MedEd12

Inclusion, innovation and investment for the future

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Final report

30 November 2012

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Written by Biotext Pty Ltd, Canberra

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Medical education in Australia: masters of our own future

Medical education is not just about the curriculum or trainee places, but about meeting Australia's health care needs in the future.

First, how do we best train our doctors to practise in the decades to come? Future doctors will be not only medical practitioners but also, for example, managers, social workers and consumers of health resources. Second, how do we best train our doctors to support a good health system? The health care needs of our community are changing, and we need to develop a system that will meet those needs.

We therefore need to decide what we want the future to be, and design processes and curricula to reach it.

Innovation

Innovation is sometimes feared, and sometimes constrained by the desire to maintain existing standards and processes. However, it is clear that changes such as Australia's ageing population, new technology and increasing numbers of trainees will necessitate innovative approaches in medical education. We also need to ensure that the doctors of the future understand leadership, systems thinking and the patient journey.

Embracing innovation will allow challenges to be met with opportunity, but it is important to remember that innovation needs to be incremental and needs to be based on evidence. We can learn from pilot programs, from other countries and from other areas of education. Innovation also needs to be monitored to assess its impact and provide feedback to continue improvement.

Where students are trained and by whom

The current 'tsunami' of medical students and the internship crisis will impact on the system for years to come. We need to innovate to increase training capacity and quality. While undergraduate rural and regional training is improving, we now need rural and regional postgraduate training. Similarly, an increased role for private settings would both harness this important resource and broaden the student experience.

Technology

New technologies such as tablets and simulations offer new opportunities in medical education. Exploring these technologies will help us to improve training methods, and to enrich both the student and patient experience.

Investment

We need to invest in our region and in the doctors we will need in the future.

International students and doctors

Australia's health services depend on international medical graduates, especially in rural areas. Yet as a developed country, we should be socially responsible. We need to ensure that we are not taking doctors from countries in need, and that we are contributing to

improving the health of our region. This investment could provide returns in reduced aid requirements.

Specialties and pathways

We are also facing a shortage of clinical academics and generalist medical practitioners, and many registrars and others in teaching positions feel under-equipped and under-supported in their teaching roles. Ensuring that we have the teachers we need will ensure that we can provide the students and doctors of the future with the best possible education.

Inclusion

Inclusion is about ensuring that any capable and interested student can undertake medical training. It is important for both social justice and equity, and also because of the benefits it brings to the health care system. Inclusion is also about equipping all students with the skills to see a wide variety of patients in a wide variety of settings. Students should also be equipped to work in partnership with other health professionals. Finally, inclusion is about involving patients and the public in the development of medical education.

Indigenous communities

It is important that Australia recruits Indigenous medical students and assists them to graduate as doctors. It is also important that all Australian doctors have an understanding of Indigenous culture and health care needs.

Disadvantaged socioeconomic groups

Disadvantaged socioeconomic groups are underrepresented in medical education. Schools from disadvantaged areas may not produce students with sufficiently high scores to enter medicine; however, scores are not the only or best measure of whether a medical student will succeed. The cost of medical school can also be a significant barrier for students from low socioeconomic backgrounds.

Disability and impairment

Students with disability or impairment can face barriers to inclusion in medical education. It is illegal to discriminate on the grounds of disability unless that disability means that the person cannot satisfy the inherent requirements of the job; however, we do not currently have a definition of the ‘inherent requirements’ of medical practice. We also do not have a national standard to be able to assess a student’s ability to complete the training or to practise.

Interprofessional education

Good patient outcomes depend on the input of a range of medical staff members. It is important that medical personnel can work together effectively, both within particular treatment events and across the patient journey. Interprofessional education helps to develop the skills and interprofessional respect that are important for teamwork.

Recommendations

Innovation

1. That Medical Deans Australia and New Zealand Inc (Medical Deans) explore the use of private settings for training and supervision, and assist where possible in the development of a funding system to support this.
2. That medical schools work with relevant health systems to facilitate the establishment of rural and regional postgraduate training programs.
3. That medical schools continue to explore the use of new technologies such as simulation laboratories and e-learning platforms, including requesting input from students and patients on their ideas.
4. That medical schools develop programs to teach students how to be teachers.
5. That medical schools explore opportunities for collaboration to make the best use of scarce resources.

Investment

6. That Medical Deans and partner organisations work with government and its agencies to develop better funding models and an accountability framework that places an appropriate value on teaching, and encourages an appropriate investment of money, time and resources.
7. That Medical Deans, with partner organisations in the training continuum, work to define career pathways for clinical academics and to expand career approaches — for example, by separating teaching and research requirements.
8. That medical schools and universities work together to determine recognition and remuneration systems for teaching.

Inclusion

9. That parity targets are set for Aboriginal and Torres Strait Islander medical students as follows: enrolment — 2.2 per cent; completion — to match rates for non-Indigenous medical students.
10. That a funding mechanism for Aboriginal and Torres Strait Islander medical students is established with a retention and completion focus.
11. That the Australian Medical Council, working with the Australian Indigenous Doctors' Association, Medical Deans and the Committee of Presidents of Medical Colleges, consolidate the assessment of Aboriginal and Torres Strait Islander outcomes against existing standards.
12. That funding should be sought for short-term and long-term clinical experience in Indigenous contexts.
13. That medical schools research, develop and share resources, such as videos and simulations, in an Indigenous context, and establish partnerships with Indigenous communities and groups to inform development and encourage recruitment.
14. That medical schools continue to develop linkages with primary and high schools in lower SES areas to encourage these students to enter medicine. It is recognised that these initiatives will need to take into account local needs and circumstances.
15. That Medical Deans establish a working group involving all stakeholders to discuss and develop a definition and framework around inherent requirements for medical practice, with the view to establishing national Good Practice Guidelines.
16. That medical schools explore opportunities for interprofessional education throughout the student journey, including joint induction and team-based assessment of patient outcomes.

Background

When the MedEd12 Steering Committee first met in January 2012, *inclusion*, *investment* and *innovation* were the three key elements in our minds to ensure medical education in Australia and New Zealand continues to be worthy of its wonderful international reputation. All are important foundations to medical training that are relevant to the community; and all pose significant challenges to those involved in medical education and training in the current climate of budget constraints, fast moving technology, and our desire to widen access to training irrespective of social or cultural background or disability.

The three themes were seen to be particularly relevant to the current national political, budget and health agendas. Within the last 12 months, the Australian Government has been considering a range of long-term funding and access issues for higher education; a pricing and accountability framework for health services including teaching, training and research, and experiencing significant challenges in accommodating the tremendous growth in recent years of the training intake and subsequent pipeline. Similarly, across the medical education continuum, there has continued to be pressures on appropriate funding of programs, quality and quantity of training places, retention and completion of Aboriginal and Torres Strait Islander medical students, providing for a broader inclusion framework and engagement with e-learning platforms and simulated learning.

Of particular importance to the Steering Committee was that MedEd12 should look to the future. Many of the issues that confront medical educators — in the medical schools and health settings, as well as in our role as clinicians — often continue from year to year without resolution, or at least without full resolution. MedEd12 was considered a timely opportunity for all participants to think about and explore the future … in essence, how can we tackle the issues differently and perhaps radically?

The Steering Committee was also very keen that, if it were to address innovation, the conference itself be innovative. The conference program was made available through a web application, a YouTube video was uploaded to promote the conference in advance and participants actively engaged in a 'live wall' of Twitter feeds during two of the sessions.

Hosted by Medical Deans Australia and New Zealand Inc (Medical Deans), MedEd12 was the fourth in a biennial series of national meetings aimed at advancing medical education and training in two countries. Once again, the meeting was sponsored by the Australian Government Department of Health and Ageing, the Australian Medical Council, the Committee of Presidents of Medical Colleges and the Confederation of Postgraduate Medical Education Councils. For the first time, Health Workforce Australia provided significant sponsorship. The true strength of the partnership between all of these bodies is reflected in both the financial support for MedEd12, and the personal contributions made in the form of active participation in the Steering Committee and program.

MedEd12 brought together approximately 150 representatives from Australian and New Zealand medical schools, medical colleges, hospitals, key medical organisations, the Australian Indigenous Doctors' Association, the Australian Medical Council, the Medical Board of Australia, and Australian and state health departments. There was also strong representation from Australian and New Zealand medical students.

The conference involved expert presentations on a range of issues, as well as panel discussions, and for the Inclusion session, breakout groups. The meeting benefited greatly from the expertise and insights of Professor Jim McKillop, who was the keynote speaker and guest speaker for the Inclusion session. Professor McKillop is the Chair of the General Medical Council Undergraduate Board in the United Kingdom, was the Muirhead Professor of Medicine at Glasgow University until recently and is a longstanding advocate of inclusive medical education.

At the end of the day and a half, conference participants considered the two key themes that had arisen: training processes and workforce issues. Underpinning these issues was the clear message that those gathered were the brokers of the future of medical education in Australia and New Zealand. From these broad themes, a series of recommendations were drafted, endorsed by the Steering Committee and then shared with participants.

Medical Deans will now consider the recommendations and draw up an action plan to prioritise and progress the recommendations. A number of the recommendations will, we hope, inform the work plan of the National Medical Training Network, which is to be established in 2013 by Health Workforce Australia to enhance planning, coordination and governance of medical training from professional entry through to vocational training.

We hope that the following summary of proceedings will provide a comprehensive basis for the future consideration of the recommendations.

Professor David Wilkinson
Chair, MedEd12 Steering Committee

October 2012

Professor Justin Beilby, President, Medical Deans Australia and New Zealand Inc; Professor Jim McKilllop, Keynote speaker; and Professor Richard Hays, Committee member, Medical Deans Australia and New Zealand Inc

Introduction

Welcome

Professor David Wilkinson
Chair, MedEd12 Steering Committee
Dean of Medicine, University of Queensland
Professor Justin Beilby
President, Medical Deans Australia and New Zealand Inc
Executive Dean of the Faculty of Health Sciences, University of Adelaide

The steering committee identified inclusion, innovation and investment as key to the future of medical education in Australia and New Zealand. These issues need to be tackled in new and perhaps radical ways.

The outcomes of MedEd09 and its 17 recommendations are becoming tangible. Although many of these recommendations required government funding, which may have made them difficult to implement, they inspired debate and new programs. For example, MedEd09 recommended that:

- a new board be formed to advise on training — a national medical training network is now being established by Health Workforce Australia
- programs be initiated to increase capacity and the rural health workforce — this is being supported by new clinical training funds, internships and university programs
- the Medical Schools Outcomes Database should continue — this program is now funded by Health Workforce Australia and will be supported for at least another two years.

Professor Justin Beilby, President, Medical Deans Australia and New Zealand Inc

Welcome to Country

Les Davidson
La Perouse Local Aboriginal Land Council

Uncle Les Davidson welcomed participants on behalf of the Bidjigal and Gadigal clans, the traditional owners of the land on which the conference took place.

Minister's address

The Hon Tanya Plibersek, MP
Federal Minister for Health

Medical graduates have so much to offer from their study and life experience, and countless Australians will benefit from their care.

Medical students and Medical Deans share a particular interest with the government regarding internships. The Australian Government and the state and territory governments are working very hard to find positions for all these students, and the leadership shown by the Medical Deans is appreciated.

It is fitting that this conference focuses on inclusion, innovation and investment. Medical schools are already being innovative and inclusive, and the government has supported this with investment. As an example, our rural clinical schools are part of a flagship program that provides real benefit to rural communities. The government will continue to invest in medical education as well as the health system itself, and this will need to be supported by a strong workforce.

The number of graduating medical students has increased significantly in recent years, but this needs to be supported with postgraduate training capacity. The government is investing in junior doctor training and new specialist training programs outside hospitals — for example, in specialist, rural and remote, and Indigenous clinics — to ensure the system can cope.

In all these changes we are driven by a determination to deliver the best possible health care for all Australians, no matter where they live.

Innovation, investment and inclusion: keynote address

Professor Jim McKillop
Chair, General Medical Council Undergraduate Board, United Kingdom

Innovation

There are two questions that drive innovation. First, how do we best train our doctors to practise in the decades to come? Future doctors will be not only medical practitioners, but also, for example, managers, social workers and consumers of health resources. Second, how do we best train our doctors to support a good health system? The health care needs of our community are changing, and we need to be developing a system that will meet those needs.

Medical education is becoming increasingly internationalised. This has many advantages, including driving higher standards around the world, but it also raises questions, such as how can standards be guaranteed in offshore medical schools? Will global or regional standards be applicable in individual country and community settings?

The number of medical students and medical schools around the world is rapidly increasing, and some smaller medical schools have been established by 'budding off' from larger schools. This can encourage innovation, but what is the optimum size for a medical school? What is the most efficient and effective use of resources to deliver good student-centred education? Other issues for debate include the length of medical programs, whether programs should be competency based rather than of fixed length, and whether courses should be general or allow early specialisation.

Regulators and schools have a duty to innovate responsibly. Innovation needs to be well planned and well thought out to be successful. Innovation should be based on reasonable evidence, it must be monitored and evaluated, and there should be a backup plan if the innovation is not successful.

Innovation should include innovative use of technology, such as web-based approaches and simulation. However, technology needs to prepare for real experience, not replace it. New technology may be expensive, but a collaborative approach across schools might make it more affordable.

In innovation we also need to realise that learning can take place in many settings. Expanding training outside hospitals requires leadership in non-hospital areas, as well as funding shifts to new areas.

The United Kingdom is reviewing its medical education and training programs, and identifying longitudinal generic themes for students throughout their training. The review is paying particular attention to the 'transition' stages in the training continuum, and encouraging common processes (such as assessment methods) and terminology across programs. Quality evaluations are also being undertaken of undergraduate and postgraduate programs on a regional level, which is producing powerful data. These evaluations incorporate standards that focus on outcomes rather than processes. Most importantly, evaluations are now taking a role in identifying and recommending methods to improve outcomes rather than just checking that schools are performing against a particular set of standards.

Investment

Government funding will be squeezed for the foreseeable future. If funds have been granted for education, they must be used for education. There must be rigorous accountability and performance management systems. Innovation can help us use resources more effectively — we need to determine how to do things better with constrained funding.

International students and offshore campuses are a potential source of income for some medical schools, although there are some concerns regarding quality control and the appropriateness of one country's curriculum being applied to another culture or health service. Fee-paying students may see themselves as customers, which can help to drive higher teaching standards due to student demand but can also make it potentially difficult to hold back nonperforming students. The number of fee-paying places also affects the inclusion and participation of disadvantaged people.

Greater recognition of the importance of teachers and trainers will help to ensure that standards are met in all settings.

Inclusion

Inclusion is about ensuring any capable and interested student can undertake medical training. Widening participation in medical training is important for social justice and increases the pool of talent.

Inclusion is also about equipping all students to see a wide variety of patients in a wide variety of settings. Students should be equipped to deal with a wide variety of patients in a variety of settings, and to work in partnership with other health professionals. Including students from a wide variety of backgrounds gives all students more exposure and training in dealing with diverse people and cultures, and enriches the system as a whole. People from particular backgrounds may be more attuned to the health needs of their community, but they should not be pressured to practise only in their community.

Finally, inclusion is about including consumers in the design and development of medical education. Patients and the public can also be involved in selecting medical students, teaching, assessing and providing feedback to students, curriculum development and external quality checks.

Discussion

- Medical staff should receive recognition for their roles in education. It is increasingly understood that standards and qualifications for educators are needed, not just 'nice to have'.
- There is tension between regulating schools to ensure quality outcomes and allowing schools to have the time and space to innovate. Schools need to ensure that they meet standards; however, regulators should encourage innovation. Regulators should also appreciate that it may not always work and not penalise schools for trying and failing with new approaches. In the United Kingdom, inspectors are encouraged to be 'friends' to schools and encourage and assist innovation.
- There is little data on the optimal school size, but students in larger schools may feel less supported. School survey rankings and quality assurance inspections show some evidence that smaller schools do better.

- The reasons driving the establishment of offshore medical schools are likely to involve a mix of altruism and economics. These programs cannot be tailored to the offshore country or they will not be accredited by the home country, and this accreditation is often an attractive point for potential students.
- A national glossary of terminology can be useful to ensure that standards and other documents in all jurisdictions use the same definitions.
- A substantial period of general training is important, and specialisation should not occur too early. Training should also reflect future needs. Many countries face a shortage of generalists, so we must meet that need.
- The financial cost of training a doctor is not clear, but these costs will need to be met if training moves outside hospitals. Considerations including staff time and facilities might be crudely estimated in the United Kingdom at £150 000 for a five-year undergraduate program.

Innovation for performance

Introduction

Mr James Churchill
President, Australian Medical Students' Association

Medical education is challenged by evolving systems, changing technology and changing health care needs. Current training has been labelled 'untenable' in the face of these challenges, which provides an opportunity to improve training through innovation.

Concepts bank and toolkit for reimagining and reinventing medical practice for 21st century success

Dr Peter Ellyard
Preferred Futures Institute

To shape the future of medical education we need to imagine what this future could be like. Education is the most important thing we can do to shape the future, and we need innovation driven by both managers (who respond to change) and leaders (who create and shape change).

To help see this future, ask yourself these questions:

- What are three things that you love about the current system — what would you keep?
- What are three things you loathe about the current system — what would you discard?
- What are three things from overseas that you would like to see in Australia?

The current cohort of students is generation Y — they see themselves as Australians in a global context. Innovation should consider what this generation values — for example, their desire to travel and work around the world may drive more flexible programs and transferrable standards in medical education. The current generation of students also embraces cooperation, collaboration and democracy of choice. New approaches in teacher–student and doctor–patient relationships will need to take this into account. We also need to imagine the new jobs that doctors might be doing in 20 years and the likely changes in disease scenarios, and work these into the current student program.

'Prof, you might as well be a hologram'

Mr Ben Veness
Sydney Medical School
President-elect, Australian Medical Students' Association

An issue for all disciplines, not just medical education, is that technology has changed but pedagogy hasn't. How can we better engage students and improve education by using mobile technology?

The Khan Academy[1] is an online video library that contains free lessons on many subjects. Students can watch videos when and where they want, pause and restart lessons, and the lessons are timeless — a single video can be watched by thousands of people around the world, now and in the future.

Students can track their progress online, and integrate it with social media to compare progress with their friends and collaborate on problems. Teachers can track their students' progress online and see how well the students understand the material, how much time they spend on problems, and identify gaps in their learning to potentially make their face-to-face time more productive.

Many universities are using technology like this, and most have embraced tablet computers as a way to deliver education. Medical education in Australia should look to the opportunities this new technology presents, to improve both student and patient outcomes.

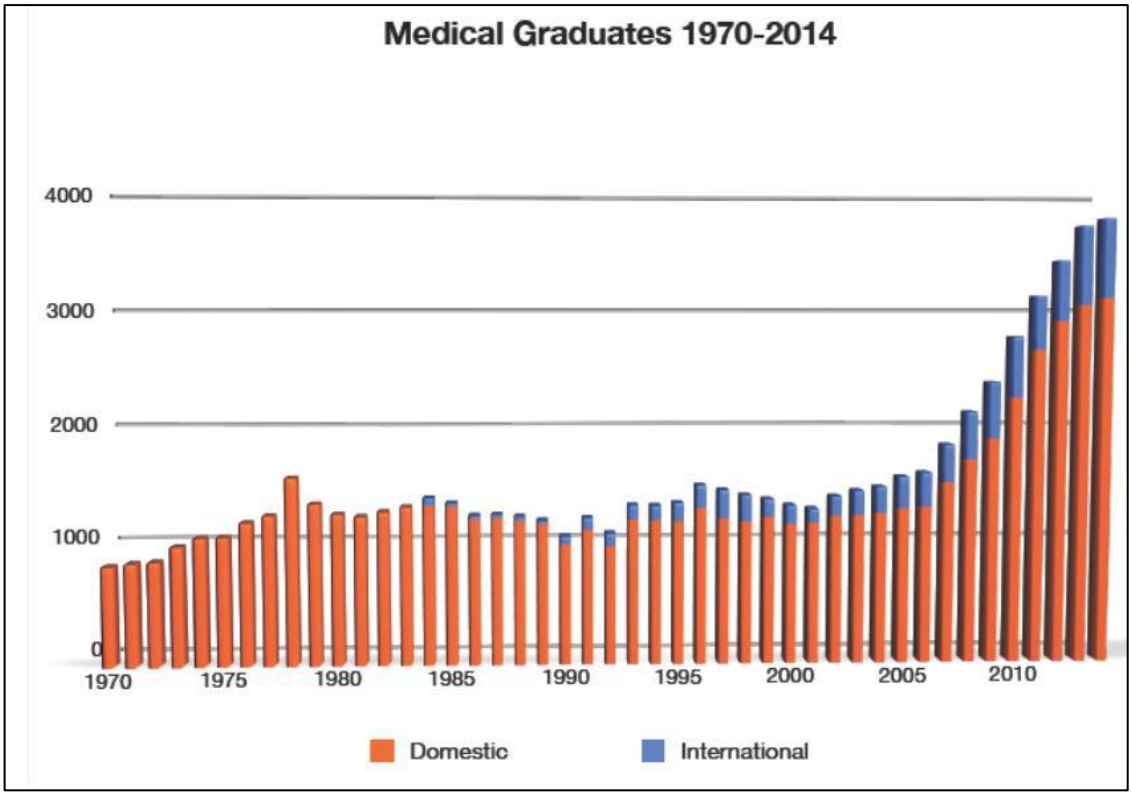
Capacity and quality in medical training

Dr Will Milford
Chair, Australian Medical Association Council of Doctors-in-Training

The current 'tsunami' of medical students and the internship crisis will impact the system for years to come. Around 40 per cent of Australia's health care is delivered in private settings, but most trainee places are in large hospitals — we need to innovate to increase training capacity and broaden the student experience. Some programs are addressing this and providing alternative doctor placements, such as the More Learning for Interns in Emergency (MoLIE) program of Clinical Education and Training Queensland, and the Prevocational General Practice Placements Program (PGPPP).

Training capacity must be expanded with good-quality programs, and the aspects that work need to be brought into other settings. Training quality must also be measured to allow continual improvement, and to ensure that programs meet their objectives and deliver comparable, high-quality experiences for students. More assessment of student outcomes and student opinions is needed both to assess programs and to feed back suggestions for improvement.

[1] www.khanacademy.org



Source: Health Workforce Australia, 2012

Figure 1 Medical graduates, 1970–2014

Innovation for outcome

Mr Jon Evans
Director, Health Strategy
Director of Health Innovation and Reform
Department of Health, Victoria

In Australia's ageing population, demand for health services will grow in response to the increasing prevalence of chronic diseases. In our current system, patient pathways focus on independent interactions in individual episodes of care, and funding frameworks support this by being event or treatment based rather than pathway or outcome based. Training and education also focus on site or setting-based interventions. Also, we do not currently have a feedback loop from patients to doctors — what patients want and need is not necessarily informing our curricula and treatment models.

Preventive action and shifting the emphasis of care from hospitals are critical. The Victorian Department of Health has developed organising concepts for the future that focus on managing people with chronic and complex health conditions for optimal value and outcome (i.e. clinically effective and cost-effective). Flexible patient pathways will better meet the needs of the local community; and primary, home-based and community-based care (along with increasing health literacy) will prevent unnecessary hospital admissions. Implementation will result in integrated clinical and care networks that use resources more efficiently and flexibly, and support a workforce that can deliver general and specialist care across multiple settings.

If we think differently about the future health care needs of the population, we might think differently about how we deliver training. No matter where we are in the system, everyone needs to share in supporting medical education and training.

Simulation technology and education

Dr Leonie Watterson
Director, Simulation Division
Sydney Clinical Skills and Simulation Centre

Simulations provide immersive, scenario-based learning. They can have different levels of complexity, but they all have a patient 'narrative' and require the doctor to interact with the patient. This provides a 'real life' experience ensuring that medical techniques are not separated from patients.

The 'market pull' for the use of simulations stems from the following needs:

- Gaining experience is difficult — there are not always enough patients or types of patients for students to learn what they need.
- Access to instructors is difficult.
- Access to resources is difficult.
- Time is limited.

EdWISE (Education by Web-based Innovative Simulation and E-learning) provides training for emergency department teams. Students can be anywhere — the training is controlled remotely from the simulation lab — and receive immediate feedback on their performance from the training team. The EdWISE website has more information to support the learning, and mentoring teams are available to train educators to teach using simulations. The program allows students to stay in their placements but gain more experience, and also supports the development of effective teamwork.

Panel discussion

Facilitators

Mr James Churchill	President, Australian Medical Students' Association
Professor Liz Farmer	Consultant, Australian Medical Council

Panellists

Dr Peter Ellyard	Preferred Futures Institute
Mr Jon Evans	Director, Health Strategy, and Director of Health Innovation and Reform, Department of Health, Victoria
Dr Will Milford	Chair, Australian Medical Association Council of Doctors-in-Training
Mr Ben Veness	Sydney Medical School, President-elect, Australian Medical Students' Association
Dr Leonie Watterson	Director, Simulation Division, Sydney Clinical Skills and Simulation Centre

Questions and answers from the participants and the panel, including the Twitter feed, fell into the following six themes.

Baggage and heritage

What aspects of our medical education system should we keep?

- interaction with good teachers and one-on-one instruction in a procedure
- small-group teaching and practical skills
- patient contact, especially spending time with patients and learning their stories
- the culture of being in health care and in a health care team
- the idea of medicine as a career that you are embedded in for life.

What aspects of our medical education system should we discard?

- the wasted time in clinical placements when students are left 'hanging around'
- 'teaching' ward rounds — too often these are not teaching but simply watching what happens, which is often too fast to be useful
- remembering for the sake of remembering — students should be allowed to look up resources instead of memorising them; this would be an appropriate use of time and tools.

Technology

- Online tools and teaching methods have potentially wide scope and benefits, not just for learning but for patient interactions. Students in the United States who are issued with iPads can access electronic medical records at any time to check on their patients, order tests from the bedside, and show videos, images or other information to the patient. Teaching ward rounds could improve by using these resources. However, Australian hospitals will need different infrastructure to make use of this, including basics such as providing wi-fi and 3G access.
- Students can be a major source of creativity in the use of new technologies for teaching and learning. Students should pass their suggestions for using new technologies (such as a Khan Academy style of teaching, useful videos, etc.) to their faculties for consideration.
- Technology should be used as an adjunct to interpersonal contact, not a replacement, to ensure it does not create a barrier between students and teachers, or doctors and patients.
- The proportion of time spent in simulations should be considered. In the United States, simulation is capped at 25 per cent of nurses' time; however, this may not be appropriate if the experience from the simulation is not available elsewhere. Simulation should be used to address gaps in clinical experience, not replace it.
- Technology can contribute to a greener future and reduce costs for printing.

Supervision

- Financial support for training is essential. There are not enough incentives in the private sector to provide training and a new model is needed. The mindset of private practitioners also needs to change to ensure that they are committed to future planning — to, in essence, train their replacements.
- Teaching is usually delivered by senior clinicians, but junior doctors and peers could play a bigger part. Trainees should also be taught how to teach — they are expected

to begin teaching as a registrar with no prior experience or training. There is considerable anecdotal evidence that students are keen to be taught how to teach future students.

Interprofessional education

- There is rarely a clinical problem that can be addressed entirely within one 'silo'. The patient and the condition should be at the centre of training, to establish the basis that no single person has a solution to all the patient's needs and that teamwork is essential to addressing each issue.
- Breaking out of silos is about more than just being aware of other people's roles. The learner's mindset needs to change so that they know that a good outcome cannot be achieved without collaboration.
- Overcoming the barriers of being educated in silos and the resulting tribalism is important. However, some things need to be learned on an individual, cohort or specialty level, and not all learning should be interprofessional. Training should accommodate all these needs.
- Interprofessional education (IPE) and team building needs to start early. Doctors and nurses are currently segregated throughout university and in the hospital, and elitism is still prevalent. A new model where all new staff are inducted together and train together could foster better relationships and teams. IPE should start from the first day so it is seen as the normal way of doing things.
- The aim of IPE is learning how to work together, not developing content knowledge. People may be reluctant to attend a training session about how to cooperate; however, they are more likely to attend a session that involves a complex case, and will realise that they need the whole team to solve it.
- IPE should be done in a way that helps individual learning and teaches doctors to be better doctors, not how to be physiotherapists (for example).
- Another way to encourage IPE is by including some components of assessment that are team based, where the assessment is based on whether the team achieved its outcomes, not how individuals performed in the team. This could focus on the patient journey, which will necessarily bring in all staff members along the journey.

Indigenous health

- Aboriginal and Torres Strait Islander communities in particular may need a community-based approach, community-based responses and community-based learning. This can achieve collective improvement for the whole community.

Change

- The purpose of innovation should be sustainable health care. The Australian system currently produces good doctors so it may be difficult to envisage change, but mindsets in the system need to change to meet our future health care needs.
- Tweet: 'Changing a curriculum is like moving a graveyard — you never know how many friends the dead have until you try to move them'.

Recommendations

Innovation

1. That Medical Deans explore the use of private settings for training and supervision, and assist where possible in the development of a funding system to support this.
2. That medical schools work with relevant health systems to facilitate the establishment of rural and regional postgraduate training programs.
3. That medical schools continue to explore the use of new technologies such as simulation laboratories and e-learning platforms, including requesting input from students and patients on their ideas.
4. That medical schools develop programs to teach students how to be teachers.
5. That medical schools explore opportunities for collaboration to make the best use of scarce resources.

Investment

Strategic investment in medical education: when, where, how and why?

Professor Andrew Wilson
Executive Dean, Faculty of Health, Queensland University of Technology

Australia's health services have seen a large increase in numbers of medical students over a short time, and a major expansion of services. However, the workforce distribution is skewed: there is a dependence on international medical graduates (especially in rural areas) and junior doctors in the public sector, and low numbers of specialist training positions. How can we build a sustainable system with the capacity to train increasing numbers of medical students?

The teachers

Clinical academics can feel unsupported in dealing with increasing workloads. They comprise less than three per cent of the medical workforce in Australia and are in high demand both here and globally. Issues for clinical academics include serving two masters (the university and the health service), having poor status among their clinical peers and lacking income parity. Solutions may include simplified contracts (e.g. with a single employer), recognition of competing workload demands, improving research infrastructure and more competitive remuneration.

Clinical teaching relies on voluntary contributions from clinical staff, with little formal recognition. The increasing demands on clinical time mean that a voluntary model will not be sustainable in the future. Solutions may include formally recognising the role and providing better support, targeting payments for examination and administrative roles, and allowing paid teaching clinical sessions.

The learning experience

Teaching opportunities are affected by the changing clinical environment (shorter length of stay, shorter time to see patients), the spectrum of patient conditions that present (admitted patients vs nonadmitted, acuity of conditions), the willingness of patients to participate and the level of investigation. The quality of the learning experience also varies with the interest and expertise of the teacher, and the amount of support they receive, including opportunities to be trained in teaching.

Solutions may include ensuring the university is responsible for the quality of their teaching, including monitoring and feedback systems, and training and acknowledging teachers. Dedicated teaching clinics could be established with patient recruitment for teaching purposes. Clinical teachers could receive paid training time, and a promotion and rewards system could be based on teaching quality and be independent of research effort.

The teaching environment

Ensuring adequate clinical teaching space is largely seen as a hospital or health service issue, but these spaces are always under threat because of the need for patient care or administrative space. Building and equipping these spaces requires a long-term view and can be expensive.

Teaching needs to be recognised as a legitimate and vital component of a health facility. A collaborative approach is needed between education and health, with a specific capital program, and standards should be developed for clinical teaching facilities. The private sector can provide academic teaching facilities.

The resourcing model

Total resourcing for clinical teaching is complex and unclear. A base funding review indicates that current university-sourced funding is inadequate, and there is a limited health system funding stream for private sector participation. There are disincentives for health care managers to understand teaching costs, and mixed messages from policy makers about the importance of teaching and research.

Solutions may include a standard agreed approach to costing clinical teaching, a single stream or agreed funding split, a block funding or activity-based funding approach, and a clinical teaching loading.

Conclusions

Clinical teaching capacity can be increased, but it will require additional and dedicated resources based on best practice. However, the short term may be difficult as service expansion occurs ahead of the trained clinical workforce.

Investing in medical education: a tale of health reform, acronyms and a BBQ stopper

Panel discussion

Facilitator

Associate Professor Victoria Brazil	Senior Staff Specialist, Royal Brisbane and Women's Hospital

Panellists

Professor Nicholas Glasgow	Dean, Medicine and Health Sciences, and Dean, Medical School, Australian National University
Mr Shane Solomon	Chair, Independent Hospital Pricing Authority
Mr Ben Wallace	Executive Director, Clinical Training Reform, Health Workforce Australia
Dr Diane Watson	Chief Executive Officer, National Health Performance Authority
Professor Andrew Wilson	Executive Dean, Faculty of Health, Queensland University of Technology

In this innovative session, the panel was asked to imagine the future of medical education in the following scenario:

It is 2015 and the effects of the National Health Reform Act 2011 *have been playing out. The Independent Hospital Pricing Authority (IHPA) and National Health Performance Authority (NHPA) have been in operation for three years, working with Health Workforce Australia (HWA) and medical schools to improve health services to Australians. How have the last three years been for your health care organisation?*

IHPA has now determined what a hospital service is and how to fund it. They have refined price loading (e.g. for regional delivery) and reconciled the Australian Government, state and territory governments, and hospitals on the level of funding. As a result, no-one is happy, but the decisions have been made. IHPA is surprised at the ingenuity of people trying to manipulate the system.

NHPA independently reports on the performance of hospitals. In 2012, NHPA looked at the successes of countries such as Sweden and Canada in improving performance and reducing avoidable deaths. In 2015, Australia is seeing similar improvements and health care services aspire to perform better. NHPA has also suggested changes to improve and standardise coding practices in emergency departments. The predictions in 2012 of the future of health care were correct, including shorter length of stay and more community care, so NHPA now reports on geographic regions rather than individual hospitals, and focuses on patient outcomes, safety and quality.

The concerns in 2012 that **HWA** had too broad a focus have been completely discredited. HWA is now informing and advising ministers on opportunities for reform, including building capacity, supporting growth, boosting workforce productivity and improving workforce distribution.

Medical schools have found that the education sector is not being rewarded by the system. Higher education budgets are under enormous pressure — cross-subsidisation between universities and medical schools is becoming harder to manage, and more and more domestic students are being charged fees for their education. There is now more medical training in hospitals in order to attract more money and keep it out of the hands of private trainers and smaller organisations. Nothing has happened about opening new vocational training centres, despite Medical Deans Australia and New Zealand Inc asking for this as a matter of urgency in 2012; the Australian Government and the state and territory governments are still arguing over who will pay for them. Despite the projected shortage of doctors, we find there are actually lots of medical graduates, but many of them are going into nursing because they cannot find a placement. We may need to introduce a new system to fast-track specialists to address the waiting lists.

Scenario: One of the big hospitals has found that it can deliver services more efficiently by not providing education or using any trainees or registrars, and there is therefore no need to report against any indicators. Other hospitals are also considering this approach. The government is very worried and engage a consultancy firm to examine this issue. What do you tell them?

This would not be possible because the new funding model ensures that hospitals are not better off if they do not provide training. IHPA has provided clear understanding of inputs and return on investment for medical students and determined who the main beneficiaries are. HWA has worked with IHPA to refine teaching and expand it into other settings; this is supported by appropriate funding.

Scenario: The consultants return with their findings, and it's a BBQ stopper. They find that medical education in Australia is unsustainable and the outputs do not provide return on investment. The consultant proposes that all the medical schools are closed and we adopt a 'fly-in, fly-out' workforce model, which we can afford because of the savings made by cutting education. Is there merit in the idea?

Other countries are keeping their doctors so there may not be a large enough international workforce to support the idea. In addition, the time they will spend on planes is not productive; it may be better to set up a new telehealth and remote surgery system. Ultimately, if this idea is implemented then evidence from NHPA will show whether this model is good for patient outcomes.

Investing in a clinical academic workforce: challenges and opportunities

Panel discussion

Facilitator

Professor Nicholas Talley	Pro Vice-Chancellor, Faculty of Health, University of Newcastle

Panellists

Professor Warwick Anderson	Chief Executive Officer, National Health and Medical Research Council
Professor James Angus	Dean, Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne
Associate Professor Victoria Brazil	Senior Staff Specialist, Royal Brisbane and Women's Hospital
Dr Georga Cooke	Senior Teaching Fellow, Centre for Research in Evidence-Based Practice, Bond University
Professor Richard Doherty	Dean, Royal Australasian College of Physicians
Professor Christine Kilpatrick	Chief Executive Officer, The Royal Children's Hospital Melbourne
Ms Catherine Pendrey	Vice-President (external), Australian Medical Students' Association

We are arguably in crisis mode concerning clinical academics — there has been a shift towards casual and part-time work, which affects how much can be done, and the growth in the workforce is not keeping pace with growth in patient population.

Why and how do you become a clinical academic?

Several panellists described how they 'fell into' clinical academia and were attracted by the intellectual stimulation and a desire to help people. However, no-one had ever asked them if they wanted to be a clinical academic. Some were influenced by their teachers — mentoring was identified as an important influence in becoming a clinical academic.

Students are aware that there are careers that combine research and clinical practice, but the pathways are not as well understood as the pathways for other careers and specialties. However, 78 per cent of Medical Schools Outcomes Database participants indicated an interest in medical teaching at the end of their first postgraduate year.

The career pathway has multiple entry points and depends on the person and the circumstances. People generally enter at the postgraduate stage, but it can be useful to identify with the field at an early stage and plan your career accordingly. People should be mentally prepared to commit to the pathway, and should also recognise that the landscape is complex and that there are many niches and opportunities.

What challenges do clinical academics face?

Clinical academia can be complex. Academics serve two masters (the university and the health service), which means two sets of administrative duties, including performance review — a strong sense of professional identity is therefore essential.

The amount of time spent in each role is variable, and the specialty can determine how much time a person needs to spend on the wards. Many clinicians are expected to spend 20–30 per cent of their time in research or education. The roles need to be balanced to keep a clinical perspective, and maintain clinical competence and the confidence of colleagues. The proportion of clinical work required to maintain competence can depend on the length of clinical practice and also on the speciality.

It is important to note that in some hospitals or jurisdictions the expectation for research and education is only on paper — if doctors are supposed to spend 20 per cent of their time in research and education but are already spending 40 hours in clinical service, the requirement becomes untenable.

How we can improve the clinical academic pathway?

Discussion focused on the desire to uncouple research and teaching to allow more flexibility in the pathway. Many people would like to teach without having to do research as well, and vice versa. All professionals aren't natural teachers and good teachers shouldn't need to do research in order to teach. Opportunities should be provided for people to move in and out of all areas — clinical service, research and teaching — and focus on different aspects at different times in their career. It is also important to recognise different interests and skill sets, and help people gain the skills they want.

Research success can be measured by grants and publications, but how can we recognise and measure success in teaching? The structure of measurement and accountability could be altered so that teaching and research are not just something on the side, but are explicitly supported and measured. This should not be left to the universities or other jurisdictions, but should be developed under an Australia-wide framework.

Adequate funding should be provided for clinical academic pathways and positions. Research salaries are significantly lower than income from private practice; this should be addressed.

How can we foster clinical academic careers?

Universities and deans should set the environment by establishing, leading and properly funding medical education units. University departments could be embedded in hospitals to provide greater access to mentors and other people interested in clinical research and training. Strong partnerships between universities and hospitals are essential, and clinical academics should be valued and adequately supported.

In addition, research on teaching would be valuable to inform the future of medical education.

All partners — colleges, universities, hospitals — should support the development of a national framework to support clinical academic pathways and raise the profile of clinical research and teaching. This may include specific fellowships to support Indigenous clinical academics.

Recommendations

Investment

6. That Medical Deans and partner organisations work with government and its agencies to develop better funding models and an accountability framework that places an appropriate value on teaching, and encourages an appropriate investment of money, time and resources.
7. That Medical Deans, with partner organisations in the training continuum, work to define career pathways for clinical academics and to expand career approaches — for example, by separating teaching and research requirements.
8. That medical schools and universities work together to determine recognition and remuneration systems for teaching.

MedEd12, Coogee, 21–22 September 2012

Inclusion

Introduction

Professor Richard Hays
Dean, Faculty of Health Sciences and Medicine, Bond University

Patient centredness and learner centredness are giving way to real partnerships with patients and learners. Inclusion has many parameters, and there are many questions we need to ask to better engage and involve patients and students in selection, teaching evaluation, assessment and advocacy.

Inclusion

Professor Jim McKillop
Chair, General Medical Council Undergraduate Board, United Kingdom

Widening participation

Widening participation in undergraduate and postgraduate medical education is important for social justice, to take advantage of the pool of talent and to enrich the entire system. However, there are many potential barriers to inclusion: societal views, the aspirations of students and the opportunities available to them, indirect discrimination through medical school selection methods, and the potentially daunting financial burden.

Initiatives for inclusion

Outreach initiatives through high schools can raise awareness about the pathways through medical education to all students. Contextual admissions criteria consider not only the students' raw scores, but also the type of school they came from and the average marks from that school, although this approach is open to criticism and controversy. Some schools use admission aptitude tests to bring in students deemed likely to be 'good doctors'; however, the jury is still out on whether these tests widen participation. Foundation programs or access programs can allow students to move from school to medical education after undergoing additional training, and graduate entry programs also help to widen participation.

Indigenous populations

A recent survey of best practice in New Zealand found that inclusion initiatives for Indigenous populations should:

- be framed within the populations' world view
- tangibly demonstrate the institution's commitment to equity
- incorporate interventions to address barriers to inclusion
- be based on a comprehensive pipeline model, where students can progress when they have achieved certain objectives
- involve families and communities
- monitor and evaluate data from the program.

Inclusion in the United Kingdom

Social mobility (the concept that, for any given level of skill and ambition, and regardless of an individual's background, everyone should have an equal chance of getting the job they want or reaching a higher income bracket) is a major issue in the UK. A social mobility toolkit, published in 2012,[2] helps professions to understand the relevance of social mobility and how to monitor and improve it. For example, in the UK, ethnic minority groups are overrepresented in medical schools, but socioeconomically disadvantaged groups are underrepresented. One study found that foundation courses can change the demographic profile of medical education by increasing the proportion of students from underrepresented groups, but that graduate entry programs have the same demographics as undergraduate programs. The General Medical Council is conducting a literature review to identify best practice in widening participation; this is expected to be published in November 2012.

Impairment and disability

Students with impairment or disability may be strongly motivated as a result of their personal experiences, and some patients may relate better to them. Problems that students with disability may face include a lack of awareness of opportunities, an inability to meet the required outcomes of an undergraduate course or later training, and overt or latent discrimination.

In the UK, applications from students with disability are assessed and offers are made in exactly the same way as other applications. After the student has accepted the position, their ability to complete the required outcomes (of both the degree and the subsequent basic training) with reasonable adjustments is assessed using guidance from the Higher Education Occupational Physicians and Practitioners,[3] which includes assessment of motor function, vision, hearing, speech, higher functions such as literacy, numeracy and memory, and skin function.

A health and disability working group has been established in the UK to examine best practice for widening participation for students with impairment or disability. Key areas of work include:

- balancing the rights and expectations of students with the need to maintain standards and protect patient safety
- investigating how reasonable adjustments work in practice and equity across the UK
- exploring the experiences of students and trainees
- considering mental health issues among medical students and how they can be supported.

The working group is expected to report its findings in November 2012.

Discussion

- Inclusion should not be code for assimilation, but about recognising diversity. A doctor from a particular community or background may also relate better to their community but there should not be an expectation that they will remain there.

2 www.equalityhumanrights.com/uploaded_files/socialmobilitytoolkit.pdf

3 www.heops.org.uk/HEOPS_Medical_Students_fitness_standards_2011_v7.pdf

- Some students with disability may be able to study medicine but not be able to practise. However, places and funding in medical education are limited and often tied to workforce projections. Therefore, only those students who plan to practise should be selected, and those who want to research or teach should be directed towards other pathways.
- Mental health issues include a spectrum of impairments; students should not be excluded from programs if the condition is manageable. Similarly, if a doctor acquires a mental illness, they should not stop practising if the illness can be controlled and there is no threat to patient safety. Screening students for psychological stability before admission does not take account of the spectrum of issues and would be a form of discrimination.
- Regulatory authorities and medical schools often have different views on inclusion. The broad membership of the health and disability working group will help to capture and synthesise these different views.
- In Australia, our population demographics are changing rapidly, and the number of doctors from a particular background should correlate with the age-specific population profile.
- Inclusion is a positive agenda but it can raise tensions. Institutions should provide support for students and staff to accept and learn from all groups.
- Institutional racism is a continuing issue that needs to be tackled.

Widening access into medical education

Workshop

Facilitator: Dr Jagdishwar Singh
General Manager, Confederation of Postgraduate Medical Education Councils

Participants in this workshop discussed barriers to inclusion in Australian medical education, including often unacknowledged barriers such as sexual orientation, and how to overcome them. Discussion focused on the following five topics.

Selection process

Medical schools could increase their pool of students from low socioeconomic areas. Students' scores for admission to undergraduate medicine are weighted according to their school and their area's socioeconomic status, but entry marks should not be the only criteria. We should look for well-rounded individuals, but this is difficult to assess. If interviews are used in addition to marks, we need to ensure the interview questions are valid and reliable, and that the interview assessors have been appropriately trained to ensure equity. Community engagement in the selection process could also help to widen access.

Financial burden

The cost of medical school can be a significant barrier, particularly for students from low socioeconomic backgrounds. Some parts of the course may not be covered by Australian Government financial assistance for students. Universities and faculties should formally recognise that some students can struggle financially. Potential solutions could include allowing government assistance for the entire course, lengthening the course timeframe to allow students to work part time, or allowing paid work experience. Both employment and training arrangements need to be more flexible.

Engaging young people

High schools and primary schools — particularly those in low socioeconomic areas — should be visited by interprofessional teams to increase children's awareness of the various career pathways in health care. Primary school students are open-minded and can be easily engaged.

Postgraduate training

Many postgraduate positions are inflexible and do not have a culture of inclusion. Lessons learned about widening access at the undergraduate level should also be applied at the postgraduate level.

Experience in rural and lower socioeconomic areas

Rural medical schools allow hands-on experience and integration into rural communities. These positions are helping to remove the reluctance of many students to study or practise in a rural area, and students can find the experience rewarding. Some university courses have a project or assessment that forces students to take experiences in rural or low socioeconomic areas. Rural medical schools are more engaged with their surrounding community and students appreciate this community support.

Participants discussed the use of bonded medical places to ensure that doctors practise where they are needed most. Some people asked if more bonded places should be created for lower socioeconomic areas as well as rural areas. Others thought this was a short-term solution because the doctors leave as soon as the bond period is over; and some felt that it has negative connotations because the students are forced to practise in these areas, which creates inherent resistance. A better, longer term solution is needed to attract doctors to rural and lower socioeconomic areas for substantial periods of time.

New initiatives should be established to encourage people from rural or lower socioeconomic backgrounds to undergo their specialty training in major cities.

Indigenous patients and students

Workshop

Facilitators: Dr Tammy Kimpton
Vice-President, Australian Indigenous Doctors' Association
Dr Shaun Ewen
Associate Dean, Indigenous Development, University of Melbourne, and Director, Medical Deans' LIME Network

Recruitment, retention and graduation of Aboriginal and Torres Strait Islander students

Recruitment of Indigenous students can be a challenge for medical schools due to the historical and institutional factors which impact on Indigenous students' prior educational attainment. Indigenous students are also more likely to have a different age profile compared with other Australians. Medical schools should partner with Aboriginal communities and networks, and draw in Indigenous knowledge.

The focus should change from admissions and entry quotas to completion quotas, and this should be linked to funding. Medical schools should be responsible for achieving a target for graduations of Indigenous students, possibly at a population parity rate of 2.2 per cent of medical graduates.

Indigenous participation in the curriculum as teachers, students and patients

There are opportunities for a national approach to Indigenous health streams or electives in medical education. However, the preferred approach is to integrate Indigenous health throughout the entire curriculum to ensure meaningful integration. Programs should be funded to support clinical placements in Indigenous areas, both short-term placements to raise students' awareness, and long-term (12-month) placements to develop deeper understanding of issues and become part of the community. Medical students are asking for these types of experiences.

Resources such as video lectures from people in Indigenous communities should be shared widely, potentially through the Australian Indigenous Doctors' Association (AIDA).

Research has been conducted on some of these issues in other countries — this should be taken into account and adapted for the Australian context.

Recommendations

- A target should be set for completion of Indigenous medical students, potentially at 2.2 per cent of completing medical graduates, with a funding mechanism to support completion, not just recruitment.
- Medical schools should know, and have a connection with, the Indigenous communities they operate in.
- AIDA and Medical Deans Australia and New Zealand Inc should work with the Committee of Presidents of Medical Colleges to determine how to assess recruitment and completion against standards.
- Indigenous health should be integrated throughout medical education curricula.
- Funding should be sought for short-term and long-term clinical experience in Indigenous contexts.
- Resources such as videos and simulations in an Indigenous context should be researched and developed.

Disability versus impairment

Workshop

Facilitator: Professor Ben Canny
Deputy Dean, Bachelor of Medicine and Bachelor of Surgery program, Monash University

Participants in this workshop discussed the need to understand the legal frameworks for disability and impairment, including the concept of inherent requirements, and the potential to develop a national list of inherent requirements for the Australian medical profession.

An impairment is a physical or mental condition that affects a person's ability to practise; a disability may not preclude someone from practising but may require adjustments to be made for that person. It is illegal to discriminate on the grounds of disability unless that disability means that the person cannot satisfy the inherent requirements of the job; however, 'inherent requirements' are not defined in Australian law. This can result in

inconsistencies in how students and doctors with disability or impairment are treated around Australia.

A nationally agreed list of inherent requirements for medical students would help to clarify these issues and reduce the difficulties in ensuring that students are treated consistently and fairly. The process of applying the list should be very clear to students; however, assessments should still be made on a case-by-case basis. More information about, and institutions' experiences with, impairment and disability should be shared nationally, including case studies, processes and procedures. It is important to ensure that disability and impairment remain separate from issues of professional conduct and fitness to practice.

A list or framework of inherent requirements should be applied as early as possible in a student's career to avoid later disappointment if the student is found not to meet the requirements, and should also be monitored throughout their training. We should foster a culture where students are willing to discuss these issues and the stigma of disability and impairment is removed.

Recommendations

- We should be strongly committed to the concept of broadening inclusion to the medical profession of people with disabilities.
- The Medical Deans should establish a mechanism for medical schools to share definitions of inherent requirements and case studies of dealing with students with disability and impairment.
- The concepts of disability and impairment often intersect with areas of professional practice, and ongoing communication with other parties interested in professionalism should be maintained.
- A working group involving all stakeholders should be formed to discuss and develop a framework around inherent requirements.

Session summation

Professor Michael Kidd AM
Executive Dean, Faculty of Health Sciences, Flinders University

Our government describes a socially inclusive society as 'one in which all people feel valued and have the opportunity to participate fully in our society'. Inclusion is about enabling people to reach their potential — this is a good framework to consider the recommendations arising from the workshops.

We are left with the question, are we training the right people in the right way to be our medical workforce of the future? Health workers are central to tackling health inequities; so are the institutions where our students are instructed to heal, treat and serve our communities. We also need to lead by example. Are we demonstrating inclusion in all that we do? In the workshop on Indigenous inclusion, we were invited to reflect on whether we had achieved appropriate inclusion in our choice of speakers and panellists at this conference.

If there is one clear outcome from today's session, is it that we can and must do better.

Recommendations

Inclusion

9. That parity targets are set for Aboriginal and Torres Strait Islander medical students as follows: enrolment — 2.2 per cent; completion — to match rates for non-Indigenous medical students.
10. That a funding mechanism for Aboriginal and Torres Strait Islander medical students is established with a retention and completion focus.
11. That the Australian Medical Council, working with the Australian Indigenous Doctors' Association, Medical Deans and the Committee of Presidents of Medical Colleges, consolidate the assessment of Aboriginal and Torres Strait Islander outcomes against existing standards.
12. That funding should be sought for short-term and long-term clinical experience in Indigenous contexts.
13. That medical schools research, develop and share resources, such as videos and simulations, in an Indigenous context, and establish partnerships with Indigenous communities and groups to inform development and encourage recruitment.
14. That medical schools continue to develop linkages with primary and high schools in lower SES areas to encourage these students to enter medicine. It is recognised that these initiatives will need to take into account local needs and circumstances.
15. That Medical Deans establish a working group involving all stakeholders to discuss and develop a definition and framework around inherent requirements for medical practice, with the view to establishing national Good Practice Guidelines.
16. That medical schools explore opportunities for interprofessional education throughout the student journey, including joint induction and team-based assessment of patient outcomes.

Allan Carmichael Memorial Lecture

Professor Allan Carmichael, OAM, joined Medical Deans Australia and New Zealand Inc (then known as the Committee of Deans of Australian Medical Schools) on his appointment as Dean of the Faculty of Health Science at the University of Tasmania in 1997. He was a member of the leadership team from 2003, Vice-President from 2005 to 2007 and elected the inaugural President of the newly created incorporated body, Medical Deans Australia and New Zealand Inc, from 2007 to 2009.

As the inaugural President, Allan set a course that both established Medical Deans as a key political player in medical education and training, and set a remarkable standard for those who succeeded him.

Allan's outstanding personal characteristics of integrity and insight, combined with deep knowledge and experience, gave him the passion to work in partnership with governments and broaden the influence Medical Deans had in the realm of public policy.

As President, Allan sought to position the Medical Deans at the forefront of the discussions and negotiations, and achieved great success. The Medical Deans had significant access to the federal Minister for Health and the Australian Government Department of Health and Ageing, as well as to the Health Workforce Principal Committee, the National Health Workforce Taskforce, the Medical Training Review Panel (MTRP), Universities Australia and members of the soon-to-be-created Health Workforce Australia. In his first year as president, Allan led a comprehensive review by Medical Deans (for MTRP) of clinical training needs based on projected medical student numbers. The review's findings provided the basis for the development of a national approach to understanding the impact of increased student numbers on clinical placements and how these could be expanded.

Allan also strengthened relationships between the Medical Deans by consistently conveying the importance of working together to ensure optimum outcomes for medical education and training in the context of the whole continuum.

He forged closer ties with the Medical Deans' partner bodies, the Committee of Presidents of Medical Colleges and the Confederation of Postgraduate Medical Education Councils, and the students through the Australian Medical Students' Association, resulting in an unprecedented joint submission on accreditation to the Council of Australian Governments by the four bodies in 2008.

A highlight of Allan's presidency was the development, and signing, of the 2008–11 Collaboration Agreement between Medical Deans and the Australian Indigenous Doctors' Association (AIDA), which properly acknowledged the ongoing commitment of Medical Deans to work with AIDA to deliver real outcomes to 'close the gap' in health outcomes for Aboriginal and Torres Strait Islanders.

Allan died on 28 January 2012 after a short battle with mesothelioma.

In recognition of Allan's contributions to medical education and training, Medical Deans has established the Allan Carmichael Memorial Lecture, to be held on an annual basis, and with a focus on *partnership*.

The inaugural lecture was delivered by Dr Michael Bonning at MedEd12.

The health of a nation: social responsibility in medical education

Dr Michael Bonning
Director, Cor Mentes Health Consulting
Past chair, Australian Medical Association Council of Doctors-in-Training

Australia is a world leader in medical education, but medical politics is a selfish force. Our government and our profession are driven by economic imperatives and we have become fixated on the bottom line to the detriment of medical education excellence. We increase our numbers of international students for financial reasons, rather than in response to the needs of our country and our region. We need moral leadership to focus on the triple bottom line of social responsibility and what the region and the medical community require, to develop a workforce that is fit for purpose, not just as individuals, but as a system.

Social responsibility

In the past 10 years the number of medical schools has increased, and the number of medical graduates has more than doubled. Training has improved in innovative ways, but this may not be enough. Workforce data such as the *Health Workforce 2025*[4] report show a potential shortfall of up to 15 000 doctors in 2025 under a high self-sufficiency scenario. We rely on international doctors to fill the gaps of our own underresourcing of medical education.

It is shocking that we do not plan to be self-sufficient in medical education. We are a rich, industrialised nation — if we can't have a self-sufficient workforce, how can we expect other, poorer countries to achieve this? We don't rely on citizens of other nations to protect our borders, police our streets, govern our country — why do we rely on others to meet our health care needs? How can we support a system that drains highly trained people from countries that cannot afford it? How can we look to improve the health of Australians if it reduces the health of people elsewhere?

We can start with international students. Many medical students pay high fees to complete their programs in Australia, but many do not continue their careers in this country. We need to make international students part of a long-term plan for self-sufficiency while we increase domestic student numbers.

Australia should also look at what we can do to address critical workforce shortages in other countries. There is a gripping worldwide shortfall of doctors. We can provide doctors to countries in need. We can also train students from countries in need, not just those that can afford our medical training.

There is a strong goodwill argument for this approach, but that is not the only reason to do it.

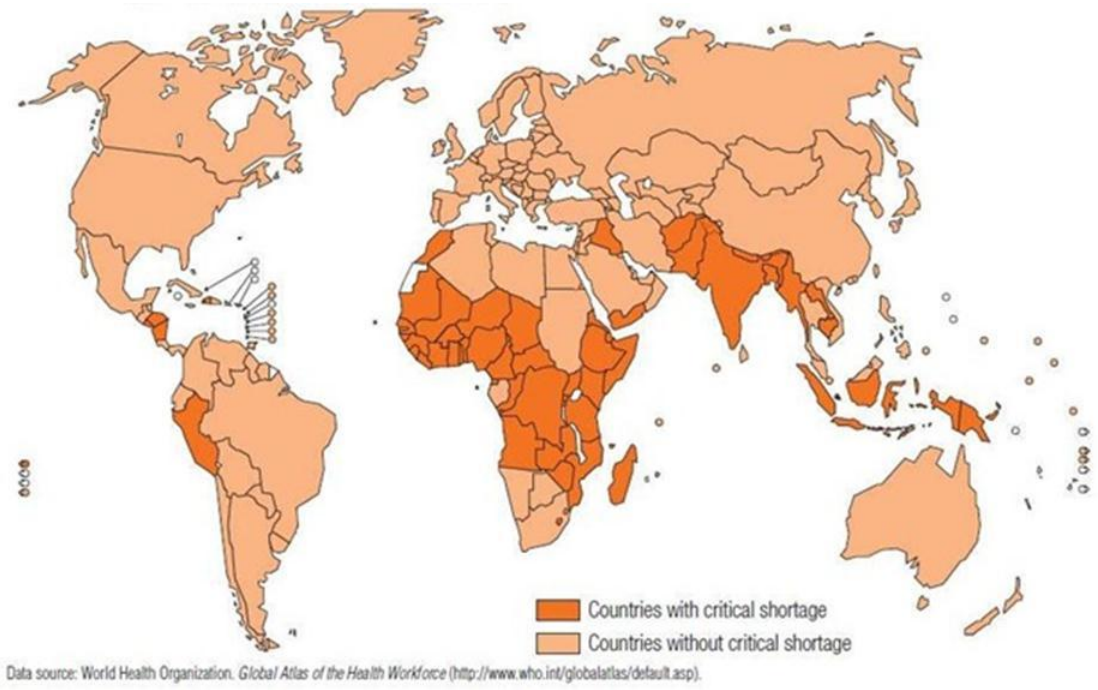
There is a long-term investment payoff in improving health for other countries. It reduces the level of aid that these countries require and that we provide. It also has important consequences for the biosecurity of our region — improving health in neighbouring countries will reduce the risk of emerging health threats in Australia. Encouraging and

4 www.hwa.gov.au/health-workforce-2025

supporting long-term partnerships with countries in our region will have reciprocal benefits.

Leadership

Einstein said, 'Those that have the privilege to know, have the duty to act.' Australians are lucky to be both rich and free, and it is not right to drain the resources of other nations. Businesses that factor in a socially responsible approach are more successful than others — the same is true for countries. If not now, when?



Source: World Health Organization (2008). *Global atlas of the health workforce.* http://apps.who.int/globalatlas

Figure 2 Global critical health workforce shortages

Discussion

- There will always be doctors who want to come to Australia, and international crises can create surges of potential immigrants; however, we should not rely on this, and we should not actively recruit from nations that cannot afford to lose their doctors. Australia should produce enough doctors to meet our own needs — some of these will move overseas, and they can be replaced through immigration.
- There is nothing wrong with accepting international students from richer nations, who help to fund our medical education programs. Some of these students can be part of our medical workforce in the long term, but we should not be seeking them out because we cannot produce enough of our own doctors.
- Australia should not cast off its international graduates at the end of their training. Ensuring that international students can find internships is a good long-term strategy, and will prevent their unemployment in countries where the cross-qualifying exams have long waiting lists.
- While it is to be hoped that international students from countries in need return to help their own communities, it is not something that we can regulate. It is the

responsibility of the national governments to ensure that international students return home to practise after training in Australia. We could also help by providing in-country training instead of bringing students to Australia, or tying aid to developmental outcomes.

- The United Nations' Declaration on the Rights of Indigenous Peoples should be considered when thinking about medical education in our region. Lip service is often paid to Indigenous health, but we have a responsibility to our nation to build a total workforce, and we will deliver on Indigenous needs by delivering all our workforce needs. We can look to the examples of other nations, such as New Zealand.

Closing

Closing remarks: Professor Justin Beilby

Medical education in Australia: masters of our own future

- It is clear to everyone that we need to decide where medical education in Australia is going. We need to decide what we want the future to be and design processes and curriculum to reach it.
- Innovation needs to be embraced, and needs to be based on evidence, monitored and assessed.
- We need to make sure we are giving the right people the right incentives to do the right things for the right return regarding education, and need to measure it so we know it is happening.

Training processes

Where students are trained and by whom

- There is a traineeship crisis; new programs are working but more needs to be done.
- Undergraduate rural and regional training is improving; we now need rural and regional postgraduate training.
- We need innovative approaches for supervision, and to improve and expand our supervisor base.
- We need to harness an increasing role for private settings in medical education, and develop a system to fund this.
- We need to decrease variability in student placements, and look at faculty development to improve teaching quality.
- We need to train medical students and teachers to be teachers; students are keen to be taught how to take on this role.

Technology

- Educational methods are going to be different and the next generation of students expect new things, we need to explore the potential of new technologies and a partnership approach to learning.
- New technology such as tablets and simulations offer new opportunities in medical education; we need to determine how we can best integrate these into our existing systems.
- We need more input from students on how new technology might be used.
- We need to watch the future of technology and plan for change.
- We need to decide the appropriate place of face-to-face learning.

Interprofessional education

- Interprofessional education needs to start early and occur throughout training; it needs to be done well.

- Interprofessional education needs to look at patient outcomes and the patient journey.
- We could explore the use of team-based assessment as well as individual competency assessment to encourage interprofessional learning and teamwork.

Workforce issues

International students and doctors

- We need to plan and manage our workforce to be socially responsible as well as meet Australian health care needs.
- We need to determine if and how we can have self-sustaining medical education to provide our own workforce.

Inclusion

- For disadvantaged socioeconomic groups: we should not rely solely on scores but reliable and equitable assessment; we need support and flexibility for lower socioeconomic groups; we need links to high schools and communities to encourage recruitment.
- For Indigenous communities: we need to set completion targets for Indigenous students and to tie funding to completions (not admissions); we need to fund Indigenous clinical placements and online modules; we should establish partnerships with Indigenous communities and groups to inform development and to encourage recruitment.
- For students with disability and impairment: we need a nationally agreed standard and framework with input from many groups.
- We also need to address other forms of exclusion (e.g. sexual diversity).

Specialties and pathways

- We need more clinical academics, defined career pathways and a variety of career approaches (e.g. teaching and/or research).
- We need more generalists for rural and regional Australia and for future Australian health care needs.
- We need to innovate the content of our curriculum; we could include topics such as leadership, systems thinking, patient journey, etc.
- We need pedagogy beyond information transfer — technology can support this and mentoring is important.

Appendix 1 Conference program

Friday 21 September 2012

09:15–10:30	**Welcome to MedEd12 Conference**	**Oceanic Ballroom**
	Welcome: Professor Justin Beilby and Professor David Wilkinson Welcome to Country: La Perouse Local Aboriginal Land Council Minister's address: The Honourable Tanya Plibersek MP, Minister for Health Keynote address: Professor Jim McKillop Keynote Q & A, Facilitator: Professor David Wilkinson	
10:30–11:00	*Morning tea*	
11:00–12:30	**Innovation for performance Part A**	**Oceanic Ballroom**
	Introduction: Mr James Churchill Guest speaker: Dr Peter Ellyard Short presentations: Mr Ben Veness Dr Will Milford Mr Jon Evans Dr Leonie Watterson Response: Dr Peter Ellyard	
12:30–13:30	*Lunch*	
13:30–14:30	**Innovation for performance Part B**	**Oceanic Ballroom**
	Panel discussion Facilitators: Mr James Churchill and Professor Liz Farmer Panellists: Dr Peter Ellyard Mr Jon Evans Dr Will Milford Mr Ben Veness Dr Leonie Watterson Session summation: Mr James Churchill and Professor Liz Farmer	
14:30–14:40	*Short break*	
14:40–16:00	**Strategic investment in medical education: when, where, how and why?**	**Oceanic Ballroom**
	Introduction: Dr Andrew Singer Guest speaker: Professor Andrew Wilson Panel discussion: Investing in medical education: a tale of health reform, acronyms and a BBQ stopper Facilitator: Associate Professor Victoria Brazil Panellists: Professor Nicholas Glasgow Mr Shane Solomon Mr Ben Wallace Dr Diane Watson Professor Andrew Wilson	
16:00–16:30	*Afternoon tea*	

Friday 21 September 2012 *continued*

16:30–17:30	**Investing in a clinical academic workforce: challenges and opportunities**	**Oceanic Ballroom**
	Panel discussion Facilitator: Professor Nicholas Talley Panellists: Professor Warwick Anderson Professor James Angus Associate Professor Victoria Brazil Dr Georga Cooke Professor Richard Doherty Professor Christine Kilpatrick Ms Catherine Pendrey Session summation: Dr Andrew Singer	
19:00–22:30	*Conference dinner: Wylies Baths*	

Saturday 22 September 2012

08:45–09:15	**Reflections from Day 1**		**Oceanic Ballroom**
	Professor Brendan Crotty and Professor Peter Smith		
09:15–09:45	**Allan Carmichael Memorial Lecture**		**Oceanic Ballroom**
	Dr Michael Bonning		
09:45–10:30	**Inclusive medical education: Part A**		**Oceanic Ballroom**
	Introduction: Professor Richard Hays Guest speaker: Professor Jim McKillop Introduction to concurrent sessions: Professor Richard Hays		
10:30–11:00	*Morning tea*		
11:00–12:15	**Inclusion workshops**		
	Widening access into medical education:	Dr Jag Singh	**Centennial Room**
	Indigenous patient and student:	Dr Tammy Kimpton	**Oceanic Ballroom**
	Disability versus impairment:	Professor Ben Canny	**Coogee Room**
12:15–13:15	**Inclusive medical education: Part B**		**Oceanic Ballroom**
	Workshops report back Facilitator: Professor Richard Hays Session summation: Professor Michael Kidd AM		
13:15–14:00	*Lunch*		
14:00–15:30	**MedEd12 conference outcomes and action**		**Oceanic Ballroom**
	Key outcomes and recommendations Development of an action plan Closing remarks: Professor Justin Beilby		
	Conference close		

Appendix 2 Twitter wall

Innovation for performance panel discussion

@rlzgoh 21 September 2012 03:52	Couldn't agree more wholeheartedly w Ben Veness on the vast untapped advantages of approaches like Khan Academy & TEDtalks. Gr8 talk! #meded12c
@kaddynoonan 21 September 2012 03:55	#meded12q Ben Veness: what scope/benefit do you believe there is for such online teaching methods in clinical years?
@amacdt 21 September 2012 04:08	Looking forward to some tricky questions after lunch – no holograms up here! #MedEd12c
@akalyam89 21 September 2012 04:11	Where do you draw the line from new and innovative technology in teaching and necessary practical and clinical exposure? @MedEd12 #MedEd12q
@shantjog 21 September 2012 04:14	What is the approach to establish training in private practice given the user-pays-for-consultant's-service basis of this realm? #meded12q
@rlzgoh 21 September 2012 04:36	DrEllyard: Khan Academy as a holistic tool for not only building medical knowledge but public health literacy -- that's innovation! #meded12c
@ChrisinSydney 21 September 2012 05:03	Hoping for a great interactive session #meded12c
@craigwriddell 21 September 2012 05:42	Things I'd lose in medical education? "Teaching" ward rounds would go first #MedEd12c
@rlzgoh 21 September 2012 05:48	#meded12q How can we teach our students, when nobody is teaching our teachers? We need teaching for teachers!
@Dr2uuubeee 21 September 2012 05:50	While ipads may be convenient, could it just become another barrier in the doctor patient interaction? #meded12q
@NickyJudith 21 September 2012 05:50	Heard recently that Turkish govt is planning to issue a tablet to each student entering primary school! Not so radical! #meded12c
@kaddynoonan 21 September 2012 05:51	#meded12c lose 3 things: redundancies, humiliation, bottle labs... Keep 3 things: small group teaching, practical skills, patient contact
@greatyear46 21 September 2012 05:52	#meded12c Private patients are chuffed to see their private doc is an (adjunct) academic
@Dr2uuubeee 21 September 2012 05:54	#meded12q Dr ellaryd should we have leaders and managers or just managers who know how to lead?
@amacdt 21 September 2012 05:56	We need the private patient to be chuffed to see the registrar #MedEd12c
@SamElly88 21 September 2012 05:56	#meded12q the vast majority of teaching comes from senior consultants. What is the role of peer and junior staff as teachers?
@shantjog 21 September 2012 05:56	Real time tutes should remain. If interactive, students are FORCED to think on their feet, like the real world & unlike YouTube. #meded12c
@pria93405672 21 September 2012 05:57	#meded12c Ben/Dr Watterson Have you heard of IBM's Watson? and if so your thoughts on it?
@rlzgoh 21 September 2012 05:58	#meded12c Introduce a streamlined Indigenous scheme like the Bonded Medical Places scheme, but separate & w abundant Aboriginal support.
@chenxumike 21 September 2012 06:00	How do you reconcile planetism with addressing the health needs of local and indigenous communities? #MedEd12q
@kaddynoonan 21 September 2012 06:01	#meded12c Aboriginal health- community based = 'wellness'; individual approach = 'illness'.
@kaddynoonan 21 September 2012 06:04	#meded12c inter professional learning is essential...but I still want to be taught by a doctor. Not a nurse or physio.
@jclloy 21 September 2012 06:05	#MedEd12c : Couldn't agree more with Ben on integrating people from interns to janitors. The hidden curriculum still teaches "elitism"
@VidushanV 21 September 2012 06:08	completely agree with ben, Nurses run more of a hospital than doctors do at the end of the day, why are doctors still the centre? #meded12c
@rlzgoh 21 September 2012 06:09	Another student perspective: humility, not humiliation. What mindsets/values r we giving graduates? Surely this should direct change. #meded12q

@shantjog 21 September 2012 06:10	I think physios have a real role to play in teaching medical students musculoskeletal anatomy! #meded12c
@robinson_is 21 September 2012 06:10	I actually like being taught by physios and nurses, contrary to popular belief, drs don't know everything... #meded12c
@Dr2uuubeee 21 September 2012 06:10	#meded12c good discussion.
@melissalau13 21 September 2012 06:11	A culture of peer teaching and learning needs to be encouraged and supported at the medical school level. #meded12c
@greatyear46 21 September 2012 06:13	#meded12q Is an MBBS an educational degree?
@jthistlethwaite 21 September 2012 06:17	Changing a curriculum is like moving a graveyard, you never know how many friends the dead have until you try to move them WW #meded12c
@SamElly88 21 September 2012 06:23	#meded12c introduce inter-prof integrated learning from day 1 so it doesn't have to be 'sexy', it's just 'normal'
@VidushanV 21 September 2012 06:23	Already all this talk about interdisciplinary learning blurring professional boundaries.. how many universities even have IDL? #meded12c
@rlzgoh 21 September 2012 06:26	One word: Mentoring! #meded12c
@VidushanV 21 September 2012 06:26	learning anatomy is also not "sexy", but we still incorporate that #meded12c
@rlzgoh 21 September 2012 06:29	I disagree. A desire to serve, not assessment, drives learning. 2 student-run clinics r proof-- go UniMelb! #meded12c

Investing in a clinical academic workforce panel discussion

@greatyear46 21 September 2012 06:31	#meded12c Great panel and session Thanks
@amacdt 21 September 2012 07:47	Loving the crystal ball gazing occurring in the investment session at #MedEd12c
@nigelmoore77 21 September 2012 08:39	#meded12c I think u have to be part time academic only so as to maintain clinical perspective
@jamesachurchill 21 September 2012 08:39	Awareness may be first step, but how do we make clinical academia appealing to junior docs as they juggle demands of training? #MedEd12q
@craigwriddell 21 September 2012 08:39	Well said re opaque pathways. students see College websites for specialties, no such resource for budding clinical academics #MedEd12c
@MSODProject 21 September 2012 08:41	78% of MSOD study participants indicated an interest in medical teaching at the end of their PGY1 #meded12c
@jamesachurchill 21 September 2012 08:41	Do we need a College of Clinical Academia? #MedEd12q
@jthistlethwaite 21 September 2012 08:46	PhD in education is best undertaken as a project relating to your day job rather than seen as separate #meded12c
@katy_skier 21 September 2012 08:49	#meded12q Should research time count towards vocational training time?
@cvonpeltz 21 September 2012 08:52	How can good teaching practices be fostered amongst students whilst at university? #meded12q
@craigwriddell 21 September 2012 08:53	Are health providers playing their part in facilitating clinical academics by providing a diverse range of part time work options? #MedEd12q
@rlzgoh 21 September 2012 08:54	We agree students need guidance; a structured pathway. What about mentoring to engage & role model the Clinical Academic career? #meded12q
@amacdt 21 September 2012 08:54	Could specialty colleges establish parallel pathways in their training programs and how would this relate to higher degrees? #MedEd12q
@nigelmoore77 21 September 2012 08:54	#meded12c mandated research as part of specialist training counterproductive
@MSODProject 21 September 2012 08:57	Approximately 58% of commencing students indicate an interest in medical teaching and research. Approx 30% are undecided. #meded12c

@jamesachurchill 21 September 2012 08:57	The idea is good, but how do we protect the 20% of teaching and research time in Victorian hospitals? #MedEd12q
@amacdt 21 September 2012 08:58	How important is income parity in attracting potential clinical academics and how should it be addressed? #MedEd12q
@rd_mitchell 21 September 2012 09:03	Couldn't agree more that optional academic terms should be embedded in vocational training #MedEd12c
@jamesachurchill 21 September 2012 09:04	RT @rd_mitchell: Couldn't agree more that optional academic terms should be embedded in vocational training #MedEd12c
@amacdt 21 September 2012 09:04	Is the research component of vocational training programs interchangeable with teaching or does vocational training need both? #MedEd12q
@SocraticEM 21 September 2012 09:06	We notice all the junior 'clinical academics' are girls, and all the senior ones are boys #meded12c
@jthistlethwaite 21 September 2012 09:08	There are a few of us women around! #meded12c
@rlzgoh 21 September 2012 09:11	Thank you! Genuine mentors are invaluable to clinical academia. The old adage: See one, do one, teach one. #MedEd12c
@craigwriddell 21 September 2012 09:16	Silly question, but why must teaching and research be so tightly coupled? #MedEd12q
@shantjog 21 September 2012 09:22	I hope the involvement of med students in formal/informal tutoring & mentoring programs at med schools bodes well for the future! #meded12c
@rd_mitchell 21 September 2012 09:29	Great ideas about a defined clinical academic pathway, but funding it is the challenge #MedEd12c
@amitgpra 21 September 2012 09:31	RT @amacdt How important is income parity in attracting potential clinical academics and how should it be addressed? #MedEd12q @gpraltd
@amacdt 21 September 2012 09:31	I didn't know you had to 'drop out' to do a B Med Sci! #MedEd12c
@cvonpeltz 21 September 2012 09:34	I'd love to contribute to Australian medical education, but am an international student so will probably be shipped overseas soon #meded12c

Appendix 3 Background reading material

The following background papers were made available to allow delegates to prepare for the conference.

Innovation theme reading

- Christensen CM and Eyring HJ (2011). *The innovative university: changing the dna of higher education from the inside out*, Jossey-Bass Higher and Adult Education Series, San Francisco. www.amazon.com/The-Innovative-University-Education-Jossey-Bass/dp/1118063481
- Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T, Fineberg H, Garcia P, Yang Ke, Kelley P, Kistnasamy B, Meleis A, Naylor D, Pablos-Mendez A, Reddy S, Scrimshaw S, Sepulveda J, Serwadda D and Zurayk H (2010). Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *The Lancet* 376:1923–1958. http://emobilise.com.au/uploads/Innovation%20Theme%20Readings%20Library/Julio%20Frenk%20et%20al%20Health%20professions%20for%20a%20new%20century.pdf
- Worley P (2012). Why Australia's medical system is discriminatory. *The Australian*, May 26. www.meded12.com.au/cms/wp-content/uploads/2012/09/P.-Worley-Why-Australias-Medical-System-is-Discriminatory.pdf

Investment theme reading

- Independent Hospital Pricing Authority (2012). *National efficient price determination 2012–13 and pricing framework: summary*, v2.0, 30 May 2012, IHPA, Sydney. http://emobilise.com.au/uploads/Investment%20Theme%20Readings%20Library/NEP%20Determination%20Pricing%20Framework%20Summary.pdf
- Medical Deans Australia and New Zealand Inc (2012). *Activity based funding for public hospitals: towards a pricing framework*, submission to the Independent Hospital Pricing Authority from MDANZ, Sydney. www.meded12.com.au/cms/wp-content/uploads/2012/09/Medical-Deans-submission-to-IHPA-.pdf
- National Health Performance Authority (2012). *National health reform: performance and accountability framework*, NHPA, Canberra. http://emobilise.com.au/uploads/Investment%20Theme%20Readings%20Library/National%20Health%20Reform%20Performance%20and%20Accountability%20Framework.pdf
- Willcox S (2011). *Creating and sustaining the next generation of the clinical academic workforce: issues and strategies for Australia and New Zealand*, discussion paper prepared for Medical Deans Australia and New Zealand Inc by Health Policy Solutions Pty Ltd, Victoria. http://emobilise.com.au/uploads/Investment%20Theme%20Readings%20Library/Clinical%20Academic%20Workforce%20Creating%20and%20Sustaining%20the%20Next%20Generation%20August%202011.pdf

Inclusion theme reading

- Astles-Phillips R (2012). *Building Indigenous medical academic leaders*, report prepared on behalf of Australian Indigenous Doctors' Association and Medical Deans Australia and New Zealand Inc. http://emobilise.com.au/uploads/Inclusion%20Theme%20Readings%20Library/Indigenous%20Patient%20and%20Student/Building%20Indigenous%20Medical%20Academic%20Leaders%20-%20February%202012.pdf
- Council of Australian Governments (2011). *Indigenous reform 2010–11*. http://www.meded12.com.au/cms/wp-content/uploads/2012/09/COAG-Indigenous-Reform-2010-11-.pdf
- Higher Education Occupational Physicians/Practitioners (2011). *Medical students: standards of medical fitness to train*, HEOPS, United Kingdom. http://emobilise.com.au/uploads/Inclusion%20Theme%20Readings%20Library/Disability%20Vs%20Impairment/HEOPS%20Medical%20Students%20fitness%20standards%202011%20v7.pdf
- Medical Deans Australia and New Zealand Inc (2011). *Common procedural skills for the medical graduate and associated level of achievement*, Medical Deans' Competencies Project, MDANZ, Sydney. www.meded12.com.au/cms/wp-content/uploads/2012/09/Medical-Deans-Competencies-Project-Common-procedural-requirements-for-the-medical-graduate-December-2011.pdf
- Medical Deans Australia and New Zealand Inc and the Australian Indigenous Doctors' Association (2012). *National medical education review: a review of the implementation of the* Indigenous health curriculum framework and the Healthy futures report *within Australian medical schools*, MDANZ, Sydney, and AIDA, Canberra. http://emobilise.com.au/uploads/Inclusion%20Theme%20Readings%20Library/Indigenous%20Patient%20and%20Student/Medical%20Deans%20-%20AIDA%20National%20Medical%20Education%20Review.pdf
- University of Western Sydney (2012). *Inherent requirement for medicine courses*, University of Western Sydney. http://emobilise.com.au/uploads/Inclusion%20Theme%20Readings%20Library/Disability%20Vs%20Impairment/University%20of%20Western%20Sydney%20Inherent%20requirements%20for%20Medicine%20courses.pdf