is an important element of the prevention strategy.

4. Education: general public and health workers

Education campaigns using radio, televi-

sion, pamphlets as well as local health workers could aid in informing the public about alarm signs and symptoms of meningitis to prompt seeking urgent medical care. Poor prognosis is often associated with delayed presentation²⁸. It is important to have up-to-date guidelines for training MSF staff on how to make a clinical diagnosis of bacterial meningitis. Ideally, bacterial meningitis would be diagnosed from analysis of cerebrospinal fluid after lumbar puncture. This is not always practical due to large numbers of cases and isolation of some communities from laboratory facilities. Training of local health workers in addition to new MSF field workers is an important consideration.

5. Raising awareness

MSF has an important part to play in raising awareness of the burden of

Table 4 - Requirements of vaccines and the process for elimination of epidemic meningitis in Africa¹⁵

Panel 1. Desired properties of a meningococcal vaccine for meningitis epidemic belt
Cheap, affordable by countries with the highest disease burden
Immunogenic and safe in all age groups
Schedule of immunisation fits into the current EPI immunisation schedules
Induces immunological memory
Induces long-lasting immunity
Has a high impact on colonisation
Able to withstand breaks in the cold chain
Effective in vulnerable groups like malnourished populations
Immunogenicity not affected by concomitant vaccination
Panel 2. Essentials of Meningococcal conjugate vaccine introduction and use
Consult and involve experts and governments from epidemic regions – they should be empowered to take ownership of vaccine supply and use
Obtain, document and disseminate credible data from various studies
Document clear financing strategies
Extensive and sustained immunisation campaign among the high risk population for proper coverage
Immunisation schedule should be based on science and logistics – fit into present immunisation schedule
System and infrastructure to monitor vaccine use – required to monitor impact of vaccine on disease burden and carriage
Flexible and robust development system that could add more sero-groups when necessary

disease of meningitis. Recognition from governments and world bodies is critical so that the disease is flagged as a priority area for control and prevention¹⁵. In the past, this has been the basis for important scientific, political and economic partnerships that led to the formation of the Meningitis Vaccine Project (MVP) which has been a driving force for the development of the meningococcal serotype A vaccine¹⁵. Awareness is raised through media campaigns, online bulletins and informing members.

IMPLEMENTATION

The so-called "push" financing strategy, which describes funding of vaccine development and production from outside pharmaceutical companies, will help lower the unit cost of the vaccine¹⁵. It is estimated that the meningococcal serotype A vaccine at the rate of 22-32 million doses per year will be available at a cost of \$US0.50 per dose in 10-dose vials¹⁵. Okoko et al describe the requirements for vaccines and implementation of them, reproduced in table 4 below.

EVALUATION

It is vital to evaluate the effectiveness of interventions to guide future directions. This will namely involve assessing the effectiveness of vaccination campaigns, preventive and reactive, and surveillance in detection of epidemics. It is likely that a country with strong public-health infrastructure and with epidemiological and laboratory surveillance systems will be chosen for post-licensure evaluation of the meningococcal A conjugate vaccine¹⁵.

Effectiveness, accessibility, safety, quality, timeliness of resources used will be evaluated. Evaluations of the health impact and cost-effectiveness of conjugate vaccines need to take the social and economic impact of meningitis into account⁷. A vaccine demonstration project measuring impact on meningitis, carriage and to assess strategy, economic and logistic issues would provide useful data²².

FUTURE DIRECTIONS

It is vital to review the impact of any strategy on morbidity and mortality. It is also important to be vigilant about the possibility of changes in disease patterns and the potential emergence of new epidemic serotypes. This is achieved through high quality surveillance and collection of epidemiological data. The imminent introduction of new conjugate vaccines is an exciting development but given the substantial burden of disease from meningitis, there remains much to be done to reduce this in Sudan.

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Diabetes and Ischaemic Heart Disease in Australia: Prevention Strategies for Indigenous Communities

A Review

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INTRODUCTION

The Aboriginal and Torres Strait Islander (Indigenous) population suffer the highest prevalence of ischaemic heart disease (IHD) and diabetes in Australia (figures 1 and 2) and some of the highest levels of morbidity in the world¹. IHD is the most common form of cardiovascular pathology and the leading cause of death for Australians (both Indigenous and non-Indigenous)². However Indigenous Australians have twice the risk of having IHD³ and five to ten times the risk of having type 2 diabetes compared to non-Indigenous Australians^{1,4}. IHD refers to conditions in which the blood supply to parts of the heart is compromised. The major clinical manifestations of IHD are angina pectoris, myocardial infarction (MI) and heart failure⁵. In angina pectoris, the blockage to the blood supply is only temporary, resulting in chest pain on exertion. In the case of acute MI, the interrupted blood supply is due to complete blockage of one of the coronary arteries⁶. Diabetes is a chronic disease characterised by inadequate glucose homeostasis resulting in hyperglycaemia, caused by insufficient insulin secretion and/or insulin resistance⁷. If not managed effectively, the macrovascular, microvascular and metabolic complications of diabetes can be a major cause of morbidity and mortality.

EPIDEMIOLOGY AND BURDEN OF DISEASE

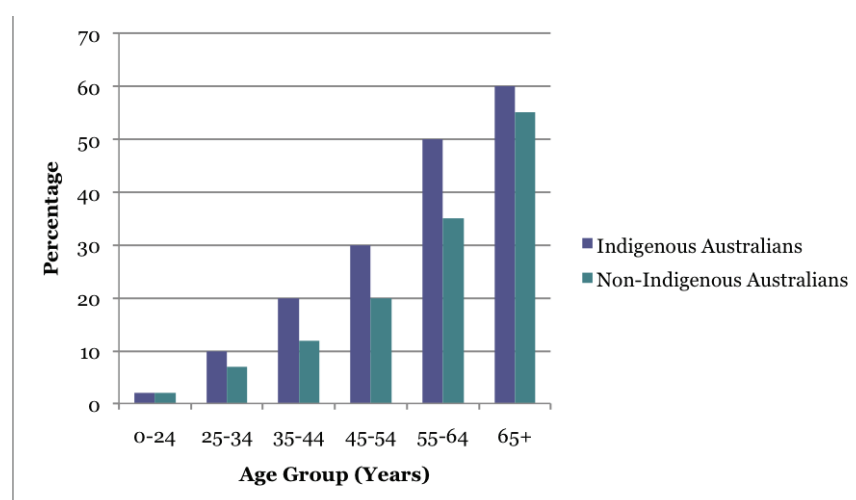
The "Burden of Disease and Injury in Australia 2003" study conducted by the Australian Institute of Health and Welfare found that IHD was responsible for 3.3% of years of 'healthy' life lost due to disability (YLD), 17.1% of years of life lost due

ABSTRACT

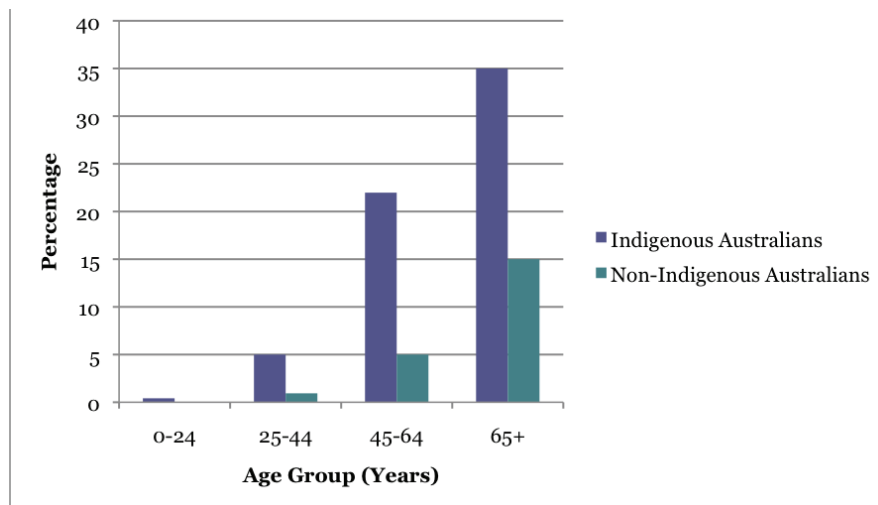
Ischaemic heart disease (IHD) and diabetes are chronic conditions contributing substantially to the total burden of disease and injury in Australia. They are associated with significant morbidity and mortality requiring complex and expensive treatment plans. The Australian Aboriginal and Torres Strait Islander (Indigenous) population have higher prevalence rates for both diseases and have significantly worse disease outcomes than non-Indigenous Australians. The discrepancy in disease outcomes is partly due to the lower uptake of procedure rates and the higher rates of early discharge from hospital against medical advice by Indigenous Australians. Risk factors for IHD and diabetes overlap significantly and are mostly modifiable at the individual, community or population level. Prevention strategies for IHD and diabetes would largely be focussed on mitigating risk factors and would involve prevention strategies at multiple levels. One such strategy would focus upon the following factors: transport, housing, food provision and affordability, education, access to health care, implementation of screening programs and employment of Aboriginal health workers to help bridge the gap between Indigenous and non-Indigenous cultures.

MSJA 2010, 3

Figure 1. Prevalence of cardiovascular disease by age and Indigenous status, 2004-2005³



Source: Adapted from Australian Institute of Health and Welfare 2008³

Figure 2. Prevalence of cardiovascular disease by age and Indigenous status, 2004-2005³

Source: Adapted from Australian Institute of Health and Welfare 2008³

to mortality (YLL) and 10% of disability-adjusted life years (DALYs)⁵. Diabetes was found to be responsible for 6.6% of YLD, 2.5% of YLL and 4.6% of DALYs. Together, these two diseases represent a significant contribution to the total burden of disease and injury in Australia. In the Indigenous Australian population however, IHD and diabetes represent an even larger contribution to the total burden of disease and injury with IHD accounting for 10.4% of DALYs and diabetes accounting for 8.2% of DALYs⁸. This disparity is further demonstrated by a study conducted in three remote communities in the Northern Territory that found the prevalence of diabetes to be 17-30% among Indigenous Australians⁴. According to the 2004-05 National Health Survey ~3.2% of the Australian population have IHD with the prevalence for males three times greater than that for females⁹. The prevalence was also found to increase with age: 7.6% of people aged 55-64 reported having IHD while 20.3% of those 75 and above reported having a diagnosis of IHD. The age-standardised prevalence rate for IHD is twice as high for Indigenous as it is for non-Indigenous Australians³. Indigenous Australians are also three times more likely to have a major coronary event than non-Indigenous Australians, largely due to the earlier age of onset².

Complications arising from diabetes can be grouped into macrovascular condi-

tions (e.g. IHD, peripheral vascular disease, hypertension and stroke)¹⁰⁻¹³, microvascular damage (e.g. nephropathy, retinopathy and neuropathy)^{14,15} and metabolic complications of glucose homeostasis (e.g. diabetic coma)¹⁶. Managing these diabetic complications can be very expensive for the healthcare system. The DiabCost Australia study found that an average of \$11,000 was being spent on each diabetic per year, amounting to ~3 billion dollars per year¹⁷. Complex disease management using a multidisciplinary team is needed to treat diabetes effectively, partly explaining the high costs (figure 2). Multidisciplinary care for diabetes ideally includes regular consultations with a diabetic educator, GP, optometrist or ophthalmologist, podiatrist, and if necessary, a cardiologist. However, the high costs involved in the effective management of diabetes are easy to justify when considering the huge financial burden that arises from poorly managed diabetes. For example, dialysis is the treatment for chronic renal failure (a common complication from poorly controlled diabetes), which costs ~\$100,000 per year¹⁸. This reinforces the necessity of preventative health care.

Management of IHD is also costly and consumes a relatively large proportion of the Australian health budget. Direct healthcare expenditure on IHD was \$894 million (2.8% of total health expenditure) in 1993-1994¹⁹. The age-adjusted

rate ratio for percutaneous coronary interventions (PCI), also known as angioplasty, is 40% lower for Indigenous than non-Indigenous Australians while that for coronary artery bypass graft (CABG) procedures is 20% lower². Possible reasons for the difference in procedure rates is that Indigenous people are more likely to discharge themselves prematurely from hospital²⁰ and perceived lack of compliance by Indigenous individuals². Suggestions to rectify this issue include a greater respect for cultural appropriateness of services, better communication and explanation of treatment options²¹.

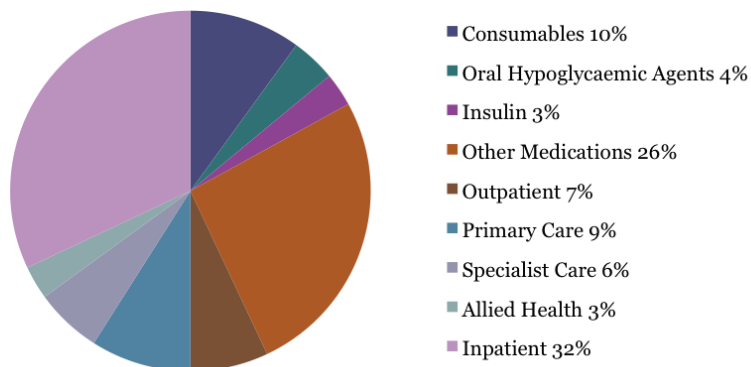
RISK FACTORS

Risk factors for IHD overlap significantly with those for diabetes; indeed diabetes is itself a risk factor for IHD^{3,22}. A non-exhaustive list of non-modifiable risk factors for both conditions include: genetic predisposition^{3,23-25}, increased age^{3,22,26}, low birth weight (LBW)^{25,27} and gestational diabetes mellitus (GDM)^{28,29}. If addressed early, LBW and GDM become partially modifiable risk factors. If the mother maintains good health during pregnancy, eating a healthy diet and not engaging in substance abuse; the probability that her child will have a LBW is significantly reduced³⁰. Thus the child's risk of developing IHD and diabetes is decreased. Similarly, there are a number of management strategies to reduce morbidity of GDM³¹ that decrease the mother and child's future risk of disease.

There are also many modifiable risk factors for IHD and diabetes, the most important of which being increased body mass index (BMI)^{3,32,33}. In 1999-2000, it was found that 60% of Australians were overweight or obese, representing a more than two-fold increase over two decades³⁴. Amongst Indigenous Australians 29% were found to be overweight, and 31% obese³⁵. The two main causes of high BMI are low levels of physical activity^{3,36-38} and poor nutrition^{3,38-40}. Furthermore, the risk of developing these diseases has been found to be reduced through light to moderate exercise; for example, walk-

Figure 3. Cost Breakdown of Factors Associated with Management of Type 2 diabetes¹⁷

Costs Associated with Management of Type 2 Diabetes



Source: Adapted from Diabetes Australia 2003¹⁷

ing around the house^{36,38,40}. Smoking has long been established as another modifiable risk factor for IHD^{3,22} and diabetes⁴¹. While it has been posited that moderate consumption of alcohol may decrease the risk of developing type 2 diabetes⁴² and IHD⁴³, several studies have found that high consumption of alcohol increases the risk for both diseases^{22,42,44}. Low socio-economic status has been established as another independent risk factor for IHD³ and diabetes within the Indigenous Australian population⁴⁵. Contributing factors include poverty, inadequate housing, low income and difficulty establishing employment^{3,46}.

PREVENTION STRATEGIES AND PRACTICAL APPLICATION

In order to implement a cost-effective, practical prevention strategy that could be used in Northern Queensland to minimise morbidity and mortality from IHD and diabetes, a multidisciplinary approach would ideally be used, first looking at primordial prevention. Due to the large number of remote communities in this area, an immediate area of priority is transport. Transport should be put in place to provide better access to health care facilities, nutritious food, educational institutions and areas offering employment. This infrastructure would also make it easier for health professionals to

visit remote communities, making health care more accessible.

Next, resources should be allocated to establishing culturally and environmentally appropriate housing for Indigenous Australians. Sewerage and irrigation must also be considered. There is a strong correlation between poor housing quality and negative health outcomes such as chronic disease, infectious diseases, poor nutrition, mental disorders and increased rates of injury⁴⁷. Hallmarks of inadequate housing include "lack of safe drinking water, absence of hot water for washing, ineffective waste disposal, intrusion by disease vectors (e.g., insects and rats) and inadequate food storage"⁴⁷.

After transport and housing have been addressed, methods of providing affordable and healthy foods should be considered. In order to provide culturally-acceptable, nutritious foods, it has been suggested that the food systems of Indigenous peoples should be investigated⁴⁸. Community-centred approaches that have been effective involved increasing supply of and demand for healthy foods. This was achieved through community education about the health benefits of a balanced diet and stock management⁴⁹.

Finally, education should be addressed. Education programs that have been

found to be extremely effective in Indigenous communities take a holistic approach incorporating multiple school bus runs, provision of food, provision of clothing if required and a curriculum incorporating conventional and Indigenous education⁵⁰. The school environment would provide an effective platform to promote health education including hygiene, nutrition, food preparation and when to seek medical assistance. It is also possible that children could pass this knowledge on to other members of the community. At the community level, lifestyle modification initiatives should also be devised focussing on healthy eating, becoming more active, smoking cessation and alcohol cessation. This could be in the form of posters, free information sessions and advertising campaigns. One strategy to increase the level of activity could be to provide pedometers to Indigenous individuals and set a goal of achieving a certain number of steps per day.

While primordial prevention is based on preventing risk factors at the community or population level, primary prevention strategies can be aimed at the individual level. At this level, the main focus is still on mitigation of risk factors but a greater emphasis should be placed upon access to health care and medications. One strategy that has been found to be invaluable in bridging the cultural gap between Indigenous and non-Indigenous culture is the use of Aboriginal health workers (AHW)^{51,52}. Under supervision, and with the appropriate training, AHWs can administer vaccinations, perform venepuncture, perform Pap smears and perform basic health checks⁵¹. The appointment of an AHW to a cardiac ward in a tertiary hospital in Western Australia was found to deliver more effective health education and care, reduce rates of discharge against medical advice, increase time for Indigenous patient contact and generally create a more comfortable hospital environment for Indigenous Australians⁵².

Secondary prevention strategies rely on the early detection of disease. As

such, screening programs are highly useful. Ideally, these would be conducted through the GP setting with the presence of an AHW to assist with communication. These screening programs would involve: measurement of height, weight and blood pressure, urine dipstick testing and spot blood glucose testing. A targeted history should also be conducted, focussing upon eliciting symptoms of IHD

and peripheral vascular disease such as chest pain and claudication. If diabetes is suspected, oral glucose tolerance testing should be available. Similarly, if IHD is suspected, an ECG machine should be available. If early signs of either disease are found, management should start immediately. Information regarding the importance of compliance to treatment regimens should also be provided to pre-

vent disease progression.

Tertiary prevention strategies rely heavily upon health professionals and could be facilitated through the use of an AHW. In order to effectively manage IHD and diabetes, regular consultations with a range of health professionals are required. This reinforces the importance of access to primary

Table 1. Strategies at the four levels of prevention to minimise morbidity and mortality from IHD and diabetes among Indigenous Australians.

Level	Strategy	Explanation
Diabetes & IHD	Primordial	Transport
		Transport providing access to: health care, healthy food, educational institutions & areas providing employment is of high priority ⁵⁴ .
		Appropriate housing & sanitation
		Only 33% of permanent houses were found to have a septic system in a study conducted in discreet Indigenous communities ⁴⁶ . Other studies have found houses to be kept in a state of disrepair and overcrowding to be an issue ⁵⁵ . These factors pose considerable health risks.
		Healthy foods
		Community-centred approaches involving increasing supply and demand for healthy foods have achieved positive outcomes in Indigenous communities ⁴⁹ .
	Primary	Education
		Positive correlations between life expectancy and level of education have been established, with life expectancy increasing by 5-15 years for people who have completed higher education ^{56,57} . Health education including healthy eating should also be addressed.
		Exercise programs
		Community-based exercise programs would provide a means for individuals to become more active, contributing to lower BMI. This could be provided through the school setting ⁵⁸ .
		Transport
	Secondary	As above
		Access to health care
		For any primary, secondary or tertiary prevention strategy to work, easy access to health care is required.
		Culture gap
		Aboriginal health workers can help Indigenous patients to provide informed consent, have better understanding of medical procedures and have knowledge of community rehabilitation programs ⁵² .
		Access to medication
	Tertiary	Access to medications is vital for primary, secondary and tertiary prevention of IHD (e.g. statins, ACE inhibitors, anti-platelet agents, anti-hypertensive agents) ⁵⁹ and diabetes (e.g. sulfonylureas, metformin, insulin).
		Health education
		Health education regarding: nutrition, when to seek medical assistance, risk factors and self-management of IHD and diabetes are vital ⁶⁰ .
		Lifestyle changes
		Physical activity and eating healthier foods (energy foods with nutritious value) will the risk of IHD ^{37,40} and diabetes ⁶¹ .
	Tertiary	Transport
		As above
		Health care
		As above
		Culture gap
	Tertiary	As above
		Medication
		As above
		Education
		As above
		Screening programs
		Providing free urine dipstick testing, glucose tolerance testing and access to an ECG machine to Indigenous Australians. These could be provided through the GP setting, ensuring that skilled personnel are available to interpret results. Efficacy of such programs is reliant on communities being aware that such facilities are available.
	Tertiary	Transport
		As above
		Health care
		Access to health care is very important for tertiary prevention. In the case of diabetes, regular consultations with the GP, podiatrist, optometrist and other allied health professionals is required to reduce the risk of diabetes-associated complications. This is equally important in IHD as early intervention can halt the progression from angina pectoris to MI.
		Culture gap
	Tertiary	As above
		Medication
		As above
		Education
		As above

health care and health education.

CONCLUSION

IHD and diabetes represent a substantial percentage of the total burden of disease and injury in Australia. In the total Australian population, these two diseases represented approximately 15% of DALYs in 2003. When looking at the Indigenous population alone, these diseases were responsible for closer to 19% of DALYs. Effective management of these diseases is costly and requires a high degree of compliance with treatment plans. While prevalence is higher among the Indigenous Australian population, uptake of procedure rates is considerable lower than in non-Indigenous populations. Reasons for the discrepancy in procedure rates have been attributed to perceived lack of compliance, which may be the result of inadequate health education regarding the condition, and premature discharge from hospital against medical advice. Employment of an AHW has been shown to provide better outcomes regarding both of these factors. Prevention strategies have been discussed above and there is much opportunity to implement change at multiple levels.

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Figure: Gathering outside the store



The mental health burden of mothers of children with X-linked recessive diseases

A Reflection

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I would like to share a reflection on the topic of X-linked recessive diseases and their impact on the mothers of affected children.

X-linked recessive diseases include haemophilia, Duchenne Muscular Dystrophy (DMD) and Charcot-Marie-Tooth (CMT) disease. In Australia, there are approximately 14,000 cases of haemophilia, DMD and CMT combined¹⁻³. Inheritance patterns in these diseases are complex and are not inherited exclusively as X-linked recessive diseases; up to 30-33% of cases of haemophilia and DMD are due to new spontaneous mutations while the majority of cases of CMT are of autosomal dominant inheritance²⁻³. During my clinical attachments this year, I met several female patients who had sons born with a disease inherited in the X-linked recessive mode. This inheritance pattern and its impact on the emotional state of the mothers is the focus of this article.

During consultations with mothers whose children were affected by X-linked recessive conditions, I could not help but sense notions of responsibility, or perhaps even self-blame. I wondered about the emotional turmoil that these mothers must experience. With the disease being inherited in an X-linked recessive manner, the mothers were generally unaffected, healthy and in almost all cases, unaware of their carrier status. While it is well established that these diseases are due to genetic mutations beyond human control, it is also the unfortunate fact that the affected children were born with an illness that was, in effect, transmitted through the mother. It may be such a view that could create an emotional burden.

There is limited research specifically assessing mothers of children with X-linked recessive conditions. A study by James and colleagues in 2006, found that X-linked recessive inherited diseases have greater psychosocial consequences than diseases with other inheritance patterns⁴. Mothers were more likely to feel guilty and blame themselves, whilst fathers blamed the child's mother and the mothers sensed this blame⁴. Other studies found that where there was no family history or personal experience of the condition and when genetic responsibility is linked to one parent, then the feeling of guilt is more likely⁵⁻⁶.

It would not be unreasonable to predict that these feelings

of guilt and self-blame may place the mothers at greater risk of mental health illnesses. One study analysed the mental health status of parents of children with childhood X-linked adrenoleukodystrophy and found that mothers were significantly more likely to be depressed and anxious than fathers. There appeared to be a differential distribution of mental ill-health between fathers and mothers of affected children. More than half the mothers were moderately to severely depressed, with younger mothers tending to have the most severe depression⁷.

Considering the inherent nature of the transmission of X-linked recessive diseases, the reality is that the mothers may always carry some level of responsibility regardless of what others may counsel. One of the goals of consultations should be to reduce these feelings of responsibility. The approach to consultation with these mothers must take a psychosocial focus, and should employ a multi-disciplinary team approach involving clinicians, mental health professionals and genetic counsellors.

Clinicians, particularly primary care physicians, must take an active role in leading the team approach. They are in a unique position with an established trust relationship with the patients and have a greater understanding of their social background⁸⁻⁹. They generally have frequent contact with the family and are thereby able to monitor progress over time⁸. They are also able to promote family planning practices.

Mental health professionals will be experienced in addressing the psychological aspects surrounding the feelings of responsibility. Merely giving the opportunity for the mothers to express their emotions may help unburden them¹⁰. Husbands, family members and friends should be encouraged to support the mothers.

Genetic counsellors can play a particular role in education. It should be ensured that the mothers and fathers understand the specific disease, concept of genetic disorders and the different modes of transmission. Such education may have many benefits; it can demystify false beliefs and improve the understanding of the impact of the disease on future pregnancy¹¹ while concurrently reducing the emotional burden on the mother. The use of medical genealogy and pre-conception counselling by genetic counsellors may also prevent

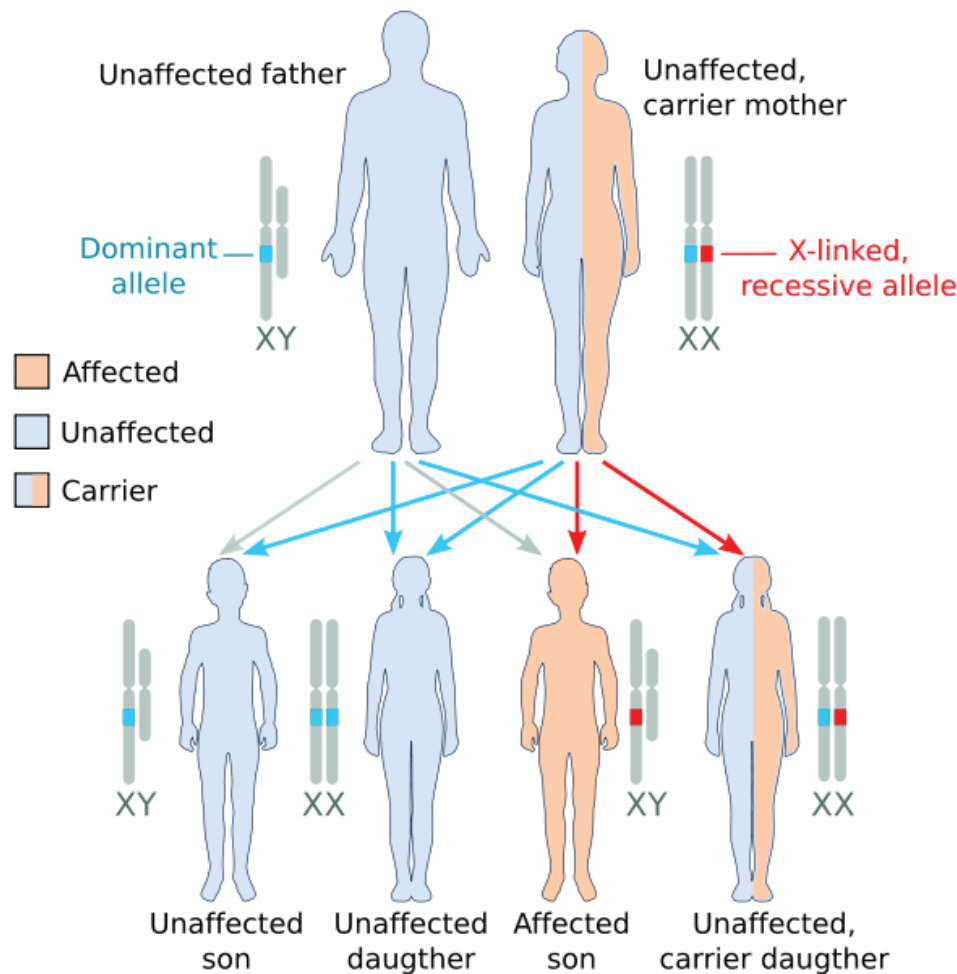


Figure 1.
With X-linked recessive mutant allele from mother (called carrier), sons will have 50% chance to be affected. Daughters will not be affected, but they have 50% chance to be carriers like their mother

Image Credit:
Wikimedia (YassineMrabet)

the perpetuation of the disease⁹.

During consultations, appropriate wording must be used to ensure that there are no associations between the disease and the mother. A personal anecdote identifying what not to do was the statement: "Being an X-linked disease, did you [the mother] know that you were a carrier, or was there a family history of haemophilia on your side?" This seemingly harmless question may conjure up feelings of responsibility for the disease and such repeated statements from family and friends may only validate feelings of self-blame. An alternative and more appropriate statement may have been: "Being a genetically transmitted disease, is there a history of haemophilia on either your or your partner's side of the family?"

Mothers of sons with X-linked recessive diseases are a unique group of people who are at risk of mental health illness arising from feelings of responsibility in the form of guilt and self-blame. These feelings must be addressed carefully by clinicians by focusing on the psychosocial needs of the mothers through a multi-disciplinary team approach.

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Now Wash Your Steth A Reflection

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Hand hygiene is well established as the most effective way of reducing nosocomial infections¹. As a medical student, the use of alcohol hand-rub for infection control is the first clinical lesson taught, and one continually reinforced. In contrast, little is taught about the role of stethoscopes and other medical examination instruments in infection transmission, as the process itself is only partially understood².

Stethoscopes have long been identified as potential vectors of infection³. Rationally, this makes sense: stethoscopes come into direct contact with patients, are carried on one's person throughout the day, and typically travel casually - in pockets, bags and glove boxes and so on. It has been demonstrated that nosocomial pathogens can be recovered from intact skin of hospitalised patients yet stethoscope cleaning is an infrequent practice⁴. A US study of 150 hospital health workers indicated that 48% cleaned their stethoscopes between daily and weekly; 37% monthly; 7% yearly; and 7% never cleaned their stethoscopes⁵. Stethoscopes in a hospital setting are frequently contaminated with potentially pathogenic microorganisms, with *Staphylococcus aureus* isolated from 4-25% of stethoscopes⁶⁻⁸. Cleaning with alcohol wipes is shown to be effective in immediate reduction of bacterial count by 94-100%^{5,7}.

Despite this understanding of stethoscope contamination levels and effective reduction methods, actual occurrence of cross-infection via stethoscopes remains speculative.

Figure 1. Stethoscope . Source - Wikimedia



Measurement of transmission risk is hindered by the inherent difficulty in isolating a single potential vector within a complex multi-vector environment. Consequently, without clear evidence to support increased infection transmission risk, stethoscope hygiene has been largely overlooked in daily practice.

The symbolic status of the stethoscope itself may contribute toward this dismissive attitude. As the definitive emblem of professional status and a publicly recognised icon of healing, some healthcare personnel have difficulty accepting that the stethoscope may actually be a vector of disease². Historically, the ritual of healing has long been linked with both physical and spiritual cleanliness⁴. By virtue of this unconscious association, the stethoscope is granted a symbolic purity that disguises its potential to transmit infection. Were an alternative instrument with different cultural values, for example a tablespoon, to be used in the same manner by a healthcare professional - carried at all times and touched to the bare skin of hospitalised patients - it is doubtful that an equal degree of hygiene would be perceived.

In other areas, institutional resistance has been suggested to originate from passive cultural associations; for example the symbolic linkage between water and its use in removal of macroscopic filth to the cleansing of physical and moral evils. The proposal of hand antisepsis by the Hungarian obstetrician Ignaz Philipp Semmelweis in 1847, prior to the establishment of germ theory, was strongly opposed by the medical fraternity. His hand antisepsis method using 4% chlorinated lime solution dramatically reduced maternal mortality in the hospitals where it was instituted, from more than 10% to less than 1%, yet was largely ignored by other physicians of the period. Incredibly, even until recently, more than a century after his death, in the face of overwhelming scientific evidence in support of alcohol antisepsis, published guidelines continued to recommend washing with soap and water.

While the hypothetical benefit of regular stethoscope cleaning on nosocomial infection rates remains to be proven, infectious disease specialists nonetheless advise that the practice be adopted, with the suggestion of at least daily cleaning^{2,8}. Increased availability of alcohol wipes has been proposed as a favourable means of encouraging cleaning. Behaviour of other healthcare workers, particularly leadership shown by superiors, is also identified as a key factor in improving hygiene compliance⁴. It has been further recommended that stethoscope disinfection become an integral

Figure 2. Stethoscope .Source - Wikimedia



part of under-graduate and postgraduate education .

In practice however, the time required to meet existing hand hygiene guidelines already consumes a substantial proportion of a healthcare worker's day. In a mathematical model based on three opportunities for hand hygiene with alcohol rub per hour, 100% adherence was estimated to require 0.3 hours of hand antisepsis in an 8-hour shift . In an intensive care unit, where up to 40 opportunities for hand hygiene per hour can occur, time remains a critically limiting factor and consequentially overall compliance with current hand hygiene guidelines remains poor⁴. Adding stethoscope cleaning to this workload without a clearly demonstrable benefit is potentially ill advised. Furthermore, routine cleaning with alcohol may cause long-term damage to stethoscopes by drying out seals and damaging tubing, a powerful disincentive considering the value - both the financial and personal - attached to the instrument⁵.

Regardless of these barriers, stethoscope hygiene should be viewed as essential from the perspective of patient respect and sensitivity. Irrespective of true infection risks, few patients would enjoy knowing where an unwashed stethoscope has travelled prior to being pressed against their skin. Auscultation of a patient's carotid pulse after diligently listening to their ward mate's femoral artery is an unpleasant notion at best. Were it not for blissful ignorance and sliding

curtains, students could reasonably expect to see consent rates for practice of physical examination plummet. So in the interest of your patient's peace of mind - and consideration for exactly what you carry home in your pocket - take a moment and ask yourself: when did you last wash yours?

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Indigenous Health Education at the ANU A Reflection

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The ANU Medical School curriculum was designed with a great degree of attentiveness and effort prior to receiving the first students in 2004. Indigenous Health has been considered a key aspect in the development of the ANU Medical School curriculum. The Indigenous Health Framework is one of three key 'principles' underpinning the curriculum and is a supporting structure for the entire program. The Indigenous framework and curriculum is based on the CDAMS Indigenous Health Curriculum Framework developed by the Committee of Deans of Australian Medical Schools (CDAMS)¹. Highlighted in this document is the importance of strong Indigenous health education in shaping the attitudes of medical graduates as one means of positively influencing the future of Indigenous health. Eight years into the ANU medical course, how has this framework transpired with the fourth year of graduates due to start work in 2011?

Coming from the perspective of medical students having almost completed our degree, we have found the indigenous curriculum to be, for the most part, achieving the ten principles outlined in the CDAMS framework. This framework covers issues ranging from the integration of Indigenous health into the curriculum to staffing requirements.

Figure: Flying Doctors.



The aim of integrating Indigenous health into all levels of the curriculum has been achieved by incorporating Indigenous health issues in small group problem based learning sessions, general lectures and also in dedicated population health and professionalism and leadership lectures. This ensures that indigenous health is an integral part of medical education with vertical and horizontal integration and a multidisciplinary focus. This approach encourages a greater understanding of Indigenous health in a wider sense, beyond the academic.

It was recommended by the CDAMS report that Indigenous professionals are involved in curriculum development. The convenor of the ANU Indigenous Health Curriculum until recently has been Peter Pinnington. His role has lent insight and is critical for the development of a culturally appropriate programme. In addition to this, all staff has shown a genuine desire to improve the health of Indigenous people in Australia and have been keen to educate students in the issues surrounding Indigenous health.

At ANU, Indigenous health is taught separately to that of other ethnic groups, highlighting the unique challenges facing the Indigenous people and the strengths and resilience they have shown in the face of adversity.

The ANU Medical School has established itself as a reputable Indigenous health teaching institution and we feel it can become a leader in this regard. We have identified two main areas in which improvement could be achieved: in challenging stereotypes and using a positive strengths based model of teaching. These suggestions stem from the CDAMS principles directly relating to these issues. It is imperative to challenge students' pre-conceived stereotypes early in their education and more effectively in the duration of the course before these stereotypes become fixed.

Some suggestions for methods to assist in achieving these goals primarily focus on establishing stronger links and exposure to the Indigenous community. This can be accomplished through a variety of means including visits to local Indigenous health centres, lectures given by Aboriginal health workers and up-to-date multimedia. During regular clinically-based days at the Canberra Hospital, students would benefit from being introduced to the role and function of Aboriginal Liaison Officers before having unsuper-

Figure 1. Santa Teresa, 90 km south-east of Alice Springs



vised contact with patients.

Increased exposure to the Indigenous community will assist students in becoming more aware of issues, which are relevant today and the impact that these issues have on individual patients. Increased exposure would also help students identify current problems and highlight the positive steps that can be taken by the medical community and population as a whole.

At ANU, the strengths of the Indigenous health teaching are apparent, however, we do not feel that a positive strengths based model has been fully embraced. It is important to recognise past wrongs, but this should not be the primary focus of Indigenous health education. Instead, it should be taught as a framework for understanding the current health status of many Indigenous people in Australia. More importantly, students should know about strategies that have worked in the past and how to implement positive strategies that will best serve the community. It would be appropriate to highlight programs that have not been successful, in order to learn from past mistakes. However, rather than focussing on

the negative aspects of Indigenous health, students should be shown what has not worked in a constructive manner, to avoid making the same mistakes again. If the focus of education is shifted to a positive strength based model, rather than a deficit model, we foresee the development of a more positive attitude towards Indigenous health.

ANU Medical School has a strong history of evaluating and improving the curriculum while striving to become a world class teaching facility. Building on their current strengths and implementing small but significant improvements, the Medical School will equip graduates with the skills to challenge stereotypes and focus on positive, practical measures for future interactions with Indigenous patients. Greater understanding and appreciation of Indigenous issues will flow through the health system as graduates come into contact with other health workers and work towards 'closing the gap'.

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Birth of a.d.a.p.t.

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Altruism [al-troo-iz-uhm] /-noun

The principle or practice of unselfish concern for or devotion to the welfare of others¹

As appreciated in David Corbet's article 'Altruism, charity and the Alumni of the ANU Medical School' in the last edition of MSJA², students of the ANU Medical School have consistently demonstrated that altruism and generosity are prevailing qualities amongst current and previous cohorts. The definition of altruism connotes a relationship of an individual towards others. As medical students and eventually doctors, we are privileged to have daily opportunities to express this quality in our interaction with patients and colleagues.

Under the societal pressures of time, resources and natural desire for status and wealth, it is easy to see how altruistic aspirations can become a lesser driving force over the duration of a demanding career. However, the fortune of our education and our income as doctors puts us in a unique po-

sition to utilise the evident spirit of generosity on a local and global scale. Current Year 4 students have responded to this challenge by birthing the concept of a.d.a.p.t. – ANU Doctors' Association and Philanthropic Trust.

The aim of a.d.a.p.t. is to commission all graduates of the ANU Medical School to contribute through generosity to spread the wealth of the world, reduce poverty and improve living standards of those in need. Using the power of a group of like-minded people, we want to inspire and channel the quality of altruism through philanthropy. Practically speaking, a.d.a.p.t. encourages graduates to pledge a consistent percentage of their income to effective charitable organisations for the duration of their career. In doing so our goal is to create a culture amongst ANUMS students, graduates and the wider community, whereby sharing of our wealth, in

Figure 1. One percent of income in perspective

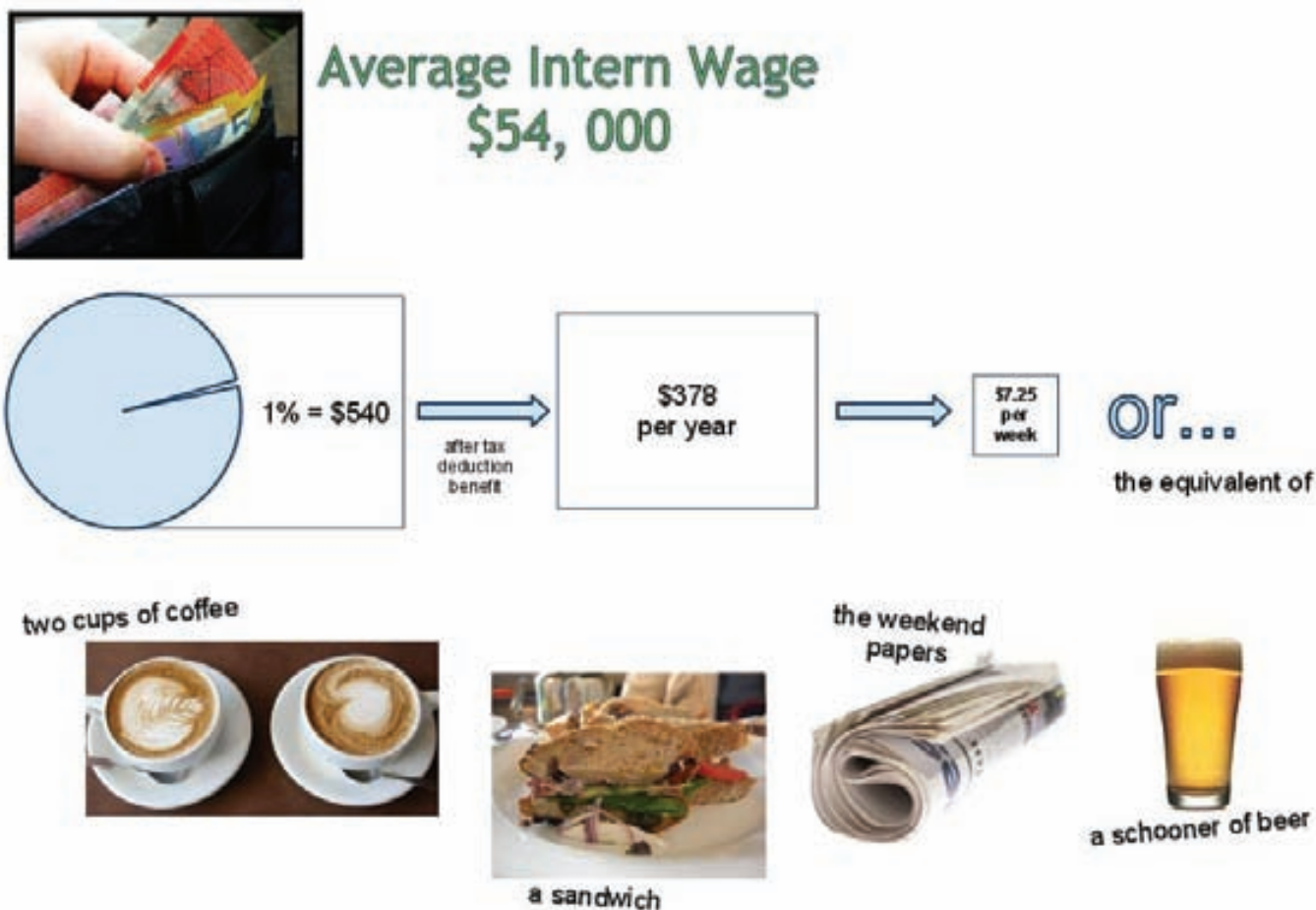
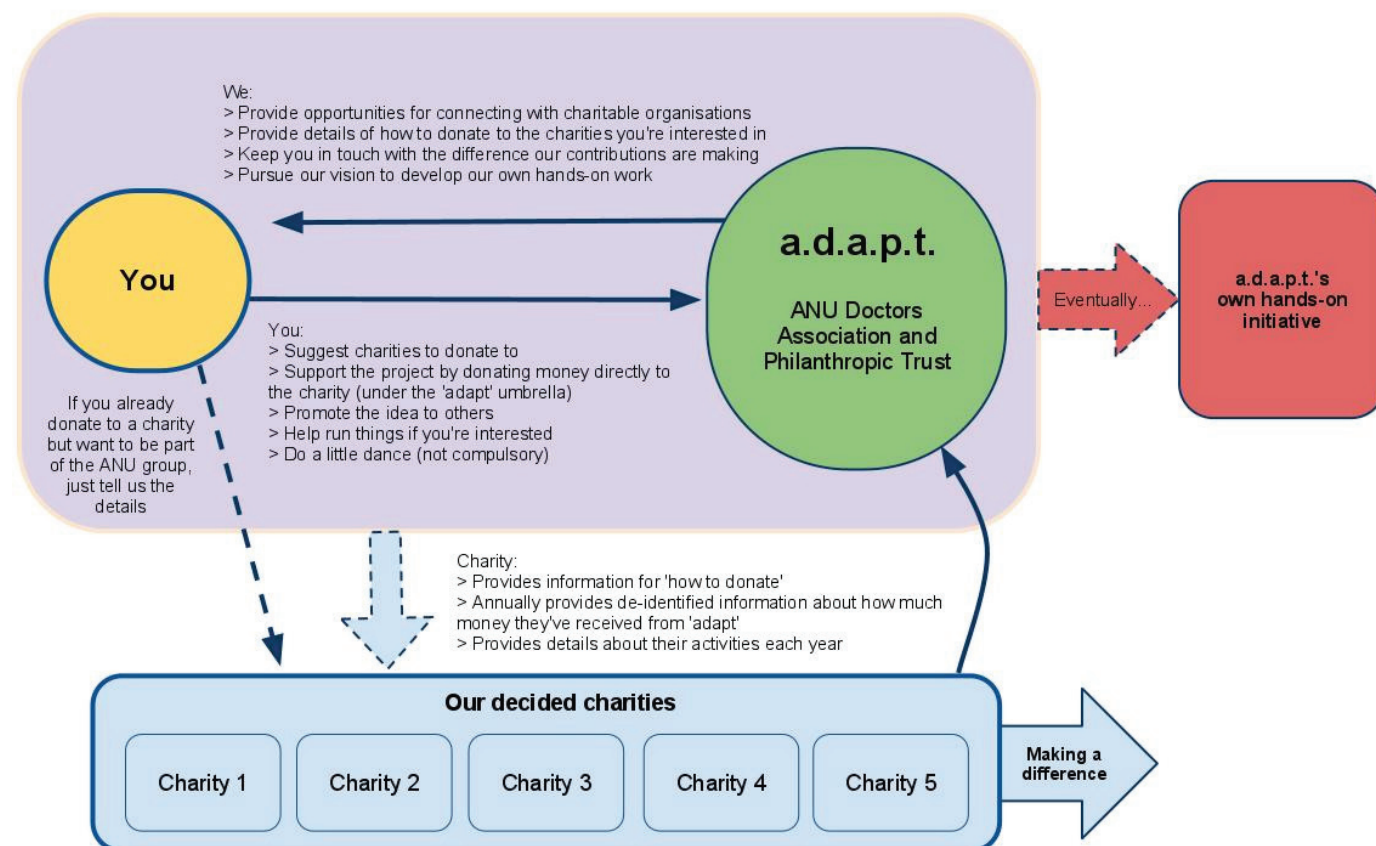


Figure 2. The vision of a.d.a.p.t.



terms of money and skills, becomes a valued norm.

There are several reasons to be optimistic that changing the culture of giving on a group scale can have measurable impacts on problems of inequity. Firstly, 'establishing a culture of giving begets more giving'². Secondly, pooling resources in a combined effort enhances the power to change outcomes of poverty compared to individual endeavours. Thirdly, under the proposed model the resources available for donation by a.d.a.p.t. will grow exponentially each year as more doctors graduate, progress through training, increase their earning capacity and acquire a unique set of skills we can share. In fact, with conservative estimates based on donation of as little as 1% of our income, Corbet predicts that a.d.a.p.t. can raise more than \$270,000 within three years², with a snowballing effect into the future. Figure 1 illustrates that in comparison to the amount of change it can effect, this amount of donation is relatively inconsequential to an individual.

The model of a.d.a.p.t. is to begin by facilitating relationships between individual ANU graduates and nominated charities under the banner of a.d.a.p.t., with regular ongoing donations upon commencement of internship. The amount of donation will be known only by the charitable organisation,

and will be determined by each individual. While donation of any amount is welcomed, we advocate for committing to an income percentage. At the end of each financial year each charity will provide a.d.a.p.t. with a de-identified total amount they have received from a.d.a.p.t. as well as a summary of their achievements and ongoing projects. We have begun to set up partnerships with charitable organisations including Tear Australia³, the Red Cross⁴, St Vincent de Paul⁵ and Hamlin Fistula Foundation⁶, after nomination of these charities from current students.

Two notable causes with their roots at the ANU Medical School - EnSIGN's own Fiji Village Project (FVP) and the One Disease at a Time (ODAAT) initiative - also look to become a.d.a.p.t. partners. The FVP brings together medical students from Australia, New Zealand and the Pacific Islands to achieve significant outcomes such as health checks, health education and water supply to villages in Fiji⁷. One Disease at a Time is a new philanthropic organisation aiming to assist in the eradication of certain infectious diseases in Aboriginal and Torres Strait Islander communities in collaboration with the Menzies School of Health Research, and with inspiration from the elimination of donovanosis in Aboriginal and Torres Strait Islander populations⁸. Its goal is to eradicate scabies within seven years and expanding in the future to

tackle syphilis and rheumatic fever.

philanthropy [fi-lan-thruh-pee] /-noun

Altruistic concern for human welfare and advancement, usually manifested by donations of money, property, or work to needy persons, by endowment of institutions of learning and hospitals, and by generosity to other socially useful purposes⁹.

Here I would like to extend Corbet's definition of philanthropy to include donation of our work and resources, as members of learning institutions and hospitals. The involvement of FVP and ODAAT is especially exciting as it provides the foundation for future possible home-grown developments for a.d.a.p.t.. Eventually the vision of a.d.a.p.t. entails development of our own not-for-profit organisation to which members can contribute by donations of money, skills or time. For example a.d.a.p.t. could fund member doctors to undertake short-term work with FVP, ODAAT, or in chosen communities, potentially taking medical elective students from ANU with them. The possibilities are endless! For a schema of the a.d.a.p.t. concept, see Figure 2.

We are lucky at medical school to be part of a cohort of students from a wide range of cultures, experiences, personal philosophies and religious beliefs. One of the strengths of a.d.a.p.t. is that it appeals to people from a variety of backgrounds. Personally, I appreciate its consistency with Christian values of tithing and compassion. For others it may be appealing because of its congruity with the pursuit of social justice, or with moral precepts of egalitarianism, selflessness, beneficence, charity or generosity. Whatever one's perception of its principles, a.d.a.p.t. has the potential to unify its members and focus our resources to help people in need.

We are currently seeking expressions of interest and suggestions for the administrative structure of a.d.a.p.t. Any questions, feedback, suggestions or interest are welcomed to Alicia Paul (paul.alicia@gmail.com) and David Corbet (dc@slightly.net). More information will be available shortly at <http://www.adaptcharity.org/>.

I would like to thank David Corbet for his ceaseless inspiration and support, and his help with the figures presented here.

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Anecdote

Dan at the Radiology station

Examiner: What is this?

Dan: A CT

Examiner: A CT of what?

Dan: The abdomen

Examiner: What can you see?

Dan: The rectum looks abnormal. I'm not sure why the rectum is bifurcating in the pelvis, but I think its rectal cancer.

Examiner: Are you sure?

Dan: Yep.....

Examiner: They are aortic and iliac artery aneurysms.

Dan: Oh, so that's not the rectum then.....

Internships An International Perspective

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I came to Australia in 2005 to be with my partner in Perth. After my attempts to secure a spot at Medical School in Canada had been dashed for another year, my partner's mother suggested that I should try applying in Australia. Having looked into it, I decided to write the GAMSAT and started preparing my applications. I applied at ANU as I had a family friend in the first graduating class at ANU and I also thought that ANU was a good fit for me. The week that I received my acceptance letter was also very special because I had my final interview in Perth with the Department of Immigration and Multicultural and Indigenous Affairs (DIMIA) on a decision regarding my Permanent Residency. My partner had sponsored me amidst the medical school application process and I was finally set to become a permanent resident. However, I was told by the Medical Education Unit office at the ANU that because I had applied as international student, I had to accept my offer as such. After much lengthy conversation and assurances from our DIMIA caseworker that I would have 'no problems finding a job in Australia as a doctor', we dropped our application for my permanent residency and I moved to Canberra to begin Medical School.

Now it is 2010 and I have made it to my final year of medical school. Due to financial commitments, my partner has had to remain in Perth for three of the four years of Medical School. We have spent thousands of dollars flying back and forth and are looking to settle together once I have a job. The only problem is exactly that... getting a job in Australia as an Intern.

The first grumblings I heard about this "Medical Student Tsunami" were during my second year of medical school. I thought little about it as it did not seem to be such a pressing issue at the time. Third year brought more voiced concerns amongst some members of our class. It was enough for my partner (who was living in Canberra at the time) and I to look for the nearest registry office. He was worried enough that he put time and effort into calling every single state body that had anything to do with Intern allocation. He even rang DIMIA to see whether my immigration status could be changed. Suffice to say, we were given many different opinions but noticed that no one could give us exactly the information that we were looking for – mainly assurance that I would get a job. Despite this, each state allocation office did not seem too concerned about this "tsunami" and reassured us that they had been able to accommodate all graduates previously (including international

ones) and this did not seem likely to change in the future.

I applied to 44 hospitals across six states in Australia this year for internship. I was not offered a job in Victoria, Queensland or Western Australia. I withdrew my applications from South Australia and New South Wales after receiving an offer from ACT Health. My offer was received three weeks after first round offers went out to my local colleagues.

Currently all four international students in their final year at the ANU have intern positions. This is extremely fortunate given that the beginnings of the "tsunami" are becoming apparent. There are overseas students in Queensland and New South Wales who are still waiting for job offers for next year. I think that with increasing medical student numbers in the coming years, the likelihood of international students gaining jobs in Australia will decrease further. It surprises me to hear that international students just starting their training are unaware of the challenges that face them if they decide to stay on in Australia to work. I believe that each university that enrolls international medical students has an obligation to ensure that the students are aware that they might not receive a job here in Australia at the end of their training. Students should be made well aware of this fact before they have paid their first semester of fees.

My advice to international students who wish to stay in Australia would be to apply everywhere. Also, ensure that you speak to each state allocation office. I can assure you that every coordinator in every state knew me because both my partner and I rang and emailed every few days. It will not help you jump any queues but they are more likely to remember you if you are keen. If the numbers of locally trained medical students keep increasing, I suggest early research to maximise your chance of being offered a job in your individual home countries. However, it is pertinent for me to point out that if you are lucky enough to get a job in Australia and sign a contract, it is only ethical to honour that contract and not leave a job midyear to return home if a job becomes available there. Lastly, if you have an opportunity to get Permanent Residency before you graduate definitely go for it – it will make things easier in the long run.

Good Luck.

Medicine and Parenting – Pleasure or Pain?

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I am a proud father of two beautiful girls, three-year old Charlotte and one-year old Dali-May, and I am also a member of the 2010 ANU Medical School graduating class. This reflective piece is about my experience of raising children while studying medicine. For me, the balance of parenting and study is hard, but can be one of the most fulfilling and rewarding aspects of your life.

Before I go any further I have to acknowledge the effort and support of my wife Emily. It would be criminal of me not to recognise that Emily has shouldered much of the load of raising the kids, and without her support and hard work I would not be in the position I am today.

Parenting can be a trying time for many, with the stress, fatigue, and lack of skill taking their toll on first-time parents like myself. Likewise, studying medicine can be quite trying at times. However, whilst both medicine and parenting became more challenging when combined, I found aspects of the two enhanced my experience of the other. For example,

waking up early with crying babies over the years has conditioned me to get an early start on the day. I now use this time to get prepared by reading in advance like the lecture notes for the day or the surgical procedure I would be scrubbing for later that day. Also, the time away from study that my children demand gives me a much needed break, which ordinarily I would not take, from which I return revitalised and ready to study more.

Although I did have many concerns about parenting, I had always dreamed of being a dad. Along with the usual concerns, I had some apprehensions specifically related to being a medical student, all of which seem pretty selfish when I reflect on them now. Firstly, I was concerned that parenting would hinder my academic progress. Secondly, I was apprehensive that having children would affect my choice of future career. Lastly, I was anxious that I would be unable to participate fully in parenting – i.e. parenting by proxy. As it has turned out, some of my concerns were realised, however I now view life very differently from how I did during

Figure 1. Ben Darby with kids



my single days. I've realised that what concerned me in the beginning is not really a concern at all.

The first of my pre-baby concerns regarding academic achievement has definitely materialised, and this was difficult for me to accept initially. I have always given everything to any task I had at hand and study was no exception. To me anything less than a distinction felt like a fail. For me, achieving academically is not about being the smartest (anyone who knows me knows this to be true), it is about working hard. I love to learn and I was comfortable putting in the effort needed to achieve that. I learnt pretty soon after becoming a dad that young children are very time-consuming, particularly in the early months when there is no routine. My two children were both born about four weeks before exams which increased the demands on my time. I managed to pass these exams, however not performing as well as I believed I could due to the fatigue. Over the last three years of parenting I have come to realise that the reduction in time for study is one of the prices I have paid to be a dad and ultimately test results are really only marks on a page. I have learnt enough to be a good junior doctor and I am now happy with that.

The second of my concerns regarding choice of career has also turned out to be real, but like my first concern, I now see it as less important than I once thought. I chose to do medicine because of my interest in obstetrics. That was all I wanted to do in the field of medicine, without ever really considering much else. Unfortunately, obstetrics in my opinion appears to be the least family-friendly career option, due to on-call work and unpredictability of work hours. Since my children arrived I have had a major rethink about my future prospects. Pre-family, I had considered only my wants and needs, but now there are others around that need to be considered. I think that eventually I may move into obstetrics, however at least while my children need me around, I am looking for a better work-life balance. Before I had children, work and career were very important to me, but now they have taken a back seat. I want to be around for my kids' birthdays, their sporting games on the weekends and be able to help them with their homework. It is a personal choice that I am more than happy to make.

My last concern regarding parenting by proxy has also been confirmed and this is one that still bothers me. Parenting and medicine both take considerable amounts of time and, as I have found, there does not seem to be enough hours in the day to give both tasks the time they deserve. I do spend more time studying than parenting. However I am not guilty of parenting by proxy as I do play with my children each day, bathe them and read them stories at bed time. These activities make up the favourite parts of my day. While it is fair to say that I do not parent enough to satisfy my paternal instincts, the time I do get is so enjoyable that it recharges me and gives me back my zest for life.

Parenting and medicine are both very challenging tasks and

neither should be entered into halfheartedly. Undoubtedly there is a price to pay for parenting but if you are prepared to pay that price then the rewards are endless. I still really enjoy medicine but all my most precious memories revolve around my children. While being a wanted distraction, they have also been a source of inspiration and motivation for me. They make me want to succeed and be a better person. They have really given meaning to my life and I thank the heavens above that they are in my life. It has been tough and at times I have questioned my decision to start a family during these busy times, but in my experience, in the end it all works out.

Anecdote

Sumit at the Pathology station

Prof: *Identify this specimen...*

Sumit: *Well this is the small bowel, of course.*

Prof: *Excellent, let's proceed...*

Sumit: *But considering the rugae present (which were the plicae), this could also be the stomach.*

Prof: *(looking confusedly at the diameter of the specimen and most likely thinking 'you idiot')*

Elective in Apia, Samoa

Deborah Smith*

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SUMMARY

I completed my five week elective in Samoa, which proved to be an eye opening and very worthwhile experience. While Samoa is a developing nation with its inherent health challenges, it is also a relatively safe and friendly country for naïve medical students to travel to and explore.

REPORT

In September 2009 a submarine earthquake of 8.1 magnitude struck in the region of the Samoan islands causing a tsunami to devastate the southern coastal areas of Samoa. The loss of life was huge for a small nation but the effect on the psyche of the country was even more massive. While most of the country was physically untouched, the emotional impact was still resounding strongly when I (along with four other ANU medical students) arrived to do my elective term.

I went on several tsunami area outreach clinics and observed that most physical wounds were healing, save some lingering respiratory complications of near drowning. However, I witnessed much emotional damage, and it was distressing

to see mothers break down when recounting their stories of the fateful day, or two young women so devastated by PTSD/ depression that they could hardly move (both of whom had a nephew ripped from their arms by the wave).

Aside from clinic visits I spent much of my time in the public hospital (Tupua Tamasese Meaole Hospital, or TTM) in Apia. The hospital, while quite old and run-down, had some very dedicated staff, committed to improving the health of their fellow Samoans. Most of the doctors were in fact Samoan (and fluent in English, having trained in New Zealand, Fiji or Australia) and it was inspiring to witness their choice to stay in their country where pay and conditions were far below what we would expect in Australia.

The hospital could really do with some mosquito screens on the windows – not only would they help with mozzies, but they would also keep birds from flying through the wards! Dogs wandered freely through the hospital and it seemed at times that good hygiene was a figment of my imagination. However, the World Health Organization reported a life expectancy for Samoan females in 2004 of 70 years¹, which certainly exceeds that in many developing countries. Much

Figure 1: Not all work and no play: relaxing at a popular local waterfall



Figure 2: ANU Elective students Kristin McMahon and Deborah Smith with a local Paediatrician



of this can be attributed to a culture which espouses clean-living and a caring family network system. One wonders how the obesity epidemic, and the subsequent diabetes explosion, will affect these numbers in years to come. Public health campaigns promoting exercise and diet improvements are being launched, but are yet to have a discernable impact.

I also occasionally trekked up the hill to the private hospital (MedCen). It was smaller and more orderly, and subsequently much less exciting than TTM! It was similar to sitting in on a GP clinic in Australia, as many of the patients were either expatriates, or more wealthy Samoans.

While on the wards of TTM (mainly paediatrics and medical), I saw fascinating pathology, met some incredibly strong people and witnessed patients deteriorate to death almost in front of my eyes from conditions essentially curable in Australia. Most of the time I felt helpless and frustrated: it astounds me that a country with so much potential allows a little boy with leukaemia die with no pain relief (blood transfusions formed the basis of palliative care). We 'westerners' can't hope to understand a country like Samoa in five weeks, but I still felt the pangs of frustration and anger at seeing a country so rich in resources (fertile soils, good rainfall, beautiful scenery/beaches, and strong, intelligent people), be-

come increasingly highly dependent on foreign aid. China in particular is having a huge impact, pouring money into very strategic infrastructure projects – what is expected in return is a bone of contention amongst the Samoan people.

However, amongst the sweat, dirt, and confusion there were afternoons of snorkelling, adventures at the 'sliding rocks', dips in the cave pools, sunbaking on beautiful beaches and eating delicious pancakes galore. Music filled my soul everywhere I went, and I greatly enjoyed fellowshipping at a church called Peace Chapel in Apia. We stayed at the Outrigger Hotel (devoid of air-conditioning, but it did have a pool!) and met some awesome people there.

If you are keen to go to a Pacific Island for your elective I recommend spending half your time in a developed world specialist hospital to experience the contrast and also to enjoy a little more teaching and direction! However, Samoa will saturate all your senses – and it certainly provided me with a truly eye-opening experience – an incredible elective, with memories that will stay with me forever.

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Adventures in Mysore

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Together with another Australian National University (ANU) medical student, Kate Thornton, we undertook our elective at CSI Holdsworth Memorial Hospital in Mysore and stayed in the onsite staff accommodation provided by the hospital. Commonly known as the Mission hospital, it was one of several in the town of around 800,000 people and generally served quite a poor population. It became apparent very quickly that despite the haphazard infrastructure and crowded wards, the staff had the clinical skill and access to technology to provide remarkably good care but their efforts were often hampered by their patient's inability to pay for their treatment. That said, the hospital went to every effort to make care affordable to those who requested it, by discounting fees, minimising lengths of stay, and even going as far as washing and reusing disposable gloves. The doctors were very welcoming of students, and since most of the patients couldn't speak English, the doctors were invaluable in translating consultations so that we could actually tell what was going on.

Our first week was in the medical Intensive Care Unit (ICU). This was fascinating to experience, since a lot of the causes of Indian ICU admissions rarely happen in Australia. There were quite a few snakebites, organophosphate poisonings, tropical diseases and more TB than you would ever want to see. However, there was also lots of asthma, diabetes and diseases which one more commonly associates with more developed nations. The doctors there made reference to the increasing wealth of the Indian middle class, and how it is causing the incidence of diseases like diabetes to rise markedly. Once we became accustomed to taking off our shoes and putting on thongs to enter the ICU, we realised that the paternalistic model of healthcare is still very much alive and well in India, with patients rarely questioning their doctor's orders.

The second week was surgery. Unfortunately December and January are the quietest months of the year in Mission

Figure 2: The streets of Mumbai



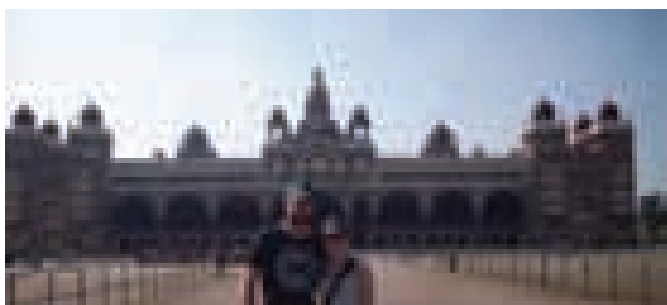
hospital with fewer patients and many doctors on leave, so the theatre lists were rather sparse. However, we still had the opportunity to witness a castration performed under regional anaesthetic for a man affected by prostate cancer; something which was both cringe-worthy and very unlikely to occur in Australia.

Week three was paediatrics. Here we attended outpatient clinics where children mostly were experiencing typical upper respiratory and gastrointestinal infections. It was on the wards however, where one could see a huge variety of mostly infectious diseases; TB, hepatitis, gastrointestinal infections, typhoid, and dengue.

In the last week, I spent most of the time in the surgical wards. For whatever reason, nearly every patient I saw during this week had either suffered horrific burns or head and facial trauma in motorcycle accidents. It was confronting, and I'll never forget a 19 year old male patient who had broken every bone in his face after crashing his motorcycle without a helmet and how distressed his family was.

After our elective, we spent two weeks travelling; to Mumbai which was the most hectic, busy and unrelaxing place I have ever been, and to Goa which was laid-back, beautiful and a terrific way to end our trip. All in all, the time in India was sensational. The food was to die for, and with a little common sense you can get through a trip there without getting sick. Everyday tasks in Australia like buying a train ticket or crossing a road can be exceedingly frustrating or downright dangerous in India, but all the social contrasts merely add to the fun of travelling there. I would warn however that Caucasians in India attract an enormous amount of begging and heckling from people and vendors on the street, and the enormous population and poverty can be very striking. But I really enjoyed our elective in India, and would recommend it highly to any medical student considering an elective on the subcontinent.

Figure 1: Mysore Palace



United Mission Hospital in Tansen, Nepal

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Travelling alone can be a terribly lonely experience, especially over a long period of time that includes your birthday and the festive season. For me, a week was the maximum that I could handle alone. While trekking in the Annapurna Himalayas before arriving at the United Mission Nepal to Tansen Hospital, I had been stalked by dodgy trekkers and craved conversational English again. I was more than ready to settle in Tansen for a while, embracing the place like home.

Life at a mission hospital is very unique – both professionally and socially. I spent Christmas and New Year's Eve with a group of *pardesis* (foreigners) from all over the world, who are connected to the place somehow. They came to here to visit old friends or simply to enjoy the mountain fresh air that is unavailable in Kathmandu.

The Nepali doctors welcomed me like family. I ate with them (the Nepali way), drank with them, and watched soap operas with them (the high expressed emotions did not need translation). One of the highlights was our day trip to Lumbini, the birthplace of Buddha, with eleven doctors squashed into a jeep. Riding on a motorbike to the bazaar up Steep Street

was quite an experience in itself. As the name suggests, the street is indeed very steep and as it is paved by cobblestones, the journey is very wobbly. We ate at the canteen every morning after ward rounds. I was indulged with sweet *chiya*, *samosas*, curried pancakes, sugar-drenched deep fried pastries and donuts!

The deep friendships I made caught me by surprise and resulted in me being invited to three weddings during my stay. I lived with Nepali families and thoroughly enjoyed my stay with them. I loved seeing the respect they paid to the members of their extended family. I respect their way of life and their values. They are the most hospitable and generous people I've met.

Within the hospital, the team is truly one in which members respected each other's opinion no matter one's "rank". The versatility of the doctors is demonstrated by the fact that the urologist performs C-sections. Professionally, junior medical officers are capable of a great deal more than back at home. Interns take charge of the whole medical or surgical ward at night, with the consultant on call. They perform minor surgeries such as vasectomies and tubal ligations. Interns

Figure 1: Annapurna Himalayas



take entry exams to work at this hospital and don't get paid (instead, I've been told they pay the hospital, if it's a government-funded hospital). When interns leave Tansen Hospital, they are highly sought-after.

Patients travel hundreds of kilometres over the mountains, from the east and the west, bypassing other hospitals, to seek medical attention at the Tansen Hospital because of the quality of care and social services provided. Patients spend their entire savings to travel to the hospital. One cannot simply turn them away. Pastoral care in the hospital plays an essential role in conjunction with social services to provide holistic care.

What were some of the cases I saw at Tansen? Well, there were cases of chronic obstructive pulmonary disease (due to chronic fire smoke inhalation) and burns in children and adults – children because they fall into the fire pits located in the centre of huts, and adults due to the use of kerosene to cook and heat. I saw escharotomies in the middle of the night. In addition, I saw patients with traumatic injuries acquired through falls from trees, motorbike accidents both alcohol and workplace-related. There are two stories I want to tell...

A 26-year-old man presented to the ED after-hours with multiple traumatic crush injuries bilaterally below the knee and involving both forearms. The accident happened at the factory where he was working in Malaysia 19 days prior to his presentation. Since his employers were not responsible for his medical bills, he had to seek care in Nepal. By the time

we saw him, it was decided we had to amputate his right lower limb, and would attempt to salvage the left by external fixation of the comminuted fracture. The hand wounds were debrided and the extent of injury assessed. Both were salvageable with external fixation. Thus began an excruciatingly long recovery...

Another case deeply cemented in my memory is of a 23 year-old woman who was brought to the ED with burns to 80% of her body, 50% of which were deep. It was impossible to see how she could have survived these burns. Her husband was counselled that fluids would only prolong her agonising death. If IV fluids were withheld, she would pass away quickly and as pain-free as analgesia could provide, from acute renal failure. The intern had to explain this to her husband as the consultant was not fluent in Nepalese. When this solemn meeting was over, the intern disclosed to me that this was the very first time he had seen a man shed tears over his wife. They had three young children and she was twenty weeks pregnant with their fourth child. She had a spontaneous abortion on her way to the hospital. They travelled 500 kilometres to get to Tansen and had spent all their savings. It was decided that the patient was to be transported home to farewell her children, with money provided by the hospital. My time in Nepal has confirmed both my desire and ability to work in a developing country. I highly recommend a medical elective at a mission hospital in a developing country if you have the opportunity. It will not only broaden your approach to clinical medicine, but it will also challenge and teach you about life as others live it. The medical experience is only a tiny proportion of what you can gain.

Figure 2: Lots of wound debridement in the minor operation theatres



The Mae Tao Clinic - Mae Sot, Thailand

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The Mae Tao Clinic is located in Mae Sot which is situated 8.5 hours North-West of Bangkok by bus, and 15 mins from the Burmese border by bicycle. The clinic was originally established as a single room clinic in 1989 by Dr Cynthia Maung, a Burmese doctor, to provide essential free medical care to Burmese refugees and migrant workers. The clinic has since grown exponentially over the past 20 years, through generous donations and foreign aid.

The Burmese refugees are both internally and externally displaced, living in either refugee camps in Thailand or within the jungle of the Burmese border. As a result many must travel long distances to reach the clinic and frequently arrive in desperate need of medical attention. It is difficult to determine the size of the population this clinic serves, however the clinic estimates a target population of approximately 150 000 people.

Due to the complicated political and social situation surrounding Burmese refugees entering Thailand illegally, the clinic is barely visible from the road side, although it extends back to include a multitude of buildings including paediatrics, medical inpatients and outpatient clinics, surgery, re-

productive health, prosthetics and a laboratory/blood bank.

The clinic is run primarily by 'educated' Burmese refugees who train to become medics (two years for basic medical training) before specialising in their chosen department. All of the training is done on site and is supervised by more senior medics, with international doctors aiding in teaching and providing equipment. All the Burmese medics are trained in English and are able to act as interpreters.

I was initially disappointed by the lack of hands-on experience but then realised it was actually a good thing since it meant that the clinic is self reliant due to the locally trained Burmese medics. I did, however, get to observe a multitude of unusual and interesting medical and surgical cases.

The other challenge involved the lack of blood tests and imaging. The clinic has a primitive laboratory which can perform limited tests including haemoglobin levels, cross-matching, malaria blood smears and dipstick urine analysis. All other blood tests have to be sent to the Mae Sot hospital and the clinic has to pay per test which means, for example, that for liver function testing only AST would be performed as it was too expensive to order all of the enzymatic tests.

Figure 1: Operating theatre



Therefore testing was rarely performed and most diagnoses were based purely on signs elicited and educated guesses.

As mentioned earlier the clinic has several different departments and during my five weeks there I rotated through the reproductive health, medical inpatients and outpatients, and the surgical department.

Week 1 - Reproductive Health Outpatients

- Antenatal checks – vaccinations, deworming, vitamins, examinations, education
- Family planning – contraception, sterilisation, education
- Gynaecological problems

Week 2 - Reproductive Health inpatients

- Delivery room – assisting in deliveries, newborn examinations and vaccinations
- Abortions – spontaneous, Dilation & Curettage (D&C)
- Neonatal Intensive Care Unit (NICU)
- Transfusions for pregnant women with malaria

Week 3 – Medical inpatients

- General ward work and rounds
- Common diseases during my rotation:
 - Infectious diseases – malaria, TB, HIV, dengue, measles
 - Gastrointestinal – cirrhosis, Hepatocellular Carcinoma, gall stones, liver abscesses
 - Renal – nephrotic syndrome

- Cardiology – Congestive Cardiac Failure, Renal Failure
- Neurology – strokes, Parkinson's Disease
- Adverse Drug Reactions – Stevens-Johnson syndrome, transfusion reactions

Week 4 – Medical outpatients

- Combination of western GP and sub-acute section of an Emergency Department
- Interesting presentations included beri beri, marasmus, kwashiorkor, measles and malaria

Week 5 – Surgery and Trauma Department

- Trauma – debridements, suturing, dressings, minor procedures
- Surgery – inguinal hernias, hydroceles, lipomas, amputations, land mine victims
- Most procedures only use local anaesthetic but ketamine is used for amputations or more major surgeries

I highly value the unique opportunity I have had to visit and work at the Mae Tao Clinic and to observe medicine which is practised very differently than in Australia, due to educational, cultural and financial reasons. The social aspects of my visit must also be mentioned, as they were of equal worth as the medical aspects; learning about a new culture and the personal struggles of not only the patients, but the medics themselves was challenging and intriguing. I thoroughly enjoyed this elective and would recommend it to other students with an interest in refugee health.

Figure 2: Delivery Suite



How did I get here?

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To tell a story about a medical career is to give it a narrative structure it usually doesn't have. Most of us make up our careers as we go along. There are exceptions: I knew a student whose obsession with platelets continued undimmed into a life as a haematologist working with clotting disorders. I wasn't like that. When I graduated, I was impressed enough that someone would give me a job. Even as I began working in Royal Darwin Hospital, I was so ambivalent about being a doctor that I enrolled to do a teaching diploma part-time.

Working as a doctor, it turned out, was different to being a student in the way that walking in the mountains is different to being stuck in a subway. Nobody could have been more astonished than I that I loved it. Darwin – hot, collegiate, untroubled by status – was stuffed with possibility. I still got the teaching diploma, but I also got to fly out to the Tiwi Islands to do paediatric clinics, have my first experience of successful advocacy (we stopped offering a light porn channel to in-

patients), and continue some of the research in Alice Springs that I'd begun as a medical student. But it's a long way from there to Canberra, and getting to what I do now involved going down a lot of byways. But the byways, I now think, were part of the point.

Here are some of the lessons I learned. I don't offer them up to tell you what to do, but rather to reassure those of you who also end up meandering through the first decade of your career.

Global health can be done in your own part of the globe. The one thing I did want to do as a student was work in other parts of the world. After working in a mission in Zambia during a break between third and fourth year I realised that the contribution I could make clinically was not huge, but that didn't stop the deep level of enjoyment. In the days before Médecins Sans Frontières (MSF) and the Internet you got to do that sort of work by writing to addresses in the international phone books held at the State Library. I was a diligent

Figure1: Assoc. Prof. Christine Phillips



writer, and by the time I'd graduated had worked through all the Z countries except Zaire. From Darwin I volunteered to work in a research institute in the Gambia. Later my husband worked in Uganda and I managed three children in one of the most malarious capitals in Africa. I've lived or worked in three countries that subsequently went through violent revolution. My worst experience of national despair was travelling through East Timor just after the Indonesians had reopened the border in 1991. We were consigned to stay in the moribund Hotel Flamboyant in Baucau which doubled as the town's torture centre. The air hummed with the silence of being watched. I think of those places – the arbitrary ledger of who dies and who doesn't – most days when I work now at Companion House. I rarely travel for work now. But I'm convinced that I have done more useful work as a doctor in Canberra working with refugees than I ever did when working in clinics in Africa.

Children are not the deathknell of your professional identity and career hopes. I acknowledge it can seem that way when you are steeped in the raising of toddlers. Was all that training for nothing? Is your medical practice really going to dwindle into some hobby job like all those angry older doctors warned in medical school? ("Women are never as committed as men"). I lived in Atlanta for a few seasons, and found myself gratuitously informing the other Moms as we waited outside Evansdale Elementary School, "I may not be working now, but really I'm a doctor". When my three children were little I did less clinical work, and – as with many professional couples – my husband has returned the favour as they have got older, leaving me free to increase clinical hours. I can't give any advice on work/life balance because by any measure there's no balance, they just feed into one another. I'm not even sure that work/life balance is ever achievable; humans aren't spirit levels. Our lives should be enriched by both our personal and work lives. I am a better doctor because of my children, and because of the powerful support of a good partner, especially one who thinks you can do more than you ever thought you could yourself.

Make the most of colleagues given to you by serendipity. Many of the happiest doctors I know ended up in their field of work through luck. I tumbled into general practice because I needed a job while the children were young. I was blessed to be in Canberra, where the training program was run by the inspirational Dr Jenny Thomson, who was supporting GP trainees located in sites as diverse as Kazakhstan, Antarctica or, in my case, the anthropology department of ANU. The general practice she allocated me was one of the quirkiest and most ebullient workplaces I have ever worked in. Fifteen years after starting there it continues to be a joy to work there. The delight of general practice, which grows both from the depth of knowledge and experience with one's own patients and from the shared nature of the workplace, is very difficult to convey to medical students. In contrast to some of the more technical disciplines, the intellectual work of general practice often involves prudent judg-

ment and synthetic thinking. You learn the hardest skills on the job, and I have drawn heavily on the wisdom of the other IGP doctors, and still do.

Don't work alone. I don't work full-time in any of my three jobs. That's possible partly because I work with networks of colleagues who continue to make work interesting and enjoyable. Part time work almost always extends beyond the hours allotted to it, and if you're not careful you can be consumed by it. The same goes for working in heavy-duty service areas like refugee health or drug and alcohol medicine. In addition, because the spotlight of others' admiration can outshine the dim candle of a doctor's own self-knowledge it is useful to have colleagues who know you, understand the job, and are smarter than you.

Good workplaces celebrate and support their staff: try to find one that does that, and if it doesn't consider leaving. A few years ago, a gifted colleague, a psychologist, left Companion House to return to Mexico. We had the usual farewell meal, made speeches, played music. Without warning it began to bucket rain – the breaking of a long drought. Wordlessly, the staff of Companion House ran out into the rain at dusk and danced till they were sodden. May all of you find a place to work that gives you such joy.

Anecdote

Alicia at the Paediatric cardiovascular examination

While listening to the child's heart, I noticed a paediatric stethoscope lying reasonably close to the BP cuffs on the table, so I announced "Oh, I would like to listen to her heart with a paediatric stethoscope".

The confused examiner looked around, eventually responding "That's my stethoscope".

Oh yes, of course, sorry, I'll just carry on...

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