

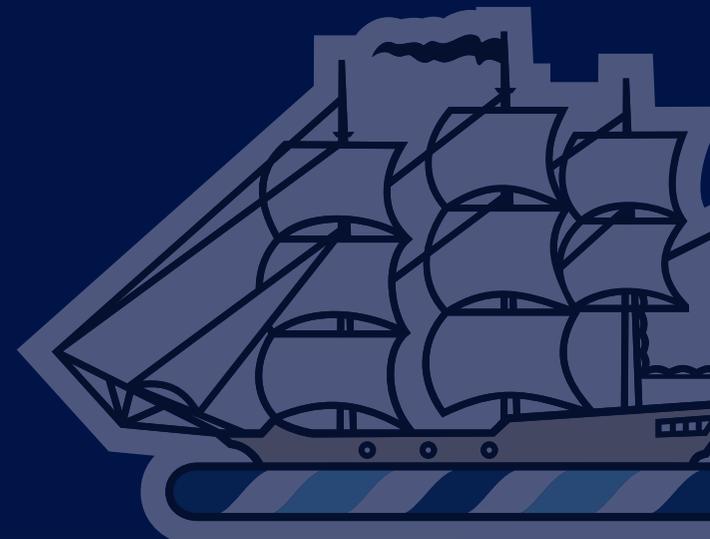


Flinders

UNIVERSITY

Are you training somebody to succeed you?

The Waterman Foundation



Building Capacity in Health Professions Education







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Back Cover: Sir Ewen McIntyre Waterman (1901 – 1982)

Waterman Fellows

1995 Professor Stewart Mennin
1996 Professor LuAnn Wilkerson
1998 Dr Daniel Klass
1999 Professor John Bligh
2000 Professor Gordon Page
2001 Professor Lambert Schuwirth
2002 Professor Dame Lesley Southgate
2007 Professor John Norcini
2008 Professor Malcolm Cox
2009 Dr Fortunato Cristobal
2010 Dr Arjun Karki
2011 Dr David Hirsh
2012 Professor Steven Durning
2013 Professor Geoff Norman
2014 Professor Cees van der Vleuten
2015 Professor Albert Scherpbier
2016 Professor Olle ten Cate

INTRODUCTION

SINCE its inception in 1993, the Waterman Foundation has enabled Flinders University to access international expertise which complements the educational developments in the MD course.

Universities must be sites of critical and lively debate. After all, their role is to create knowledge and deeper understanding. But more importantly, they help students to gain that knowledge and understanding. These students will become critical academics; academics who do not just take matters at face value but critically question and interrogate diverse perspectives. Imparting these critical thinking skills requires the exchange of ideas and the establishment of external connections. Each opportunity for critical dialogue with international experts represents a golden opportunity in the academic world.

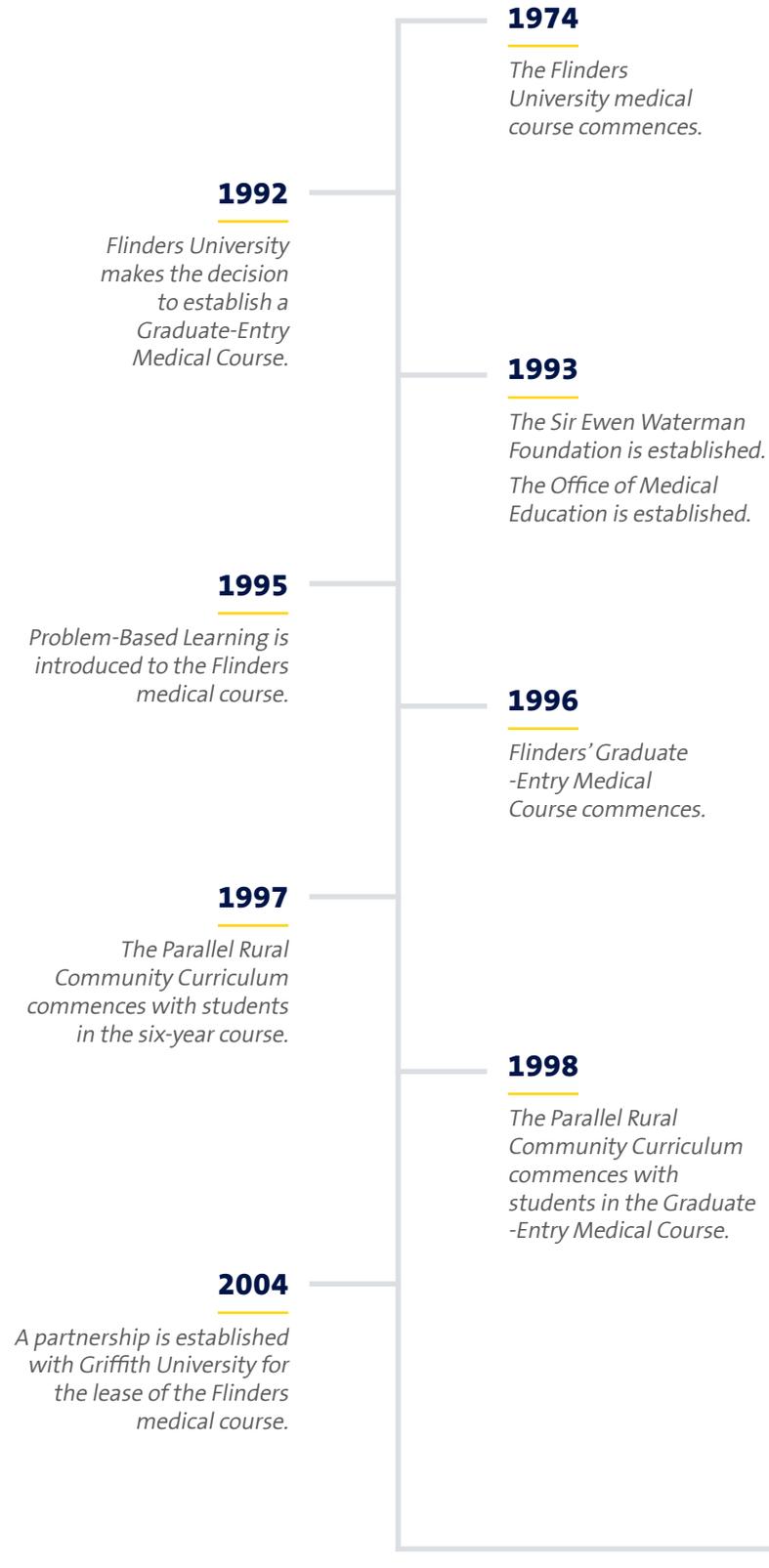
The Waterman family has supported these enriching exchanges with colleagues from all around the world through the Sir Ewen Waterman Foundation Fellowship program. Waterman Fellows have had – and continue to have – a major impact on the educational thinking and practical improvements made to Flinders University’s Doctor of Medicine (MD) course and the Bachelor of Medicine, Bachelor of Surgery course (BMBS) that preceded it. These Fellowships form an inseparable part of the rich tradition of innovation and improvement at Flinders.

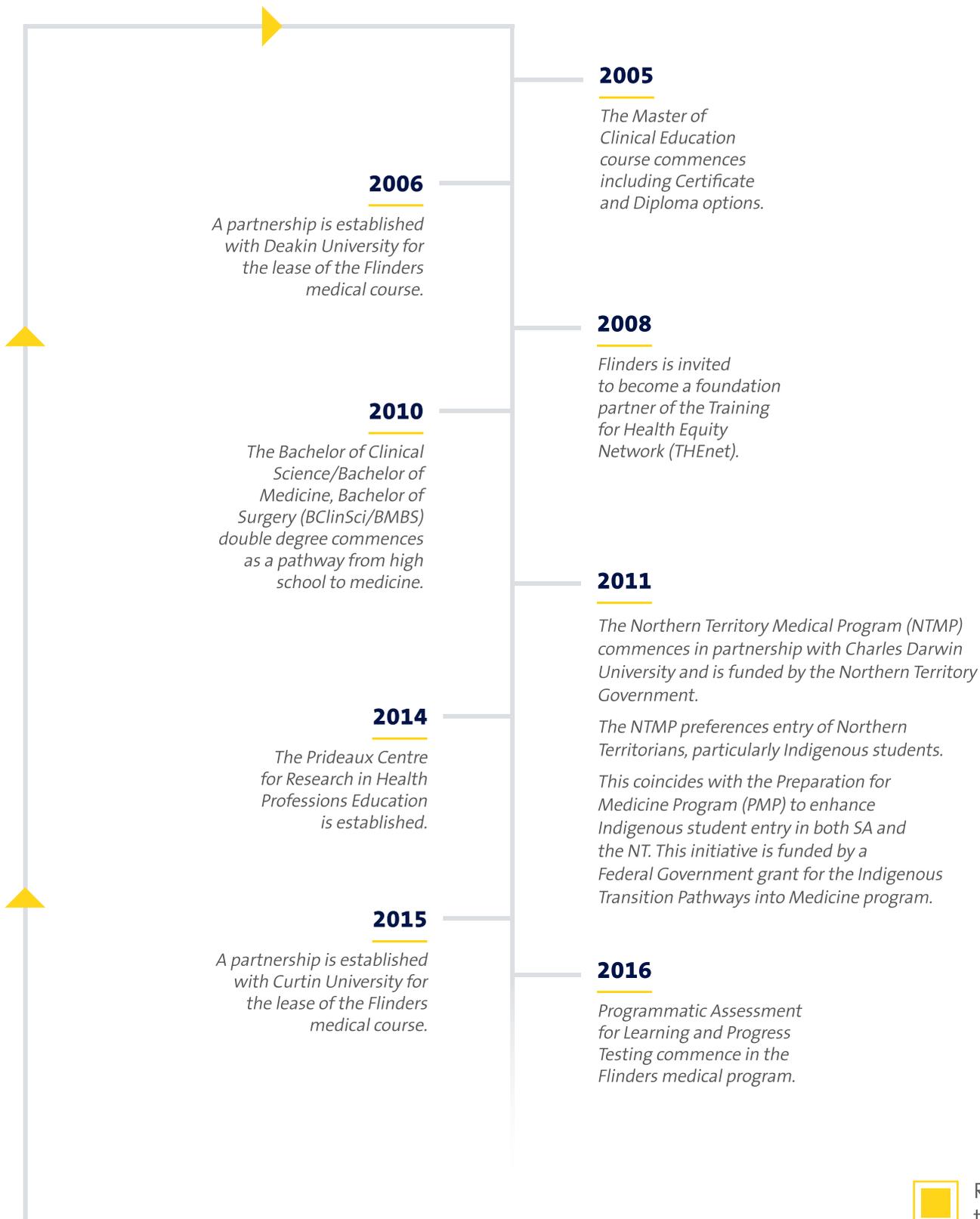
While much of the content of previous Waterman Orations could likely have been found in the published literature, the physical presence of the Fellows creates opportunities for open, candid discussions – personal, scholarly debates about educational innovation, and the lived experiences underpinning these ideas. Such discussions are essential in ensuring that they have life beyond the scholarly literature, contributing to practical improvements to the ways in which we educate future health care professionals. The face-to-face interaction – the ability to see the people behind the theoretical ideas – is, therefore, not to be underestimated.

The Waterman Fellows were approached and interviewed by journalist Jill Pengelley about their contributions to the Flinders medical school. This book introduces each of the Fellows, followed by a story written by Jill.

This book serves as a testament to the crucial role of the Waterman Fellowships in contributing to the innovation and development of Flinders University’s MD course.

TIME





 Reference to timeline throughout the book



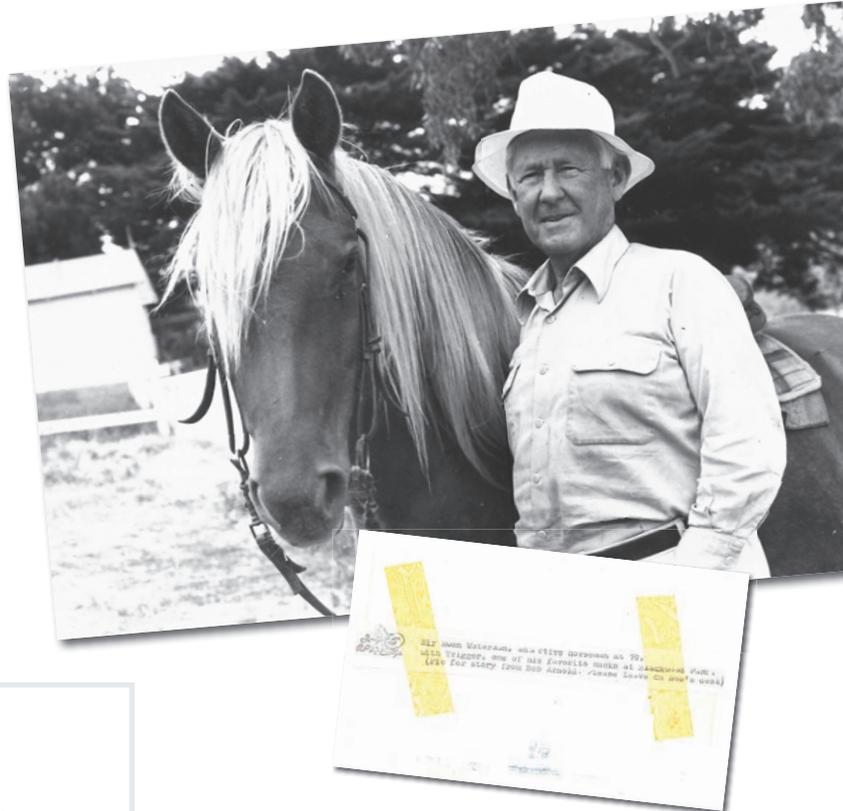
SIR EWEN MCINTYRE WATERMAN (1901 – 1982)

FROM the beginning, Ewen McIntyre Waterman was destined to be a leader.

Born at Semaphore on December 22, 1901, he would be the first of Hugh and Henrietta's seven children. Young Ewen attended Le Fevre Primary and after school, as the oldest child, would help in his father's cinema business, Ozone Amusements. At 16, after leaving Woodville High School, Ewen left the city and went jackarooing – learning the skills of farm work. He camped under the stars in the Southern Flinders Ranges, among other places; he rode, he mustered and he grew to love the land, before returning to Adelaide with a new-found passion for wool. He undertook a wool-classing certificate at the School of Mines and then gained employment with the wool-broking firm Goldsbrough Mort and Co.

In 1928, Ewen married Vera Gibb. With the Ozone picture company expanding, he left wool-classing to work with his brothers in the family business. Ewen took over as managing director when his father retired in 1934.

In 1948, 20 years after joining Ozone, Ewen stepped down in order to represent Australia on the International Wool Secretariat, based in London. It was a long way from rural Australia and the familiarity of Adelaide but Ewen Waterman had his wife, Vera, and the



Ewen McIntyre Waterman was destined to be a leader.

couple's daughter, Sandra, with him for support.

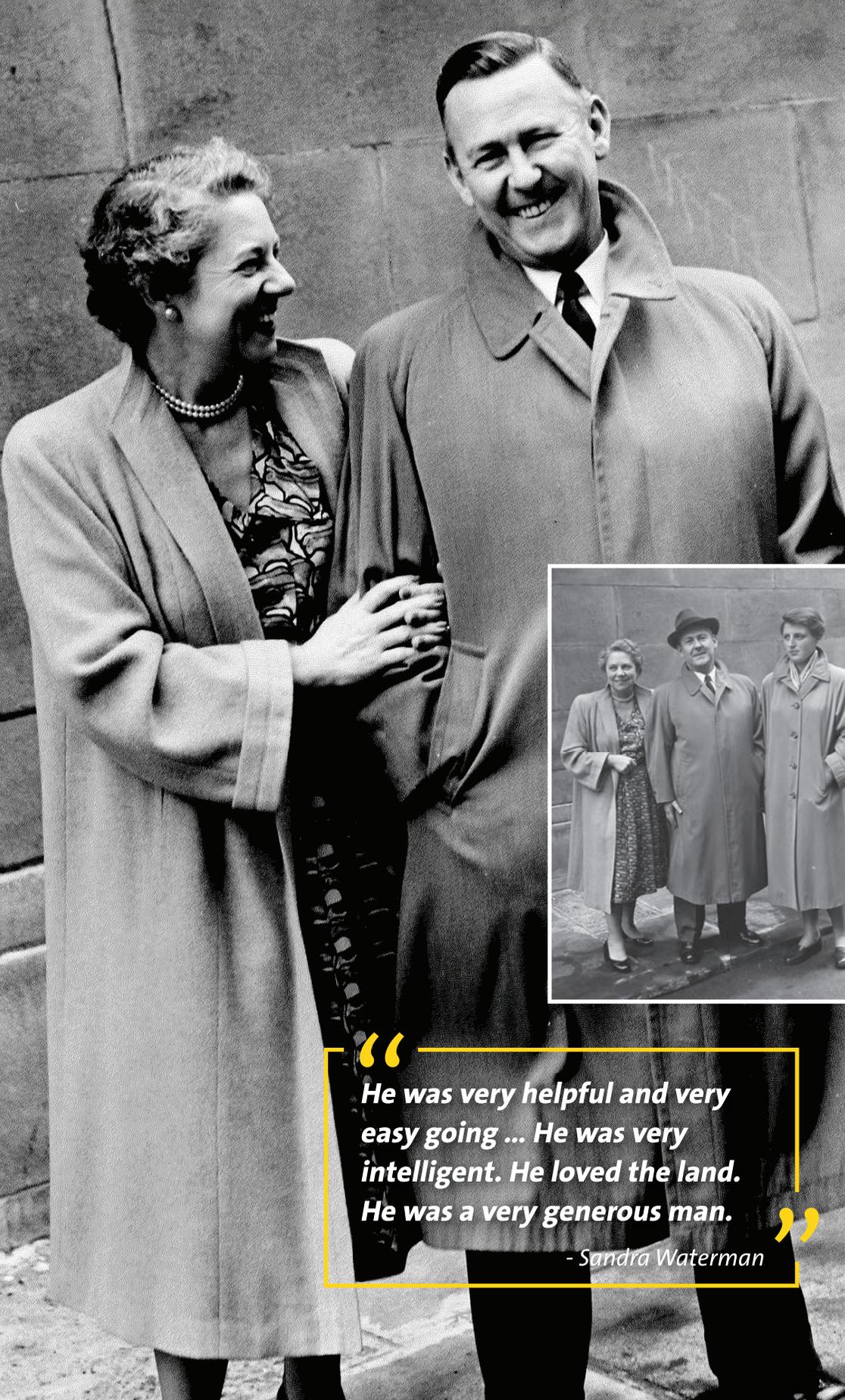
Within four years, he was chairman and travelling the world promoting wool.

In 1955, the Waterman family returned to Australia and bought a property called Blackwood Park, near Strathalbyn, 60km south-east of Adelaide. With more than 500 hectares at his disposal, Ewen was back on the land but remained active in business. Until 1963, he served as a member of the Australian Wool Bureau, which later became the Australian Wool Board. Also in that year, he was knighted for services to the pastoral industry.

Other commitments included serving as president of the South Australian branch of the Royal Flying Doctor Service from 1960 to 1962; SA Adult Deaf Society president from 1947 to 1975; honorary governor of the postgraduate foundation in medicine at the University of Adelaide; and directorships with Onkaparinga Woollen, Elder Smith & Co, Southern Television, BEA Motors, News Ltd and the Adelaide Festival of Arts.

Sir Ewen retired from external commitments in 1975, aged 74, but busied himself with his Blackwood Park angus and merino stud.

In a rare interview, after his retirement, Sir Ewen told *The Advertiser* life had taught him the value of teamwork:



“He was very helpful and very easy going ... He was very intelligent. He loved the land. He was a very generous man.”

- Sandra Waterman

‘I would always judge a fella from any walk of life by asking him this question ... I would ask him if he were training someone to succeed him. A man who was shaky in his own confidence would be afraid to have a strong potential successor. But a strong, able man, who could see the need to have someone to carry on for the sake of the work they were doing, was the kind of man I respected. To such a man I would give high marks and my help in every way I could.’¹

Sir Ewen died in 1982, aged 80, and Sir Ewen Waterman Avenue, at North Haven, was named in his memory.

To honour her father, Sandra Waterman established the Sir Ewen Waterman Foundation at Flinders University. The Foundation funds the Waterman Fellowship, which brings an annual international visitor to the medical school.

An only child of a very busy man, Sandra remembers her father fondly. *“He wasn’t stern. He was very helpful and very easy going ... I loved him dearly. He used to take me for walks and we went fishing. I thought he was great. He was very intelligent. He loved the land. He was a very generous man. A lovely man.”*

¹ Miles, J. (1975, June 25). A man on the land at last. *The Advertiser*.

THE ORIGINS OF THE FLINDERS UNIVERSITY MEDICAL COURSE



MANY new innovative medical schools were established in the early 1970s ... Beer-Sheva in Israel, Suez Canal in Egypt, University of New Mexico in the US, Maastricht University in the Netherlands and, of course, some years before, McMaster in Canada. Now, these schools would be seen as leading to positive disruptive change.

Flinders University's medical course began in 1974 within a culture of continuous improvement, as a radical alternative to existing programs.

There were two major innovations in medical education at Flinders. The first was the integration of clinical care, research and education as evidenced by the architecture of Flinders Medical Centre, where basic science staff, and hospital and university clinical departments were co-located and totally integrated. Unique in those days, it is now a model that is used throughout the world.

The second innovation that Flinders shared with other innovative medical schools was a systematic approach to education, moving away from department owned curricula towards a 'whole-school' approach to curriculum organisation. This approach was characterised by system-based teaching and early clinical contact. In addition, an academic health science centre was established as a hub, facilitating the integration of research into the medical course. This was based on the then newest evidence about effective learning. In addition, the course expanded its entry pathways, creating opportunities for mature-aged entrants to study medicine.

These changes were made in the context of a culture of continuous improvement – a radically different way of thinking when compared with other medical programs.

ESTABLISHING A GRADUATE - ENTRY MEDICAL COURSE



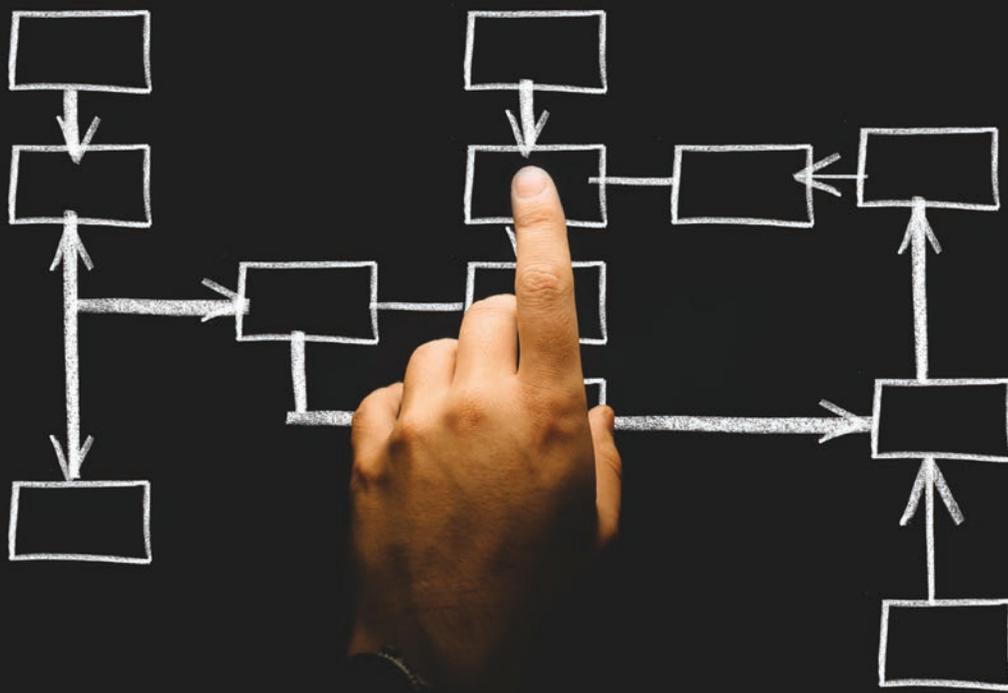
BY the early 1990s, government opinion was that there would be too many doctors, with plans to reduce medical student intakes.

There were high-level government discussions about whether two medical schools were necessary in South Australia and one possibility was the closure of Flinders or some form of amalgamation with the medical school in Tasmania.

At this stage, Flinders University thought its medical school would run the risk of being closed. Flinders' response was to create a new type of medical course which addressed the need for further improvement of the diversity of medical student graduates, while providing a shorter time to graduation. It was also thought that the reduced timeframe – to a four-year program – from enrolment to graduation would facilitate health care workforce planning.

Flinders was joined by the Universities of Sydney and Queensland to establish a four-year graduate-entry medical course in 1996. This was primarily to address other government concerns about widening access to medical schools and to facilitate workforce planning through shorter courses.

For Flinders, it built on the tradition of alternative entry pathways as well as serving as a strategy to avoid closure. The government supported the new proposal and provided substantial start-up funds for the new schools which funded foundational medical education staff and the development of a national graduate-entry test (GAMSAT). Flinders was the first of these three medical schools to start this new course, with the other two medical schools commencing their four-year courses in 1997.



The Waterman Fellows have informed many of the significant educational innovations undertaken in the medical course.

ESTABLISHMENT OF THE WATERMAN FOUNDATION

THE Waterman bequest coincided with the development of the Flinders graduate-entry medical course and was instrumental in bringing the world's experts to learn from, as the new program was developed from scratch.

The Foundation was designed to foster the development of education in biomedical sciences. The expertise of the Fellow is matched to the significant curriculum issues faced by the medical course at the time, allowing the medical course to draw upon the best in the world to inform its deliberations in these key areas.

At the same time, in 1993, Flinders University established an Office of Medical Education and made foundational appointments in medical education.

Most of the significant innovations undertaken in the medical course have been informed by the Waterman Fellows. The Waterman Fellows are not only important for the staff who are closely involved with the curriculum, they also provide a legitimization of the innovative ideas to a broader audience, including the whole medical course, the College of Medicine and Public Health, and the University.



THE WATERMAN FELLOWSHIPS

THE Waterman Fellowships began in 1995, with Professor Stewart Mennin as the inaugural Waterman Fellow, and have continued since.

Educational developments which have been informed by the Waterman Fellowships include:

- Problem-based learning
- Comprehensive assessment
- Community-based education
- Work-based assessment
- Longitudinal clinical clerkships
- Social accountability
- Programmatic assessment

These themes represent the evolution of thought in the medical course at Flinders. The University has been able to maintain a well-recognised reputation for innovation in medical education which is in no small part due to the key input of Waterman Fellows at strategic points in the history of the Flinders medical course.

To date, Waterman Fellows have come from centres of recognised excellence in the US, Great Britain, Canada, the Philippines, Nepal and the Netherlands. The Fellows deliver an open oration at the Bedford Park site of the medical school, with online availability for other sites. The Waterman Fellows also facilitate a workshop and engage in face-to-face discussions with staff who work in the College of Medicine and Public Health. In many instances, this has involved travel to the other campuses of the University.

Initially, the graduate-entry medical course was designed to be a Doctor of Medicine (MD) course, following the North American model. This caused some debate in the then School of Medicine as the MD already existed as a higher degree.

Further, financial support for students through the Higher Education Contribution Scheme (HECS) was not available for postgraduate students and, hence, a graduate-entry undergraduate program was created.

For two years, during the course transition, Flinders took no new students, allowing time to design a radically new approach to teaching and learning in the first two years of the course – problem-based learning (PBL). Flinders was the second medical school in Australia, after Newcastle, to adopt such an approach and the new Dean for the medical course was recruited from Newcastle.

This required a lot of rethinking to transition the first four years of the old course into two years of the new program. To facilitate this process, the decision was made by the Waterman Foundation's management committee to invite Professor Stewart Mennin as the inaugural Waterman Fellow in 1995.

The key input of Waterman Fellows at strategic points in the School's history has enabled Flinders to maintain a well-recognised reputation for innovation in medical education.



PROFESSOR STEWART MENNIN

*Department of Anatomy,
University of New Mexico, US*

1995 Oration:

***Changing Medical Education:
New Mexico Experiment***

At the time of his visit, Professor Mennin was Professor in Anatomy at the University of New Mexico in Albuquerque, in the US.

The medical school at New Mexico was recognised as a world leader in the development of problem-based learning (PBL); an educational approach where students drive their own learning in the context of problems anchored in ‘real world’ cases.

Professor Mennin had guided much of the development of PBL at New Mexico and was a consistent contributor to the international literature in the field.

He brought two great strengths to his contribution at Flinders. He had an extensive background and credibility in the sciences in medical education, and a unique ability to communicate and connect with diverse audiences. He was at ease talking to scientists, clinicians and educators. His influence at Flinders was profound.

A decision had been made previously to adopt PBL in the new graduate-entry medical course but there was much uncertainty, especially among the science academics, who would be responsible for the bulk of the PBL program.

Professor Mennin readily engaged with them and provided a convincing

argument that the New Mexico ‘progressive disclosure’ model of PBL was a superior way for students to learn the sciences underpinning medicine.

The first Flinders PBL cases were produced under his guidance and, for a very long time, the progressive disclosure model remained a cornerstone of PBL at Flinders. Like other domains, medical education evolves as well and, since 2017, the original PBL has been changed into a more contemporary educational approach: team-based learning.

This was a pivotal time in the development of the Flinders medical course. Flinders was planning to introduce the first graduate-entry medical course in Australia, and was the second school in Australia to use PBL. The latter, in particular, would not have gained the status it enjoys at Flinders without Professor Mennin’s contribution.

Professor Mennin put forward a convincing argument for PBL and communicated this to scientists, clinicians and educators alike.



ON REFLECTION

STEWART Mennin brought an infectious dose of ‘uncertainty’ to Flinders. He came with a message which posited that good learning occurred when students had to ask and answer questions to solve a problem.

It could be that a patient presents with a cough, rather than a specific diagnosis of congestive heart failure. Or it could be chest pain or bleeding or weakness. ‘So the problem is the basis of the learning,’ Professor Mennin says.

During the course of exploration of what they know about the problem, they stand in inquiry. They ask questions. By exploring what they know, and going to the edge of their existing understanding and, at that point, framing questions that they can’t answer, that they believe would help them to understand further, they are in a learning environment.

Professor Mennin says problem-based learning (PBL) is an about-face on traditional methods.

The initial problem may be only a paragraph or two long and students would have to work for progressive disclosure of additional useful information. Has this happened before? What makes it better or worse? Perhaps they ask to perform a partial physical examination. In this hypothesis-driven approach to learning, students make a case to the facilitator for what they think is going on and why they should receive some extra piece of information.

‘Let’s say the patient has trouble breathing,’ Professor Mennin says. ‘It could be due to an airway problem, it could be due to a heart problem, it could be due to a metabolic problem. So they have broad hypotheses that all could lead to the same presentation by a patient. “So let’s see if the heart is normal. Have you noticed any problems with your heart before?”’

When students agree on the questions, and why they are important, they receive more information. The process is a series of disclosures only on the basis of inquiry. ‘They must ask for it and they must defend the reason they’re asking for it, which is really the way health works in institutions,’ Professor Mennin says. ‘You can’t just say “Give me a test for everything”. You have to give a rationale and justify what you do. The students might jump ahead and say “We need an x-ray”. I would say “Is there anything you could do before you start shooting x-ray beams through this person?”’ Students would learn how to approach a patient clinically, as well as develop questions about basic science, human behaviour and social determinants of health within a single case.

‘Flinders was moving from six to four years, from traditional to problem-based. When I arrived, basically, what they said to me was “We put our school in your hands; work with us; help us to develop this process.” They saw its value for them and they embraced it. They developed their entire medical school around it.’ He set up a faculty development program during his visit, giving staff from each of the departments experience in progressive disclosure, learning to write cases for the method, and then observing students learning in that method. He says he met every week with all the departments ‘for weeks and weeks’.

Professor Mennin says the first Waterman Fellowship was ‘enormously influential’ on the future structure and development of Flinders. ‘It was the right time, and the right people in the right place,’ he says. ‘(Faculty) including Bren Gannon, Nick Saunders, David Prideaux – they embraced this process. Everybody embraced it and worked towards it. They developed themselves into what I think is one of the finest schools in the world.’



**PROFESSOR
LUANN WILKERSON**

*School of Medicine Centre for
Educational Development and
Research, University of California
Los Angeles, US*

1996 Oration:

***Program Evaluation
in Medical Education:
An Opportunity for Scholarship***

PROFESSOR Wilkerson was selected for her recognised expertise in faculty development for innovative medical courses. She came from the Centre for Educational Development and Research at the University of California in Los Angeles with a background in education and educational research.

Flinders had established a new Office of Education for development of the medical course and Professor Wilkerson's visit added legitimacy to the application of scholarship from the discipline of education to the development of the medical course.

Like Professor Mennin, she had highly developed communication skills which enabled her to reinforce her important messages.

There had been a commitment to building evaluation into the new medical course at Flinders right from the very beginning of its development.

Professor Wilkerson's particular contribution was to demonstrate that evaluation extended beyond the collection of data for course improvement. It offered an opportunity for scholarship, publication and contribution to the literature. This was important to the staff of the Office of Education in establishing their credibility in a research-intensive medical school. It also provided the initial impetus

for writing and publishing about the medical course more generally. This continues to this day.

1996 was the first year of the new graduate-entry course at Flinders. Professor Wilkerson's visit coincided with a period of very high activity; yet, she was able to foster a tradition which has served the medical course at Flinders very well into the future.

***Frequently,
evaluation is treated
as an after-thought
in educational design.***



ON REFLECTION

THOSE pencil marks up the kitchen door frame chart little Johnny's growth from when he could first stand to his 18th birthday. Without the 17 entries below, the one at the top is a fairly worthless scratch on the paint.

In 1996, Waterman Fellow LuAnn Wilkerson attended the birth of the Flinders graduate medical program and urged the school to think right away about how it would chart the progress of its baby. She says program evaluation must begin with early measures. 'If you were going to treat evaluation as a very disciplined inquiry, not just a polemic about how great we are, what kinds of things would you want to do up front?' she asks. 'If I want to know if this new curriculum creates a doctor who chooses a different kind of career, not a different specialty, but a different place to practise, then I might want to do something before I make the change to study up what my current class is doing in the six-year program and then be ready six, seven, eight years later to compare that. So you kind of need to start early, as you implement, so that you don't miss this opportunity to have a pre-innovation comparison group and a post-innovation comparison group.'

Professor Wilkerson says her talk was a 'door-opener' to work with individuals, including course directors and curriculum committee members, on what they wanted to plan and what questions they wanted to answer. Some of the topics identified included comparing career choices of graduates of the six-year and four-year courses, and the reasoning and diagnostic abilities of both groups. For the medical school faculty, that research to evaluate the medical program would be significantly different from the more familiar test-tube science. 'It's very messy research; it's not nice randomised controlled trials,' Professor Wilkerson says.

During her time at Flinders, Professor Wilkerson also coached tutors in problem-based learning (PBL) and helped them write cases, continuing the work of her predecessor, Stewart Mennin. 'Problem-based learning replaces the dependence on what's usually a lecture system with a case – usually in a small group with a faculty member, like a tutorial,' she says. 'What was controversial about it at that point in time was, if you think about when we were in public school and they'd give us a textbook, we were studying something and then there were all the questions we had to answer at the end of the chapter and then, if you were lucky, at the end of the book there were the answers. In PBL, the problem comes first in the educational process; then the students learn how to ask questions about what they don't know.' Professor Wilkerson says she was particularly focused on the role of tutors as facilitators, who need to provide 'subtle guidance. It's probing for, once they come up with an idea, how to help them find the right level of understanding that's required,' she says. 'That's what I was doing.'

More than 20 years on, she maintains contact with people she met at Flinders. 'It was a wonderful experience and I'm delighted to have had a small piece to play in that transition,' she says.

A NEW APPROACH TO ASSESSMENT

OF course, you cannot change education without critically examining the assessment program. Although teachers often chide students who are too focused on assessment and adapt their learning to it, the logical step in curriculum design is to ensure that studying for the assessment is consistent with studying to become the best possible doctor. This is called constructive alignment and intuitively makes good sense.

It was, therefore, only logical that in the next phase of the Waterman Fellowships, international expertise on assessment was sought, in the form of Dr Daniel Klass.



DOCTOR DANIEL KLASS

National Board of Medical
Examiners, Philadelphia, US

1998 Oration:

***The Play's the Thing: A Role
for Standardised Patients in the
Assessment of Clinical Competence***

It was no longer acceptable to assume that patients would be automatically available for students to examine in testing situations. Dr Klass's contribution was to begin the important process of overhauling clinical assessment at Flinders.

DR Klass is a Canadian who, at the time of his visit, was working for the National Board of Medical Examiners (NBME) in Philadelphia. The NBME is responsible for medical licensing examinations in the US.

Unlike in Australia, all US medical students must pass national examinations before they can practise. The NBME, as a result, has gained much expertise in designing valid and reliable high-stakes standardised testing.

Dr Klass was involved in a project at the NBME focusing on the use of standardised patients to test clinical competence. Standardised patients are role players or actors who act as patients with clinical signs or presentations. They can reproduce the condition for every student and thus provide a standardised testing experience.

Dr Klass was effectively able to demonstrate the worth of such an approach and attracted much interest from clinicians at Flinders. The change to teaching, learning and curriculum organisation in the new course at Flinders inevitably required changes in assessment which increasingly became a focus for the School of Medicine as its new course progressed. There were other pressures, not the least being new concerns about patient well-being.

ON REFLECTION

'LADIES and gentlemen, this is your captain speaking. I've never flown one of these things but I did pretty well on the multiple-choice test.' Actual flying. Too difficult to learn with real passengers but too important to ignore. Much like medicine, says Dr Daniel Klass, who came to Flinders to talk about using substitute patients instead of the real thing for 'high-stakes' testing of future doctors.

He talked about replacing real patients with actors trained to exhibit symptoms of particular conditions. These artificial patients are known as simulated patients. However, when taken to the next level of using large numbers of actors to test large numbers of students, they become 'standardised' patients. The difference is in expanding the simulation and ensuring all students face an identical challenge, for the sake of fairness.

In his work for the National Board of Medical Examiners in the US, Dr Klass was devising and trialling a standardised-patient program which could test clinical skills of medical graduates applying for a licence to practise. Most American and Canadian universities already were using either simulated or standardised patients for teaching and assessment but not for the 'high-stakes' licensure test.

In Australia, however, medical schools were yet to warm to the idea.

So, what, if anything, was so difficult about using real patients and having students perform clinical examinations? After all, it provides teachers a chance to mentor, it is convenient and inexpensive.

Dr Klass argues that is not enough to outweigh the shortcomings of the bedside test. For example, there is ample evidence that practical knowledge is situation-specific and many real patients would need to be examined for the testing



to have any validity. He says unintended bias by clinical evaluators also is 'a problem to be reckoned with' because teachers have a stake in their students' performance.

'I think we are all familiar with the circumstance that occurs so often in medical education in which the benefit of the doubt is given to a "decent chap",' he says.

Teachers encounter a variety of conflicts of interest when they assess students. It seems sensible to avoid these conflicts by having teachers concentrate on teaching.

“

The old-fashioned bedside test of clinical skills was really a British invention and spread through the Commonwealth and I think it may have been simply a measure of loyalty to that concept that held on in Australia, New Zealand and England.

- Dr Daniel Klass”

For high-stakes testing, where standardisation is important, real patients would require training to take part and would need to score those conducting the examinations. Dr Klass says it presents an ethical issue because sick patients are less likely to be able to be useful for multiple examinations.

He outlined the format of tests being trialled for the National Board of Medical Examiners. Field trials of standardised-patient testing involved up to 16 cases, with licensure candidates moving from room to room, spending 15 minutes examining each patient and writing down important findings. The ‘patient’ adhered to a carefully scripted role and character, which ensured the testing was consistent – standardised – for all candidates.

A review found the cases were realistic, patients were consistent in their portrayals, accurately scored the performance of students and were free of bias. Although the tests were expensive to operate, they were found to be valid and workable.

Dr Klass says the medical profession sees the doctor-patient relationship as central to the practice of medicine. Therefore, it is important to continue measuring clinical skills such as history-taking, physical examination and communication with patients.

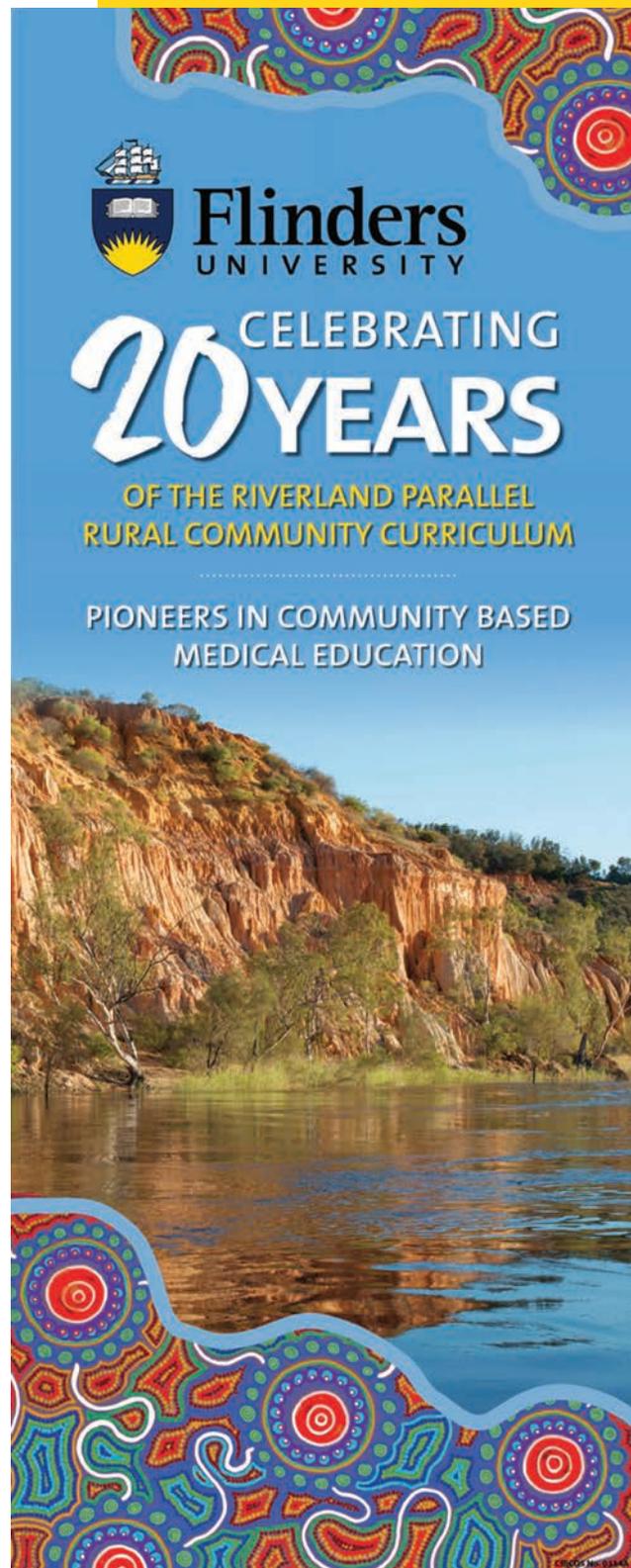


“

Medicine, for all its advances, continues to be practised one patient at a time and direct hands-on interaction between doctor and patient remains the core of health care delivery.

”

- Dr Daniel Klass



MOVING TOWARDS COMMUNITY-BASED MEDICAL EDUCATION

WITH the heritage of community-based medical education in the academic health science centre, it was natural that most of the clinical experience was undertaken in tertiary hospitals. And graduates preferred specialist city practice.

The next big innovation began in 1997 – social accountability to rural communities through rural community-based medical education. This was called the Parallel Rural Community Curriculum and had its origins in the Riverland.

Because of funding through government rural medical education initiatives, the School of Medicine appointed Paul Worley as Senior Lecturer in Rural Medicine. He developed the idea of placing students in rural practice for a whole year, where they were taught what they would normally learn on hospital rotations in rural hospitals, and would be taught by rural GPs and visiting specialists. This was known as the Parallel Rural Community Curriculum.

It began as one program in South Australia's Riverland and has since been extended to the South East, Hills-Mallee-Fleurieu region, and the Barossa Valley. It was an extension of the concept of community-based medical education, which placed students in community-based settings for shorter periods.

The research showed the academic impact and it was soon adopted by other schools in Australia and internationally. This move involved Flinders translating its program across south-eastern South Australia. From 2017, all students at Flinders receive a Parallel Rural Community Curriculum-like experience,

The Waterman Foundation played a critical role in shaping understandings of community-based medical education, and translating this to the Flinders University context.

irrespective of whether they are located in the community or a tertiary hospital.

In 1998, the medical school's culture of social accountability was extended – to the clinical school in the Northern Territory. This was further expanded and, in 2011, Flinders reached a major achievement in the establishment of a full medical course through the NT Medical Program.

Connected with these ideas of social accountability, and building on the Parallel Rural Community Curriculum, the Waterman Foundation sponsored Professor John Bligh as the 1999 Waterman Fellow.

Professor Bligh was invited because of his initiatives in community-based medical education in Liverpool, UK. In addition to giving the Waterman Oration, Professor Bligh was involved in evaluating the Riverland's Parallel Rural Community Curriculum.



**PROFESSOR
JOHN BЛИH**

*Head, Department of Health
Care Education, University of
Liverpool, UK*

1999 Oration:

***Learning Medicine in the
Community: ... Forever the
Bridesmaid, Never the Bride?***

PROFESSOR Bligh is a general practitioner and led the change from a traditional to a contemporary curriculum in his role as Head of the Department of Health Care Education at the University of Liverpool.

Professor Bligh subsequently took a major role in the establishment of a new innovative medical course in the south-west of England and is now the Dean of the School of Medicine at Cardiff University.

He is recognised as a major contributor to medical education thinking and scholarship internationally. His contribution at Flinders was well presented and well substantiated.

He argued for the benefits to students in undertaking clinical learning in community settings, away from traditional placements in increasingly specialised large teaching hospitals. In the community, students could learn from patients with a larger spectrum of common conditions.

His visit came at a very important time for Flinders as the next generational change of the curriculum was about to begin.

In 1997, the Parallel Rural Community Curriculum began in the Riverland region of South Australia. This enabled selected students to undertake a year of clinical study in rural general practice and small rural hospitals.

Professor Bligh was able to visit the new program in the Riverland and his Fellowship overall did much to convince staff at Flinders that learning in the community was a seminal direction for medical education in the future.

***The Parallel Rural
Community Curriculum
marked the beginning of
the community focus of
the Flinders curriculum
and expansion of the
School's programs across
rural South Australia and
the Northern Territory.***



ON REFLECTION

IN a country town, a general practitioner gives a senior a flu shot in the morning, explains an advanced cancer diagnosis to a patient in the afternoon, and wakes up at night to deliver a baby. The breadth of the work performed by rural GPs is vast but 1999 Waterman Fellow John Bligh believes the specialty has long been under appreciated.

‘Certainly, since the 1950s in Britain, and I think this applies elsewhere as well, there had been a great feeling that GPs were doctors that had fallen off the ladder of hospital training and were really second-class doctors.’

‘My dad was a GP and I was a GP, and we felt that this wasn’t exactly a good description of what we were trained to do. So, around 1999, there were academic departments of general practice developing in universities and medical schools across the world where they were demonstrating that by bringing really bright people out of the hospital training environment, into the general practice environment, their job satisfaction and career development was substantially improved.’ Professor Bligh says the effects of that shift are beginning to be felt in the UK, and also in Australia, where people choose to do general practice, rather than doing it ‘because they couldn’t do anything else’.

Professor Bligh visited students undertaking what was a fairly experimental year of clinical study in the Riverland. He says Flinders used the experience of that program for research, to demonstrate that learning in the community worked. ‘In fact, some of the work that Paul Worley did showed that it worked better for those students who went out,’ he says. ‘They all did just as well in the exams, if not better in the exams, than some of the students who stayed on in the great teaching centres like Flinders. They were getting one-to-one support and feedback on their performance which was extremely inspirational. The usual



hospital experience, and this was repeated in Adelaide, was that students are largely ignored, largely able to find their own way of doing stuff, and tend not to have close relationships in the academic sense or clinical sense with their teachers. You do get stories where people find their heroes in hospital but they are few and far between.’

He says hospital rotations may not be as valuable as many believe. Students tend to get volumes of specific information from each specialty but may have little call for it.

‘A cardiologist is trying to teach the student everything he can possibly teach them in two weeks because he’s not going to have another go,’ he says. ‘That’s such an old-fashioned, useless model of teaching. It’s important that they understand about the heart but they don’t need to understand it as a cardiologist does.’

Professor Bligh says the teaching hospital still has a role but his 'extreme' preference would be that medical students spend all their time in the community and be placed back into a hospital for some elements of their course. He says the atmosphere in the community is more mature and more equal. 'Typically, community teachers would regard students as their equal but slightly younger and, therefore, they don't know as much but they will know as much soon,' he says. 'In hospital, the attitude is very much the doctor is in charge, is very much superior.'

Professor Bligh says he talked during his Waterman Oration about the direction the University of Liverpool was taking with its curriculum. 'David Prideaux wanted to show people at Flinders and elsewhere that you can do these things,' he says.



If nothing else, the Waterman group have brought in a message from outside that was known inside Australia but because it was inside, it was a message which was not taken as seriously. Bringing in someone from outside just makes the message stronger.



THE RISE OF PROGRAMMATIC ASSESSMENT

BY the early 2000s, the Flinders medical course was keen to overhaul its approaches to assessment by introducing workplace-based assessments and programmatic assessment for learning. Building on the work of Professor Page, the Waterman Foundation funded a further Fellowship with a focus on assessment which played a crucial role in facilitating international academic exchange in this area of educational scholarship.

Gordon Page (international best practice in assessment), Lambert Schuwirth (programmatic assessment), Lesley Southgate (assessing professionalism, reflection and professional practice) and John Norcini (work-based assessment) together represent a renewed focus on assessment in the medical course.





SHARING KNOWLEDGE AND EXPERIENCES

Jasmine's story of the artwork:

WHEN we talk about health we often talk about the physical wellbeing of a person. This artwork is a story of how we share knowledge and experiences.

As we grow older we pass on our knowledge and learn from our elders which strengthens our culture. The larger circles represent places of learning and can be seen as more than a school, or university, but also a community and a home. The lines connecting the places of learning represent pathways. The pathways are two-way streets, we come and go and take with us our stories.

Our health is more than just the absence of disease. It is about feeling connected, with our environment and our community. When we learn and share knowledge we are feeding our minds, and creating a healthier spirit and in turn a healthier body. The dots represent the changing landscapes from the mountains to the coast and back again.

Across our beautiful country we continue to move and share what we know and learn from those who are willing to share their stories and knowledge with us. Our survival for hundreds of thousands of years has been possible because of this.



JASMINE SARIN

Aboriginal Artist from Illawarra, NSW

This artwork by Jasmine Sarin, was commissioned in 2014 for Flinders University Rural Clinical School



PROFESSOR GORDON PAGE

Director, Division of Educational Support and Development, University of British Columbia, Canada

2000 Oration:
Clinical Competence and its Assessment

“
We now have a totally distributive program in British Columbia and that's a direct result of me coming to Flinders. We're all over the province now and the students that are there love it.

- Professor Gordon Page”

THE new millennium witnessed a return to a focus on assessment for the Waterman Fellowship. It began with the visit of Professor Gordon Page, an educator and Director of the Division of Educational Support and Development at the University of British Columbia's medical school in Vancouver.

Professor Page brought a strong background in assessment internationally, but also extensive knowledge of assessment practices in Australian medical schools through cooperative work between the Canadian and Australian Medical Councils.

His work included an overview of best practice in assessment in the clinical years of the medical course, drawn especially from the North American perspective but with particular reference to practices that were similar in Canada and Australia. He introduced the Key Features approach to assessment and the evidence to support its credibility.

Professor Page had done a great deal to develop this form of assessment in North America and there was increasing interest in its use in Australia.

The comprehensive shared assessment program in the penultimate year of the medical course provided the major check on student learning at each of the sites. Thus, there was an imperative for clinical assessments to be of a very

high standard. Professor Page was very influential in the design of assessment at Flinders to meet that high standard.

Professor Page effectively communicated ideas about changing clinical assessment practices – to both clinicians and scientists.

ON REFLECTION

GORDON Page is not a fan of staring at the tops of students' heads as they hunch over their clinical exam papers. He would rather see the whites of their eyes. Although written tests are more time-efficient, Professor Page believes there is more value in oral clinical exams, 'where you have to sit down and look the student in the eye'.

'I'm a great believer in case-based oral exams because it gives the clinicians an opportunity to get into the head of the trainee and see what their thinking is and if they're going wrong and where they're going wrong,' he says.

'It's important to know things, but knowing it isn't good enough. Many students memorise like you wouldn't believe but they don't understand it and they don't know how to use it.

So it's important to, in an oral exam, challenge them to apply information to a specific patient, to determine whether they can utilise all the stuff they've got in their head.'

He says putting a student in clinical situation which resembles what they will face in real life is a better predictor of how they will fare in the future.

Professor Page says that when he visited Flinders in 2000, he discovered 'one of the most progressive medical schools in Australia, and worldwide'. He was taken to the Riverland to see students working in small hospitals and in doctors' offices.

'That's how they learned their medicine,' he says. 'They didn't go to the surgical seminar on how to palpate the abdomen and the surgeons, of course, thought that was terrible and they'd never learn how to do it. But they did; and they did it better than the kids who were downtown because they had more opportunities to be with patients, and better supervision because the clinicians were not on the run all the time.'

He asked the doctors why they agreed to devote time to students and they told him it was 'a breath of fresh air', making it a win for the community and a win for the medical school.

Professor Page had an opportunity to act as an examiner for some of the students, by presiding over a subcutaneous injection station during an OSCE (objective structured clinical exam).

'Adelaide was progressive in their assessment,' he says. 'They had an OSCE exam before most other schools did. Some of the students would come in and they could not do the injection. Others could do it in 30 seconds with their eyes closed. You could just predict. The kids who could do it were from the Riverland and the kids who couldn't do it were from the Adelaide hospital. They don't get the opportunity there because the residents are there and the nurses are all there.'

Professor Page says he was so 'smitten' with the Riverland program that he talked his Associate Dean into returning to



Professor Page says Flinders is 'one of the most progressive medical schools in Australia, and worldwide'.

Australia with him. 'I want to show you something that you're not going to believe,' he told her.

'She came with me and spent a week there with the students and we talked Paul Worley into coming over here and he came over and spent a fair amount of time with us.'

Professor Page believes the Waterman family demonstrated insight in providing the resources to allow Flinders to bring people in.

'People tend to listen to someone whose thoughts come in an airplane, more than they do a local. I do that strategy every year and it works. I know it works and for the person who goes, like me, what a wonderful experience.'



PROFESSOR LAMBERT SCHUWIRTH

Assistant Professor, Department of Educational Development and Research, University of Maastricht, the Netherlands

2001 Oration:
Programmatic Assessment

CONSISTENT with the Flinders medical school's focus on assessment, there was a paradigmatic shift in thinking about this important component of education, led by two academics from the School of Health Professions Education at Maastricht University in the Netherlands – Professor Cees van der Vleuten and Professor Lambert Schuwirth. The latter became the Waterman Fellow in 2001.

Up until this point, concern with psychometric properties of individual instruments had dominated much of the discourse in assessment in medical education.

Professor Schuwirth's arguments were convincing. He was able to combine a deep understanding of education with his training in clinical medicine. Metaphors drawn from clinical practice underscored his statements and aided comprehension of his conceptual constructs. This signified a shift in thinking at Flinders.

Assessment became more important as a quality indicator as clinical programs diversified over teaching sites. Assessment became the essential check on the achievement of the common curriculum pathways amongst the diversity of the Flinders course.

Work-based assessments were being introduced alongside more traditional examinations, further reinforcing

the need for a programmatic view of assessment. The work on programmatic assessment continues to this day.

The subsequent influence of Flinders on Professor Schuwirth was obviously profound. Ten years later, in 2011, he accepted a position as Strategic Professor in Medical Education in the School of Medicine and continues to contribute to cutting-edge thinking on assessment at Flinders and elsewhere.

The essence of the new paradigm was a holistic approach to assessment with an emphasis on the program of assessment, overall rather than on individual instruments.

ON REFLECTION

THERE was no sugar-coating the message when Lambert Schuwirth came to speak at Flinders in 2001. He challenged staff to evaluate their teaching and assessment.

'You can't get away with just doing what you believe is good. We (as doctors) want evidence-based medicine; we want to do evidence-based research; we also should be doing evidence-based education.'

The evidence, he said, suggested the way medical students were assessed should change.

At the time of his visit, assessment generally was viewed as a measurement task. Competence, as well as knowledge, could be marked out of 100, with a pass-or-fail result.

Although quantifying a quality such as competence is an imperfect science, Professor Schuwirth argues it should at least be approached with the best available evidence. For example, he says there is ‘overwhelming evidence’ against using just one or two cases in an oral exam to test problem-solving skills. A student could be very good at solving one case and very poor at solving another. ‘If I only sample one or two cases, my sample is just too small.’

He believes it is ‘demonstrably more effective’ to ask fewer questions, across more cases, rather than conduct an in-depth inquiry into two. ‘The first question you ask about a case will give you a lot of information about whether the student is able to manage that case; the second one gives you slightly less information. The tenth question doesn’t give you any unique information any more. Examiners have the feeling “now I can really gauge whether they understand it”, whereas, basically, there is a law of diminishing returns.’

He says the evidence for this goes back decades before his visit to Flinders but many educators were reluctant to change – adhering to their belief in the way they were assessing students and ignoring the evidence.

Professor Schuwirth was coming from Maastricht University, in the Netherlands, where they were doing things ‘radically differently’ at the time. Clinical decision-making was not assessed with orals. The medical school had a purpose-built computerised assessment system, with cases, video clips, images and questions. It was only part of a program of assessment – a concept Professor Schuwirth stressed during his Waterman visit.

This was an important message because it challenged staff to think more about how students were taught, rather than simply what they were taught.

Professor Schuwirth proposed that universities devise a formal staff development in teaching and assessment. ‘School teachers are trained to be teachers, but teachers of medical students usually have not been trained in teaching.’

Even those considered to be ‘born teachers’ would benefit from training and from taking into consideration the best available evidence on education and assessment.

Professor Schuwirth urges staff to use the impact of assessment – that ‘test-drivenness’ – to improve student learning. The ‘one-big-exam’ method is adversarial, he says, and prompts some students to cram to pass. He believes the university’s responsibility extends beyond graduation, to be able to have conviction that graduate doctors have learned how to learn, not simply how to cram. ‘It’s like a raising a child. If the only way you raise your child is by punishment and reward, as soon as they become independent, they’ll do as they please.’

At Flinders, he proposed replacing the exam with a system of progress testing throughout each of the four years of the degree. This should instil better habits in those students who previously were driven by the punishment-or-reward possibility presented by an exam.

‘We want to have the best graduates and they want to be the best graduates,’ he says. ‘So, what we’re trying to do is redress that adversarial relationship and show that faculty and students have the same remit. Everything we need to do in assessment has to focus on helping students to be the best doctor they can be.’



**PROFESSOR
DAME LESLEY
SOUTHGATE**

Academic Centre for Medical Education, University College London, UK, and President, Royal College of General Practitioners

2002 Oration:

***A Long and Winding Road:
A Doctor's Journey to Professionalism***

PROFESSOR Dame Lesley Southgate is an esteemed British clinician and medical educator. In 2002, when she accepted the Waterman Fellowship, she was a member of the Academic Centre for Medical Education at University College London and President of the Royal College of General Practitioners. She has done extremely important work in the UK and internationally to ensure that assessment remained true to its remit, namely to collect and collate meaningful information about learners and practitioners to evaluate their performance and progress. She did this in a time when the dominant discourse was predominantly measurement orientated. But without her work there would not have been an avenue into sensible assessment of the so-called soft skills: professionalism, reflection and professional development.

She was awarded a Dame Commander of the British Empire (DBE) in 1999 for services to Standards of Practice and Primary Care. Her visit to Flinders focused on the former and built upon her work for the General Medical Council on poorly performing doctors.

As a graduate of the University of Liverpool, she used a Beatles song, The Long and Winding Road, in the title of her Waterman Oration on the development of professionalism in doctors.

Her message was clear and accessible to a wider audience. It was interspersed with illustrations from her own career as a general practitioner.

One of the themes of Flinders' new medical course, introduced in 1996, was concerned with law, ethics and professionalism. By the early part of the 21st century, it was clear that the content of this theme required extensive revision. Of the three areas in the theme, the development of professionalism proved most elusive.

The senior clinicians at Flinders, charged with leadership of the revision, were able to use her ideas and experiences, gained from a complex medical system in the United Kingdom, to provide a significant direction for the all-important curriculum change.

Professionalism and the professional development of doctors could no longer be assumed. It needed to be an explicit part of the curriculum of medical schools.

ON REFLECTION

ARRIVING from the UK, Professor Dame Lesley Southgate was warmly greeted by an Australian summer. Before long, she was transported to the Outback and gained an appreciation for the work of GPs from city to country. ‘How does one sum up an experience like that?’ she says. ‘Australia is so varied, and although I had visited before, it is full of surprises. Snakes and spiders were on my mind but, fortunately, did not really cause too many problems.’

Dame Lesley came to speak on professionalism and to learn about how family medicine was practised in Australia. She says it was a wonderful time in which she saw different approaches to care, often dictated by climate, funding, the epidemiology of disease and the impact on local communities. She also noted a range of attitudes to prevention, both from the patient and local communities, as well as from the medical and nursing professions. She says it was ‘a great pleasure’ to be associated with Flinders and to meet the GPs linked to the medical school, where they were involved with teaching and training.

‘The overarching theme for me was the relevance and, indeed, the imperative for family medicine in all its guises, to be a cornerstone of excellence for clinical care and frequently to be the only source of that care in remote areas.’

‘But, of course, we have to add to that the amazing capacity for patients/families, the community and indeed small groups living in isolated places, to deliver health care. It saved lives and promoted wellbeing. From time to time, some of it upset me, seeing small children with chlamydial eye infections untreated and knowing that both chlamydia and gonorrhoea were prevalent in that locality.’

She says her reactions were amplified by the contrasts between the different places she visited. They ranged from a small-town family practice with ‘very high standards’ to an isolated



In the end, it is the quality of family practice that can make or break a health service. In the UK, we have structured training for family medicine, with examination and in-practice assessments to maintain standards.

Aboriginal community. ‘(There were) so many friendly faces and a great welcome, underpinned by a quiet dignity that revealed the strength below,’ she says. ‘If only the problems with alcohol could be overcome, but it seemed to me that it is a long time before it will happen. It was a real contrast to visit a big city family practice and these years later I recall meeting family physicians who were exhausted and seemed burnt out. They wanted to move, felt unfairly remunerated and disaffected. This is not unknown in the UK.’

Dame Lesley says the visit changed her, as all travel does, and she appreciates the opportunity afforded her by the fellowship from the Waterman family.





PROFESSOR JOHN NORCINI

President and CEO, Foundation for Advancement of International Medical Education and Research (FAIMER), Philadelphia, US

2007 Oration:
Workplace-Based Assessment

IN 2007, the Waterman Fellowship program was revitalised and Professor John Norcini was invited to be our Sir Ewen Waterman Fellow.

Professor Norcini was the President and CEO of the Foundation for Advancement of International Medical Education and Research (FAIMER) in Philadelphia, US. He had been asked to write the recommendations for workplace-based assessment of clinical training for the Association for the Study of Medical Education in the UK and was globally recognised for his research and development of the Mini-CEX (mini clinical evaluation exercise), a tool for enabling rigorous yet time-effective assessment of students and junior doctors during the routine work on a hospital ward.

Flinders' medical course committee recognised, with support from both clinicians and students, that having all clinical assessment for Year 3 based on a single Objective Structured Clinical Examination at the end of the year was creating significant stress for students and was not recognising clinical performance during the year. To this end, a small pilot of the Mini-CEX was being trialled in the Riverland Parallel Rural Community Curriculum during 2007.

Professor Norcini's visit and oration on advances in workplace-based clinical

assessment brought widespread understanding and support for using the Mini-CEX instrument repeatedly during the year for each student as part of our formal assessment procedures. This resulted in significantly improved feedback from both students and clinicians.

During his visit, Professor Norcini visited the Riverland to see the pilot firsthand. He also visited our staff at Flinders Medical Centre, and we arranged for him to meet with clinicians in charge of junior doctor training in South Australia. They subsequently introduced the Mini-CEX into their assessment procedures as well.

The University of Melbourne also arranged for Professor Norcini to visit and update its School on the latest in clinical assessment procedures.

Professor Norcini's visit as the Sir Ewen Waterman Fellow resulted in improvements to clinical assessment at Flinders, for junior doctors across South Australia, and influenced assessment practices more broadly across the nation. These improvements contributed greatly to the quality of medical graduates and the safety of medical care in this State.

ON REFLECTION

GOOD things come in small packages and this is especially true when it comes to exams. In 2007, Flinders was beginning to explore a different way of assessing students' clinical skills. It would complement a large end-of-year test of all of their abilities with a suite of smaller tests, sometimes lasting as little as 10 minutes each and scattered throughout the year.

The smaller patient-interaction test, called a Mini Clinical Evaluation Exercise (Mini-CEX), was being trialled with third-year students in the Riverland when Professor John Norcini was invited to visit Flinders. With his primary academic interest being assessment of doctor performance, he was instrumental in developing the Mini-CEX and was perfectly placed to reassure Flinders staff they were on the right track. 'The focus for me was mostly on how to fit assessment into the context of rural locations where training occurs,' he says of his Waterman visit.

Assessment used to be based mainly on knowledge and, at the time, there was a trend to assessing the other competencies of the doctor. Those other competencies include social skills, building relationships and communication.

In the Mini-CEX, a clinician watches a student take a patient's history, perform a physical examination, and arrive at a diagnosis and treatment plan. The clinician then assesses those competencies, as well as the student's professionalism, communication skills and organisation. The student is rated in each of the competency areas for that one encounter and is given both positive and corrective feedback.

Professor Norcini says the Mini-CEX, repeated throughout the year, has been shown to provide more learning opportunities than one longer bedside oral examination towards the end of the year. 'Its validity and reliability derive from the fact that trainees are observed while engaged with a series of real patients in different practice settings, and judgments about



In a Mini-CEX, the clinician assesses students' clinical competencies, professionalism, communication and organisation.

the quality of those encounters are made by skilled educator-clinicians,' he says.

Its educational effect is based on a significant increase in the number of occasions on which trainees are directly observed with patients and offered feedback.

He says it is important for students to be assessed on their performance with real patients presenting with the full range of conditions they might expect in a clinical setting.

Professor Norcini also spoke about the value of using simulation to assess medical students, especially early in their training. This includes using 'standardised patients', who are people trained to act as patients with particular medical conditions. Computer programs and manikins also are employed because they allow students to simulate practice without harming real patients. 'It's a distinct advantage,' Professor Norcini says of what he believes is still an evolving frontier of assessment. 'As the technology becomes more and more sophisticated, it will become possible to simulate with greater fidelity a whole range of conditions.'

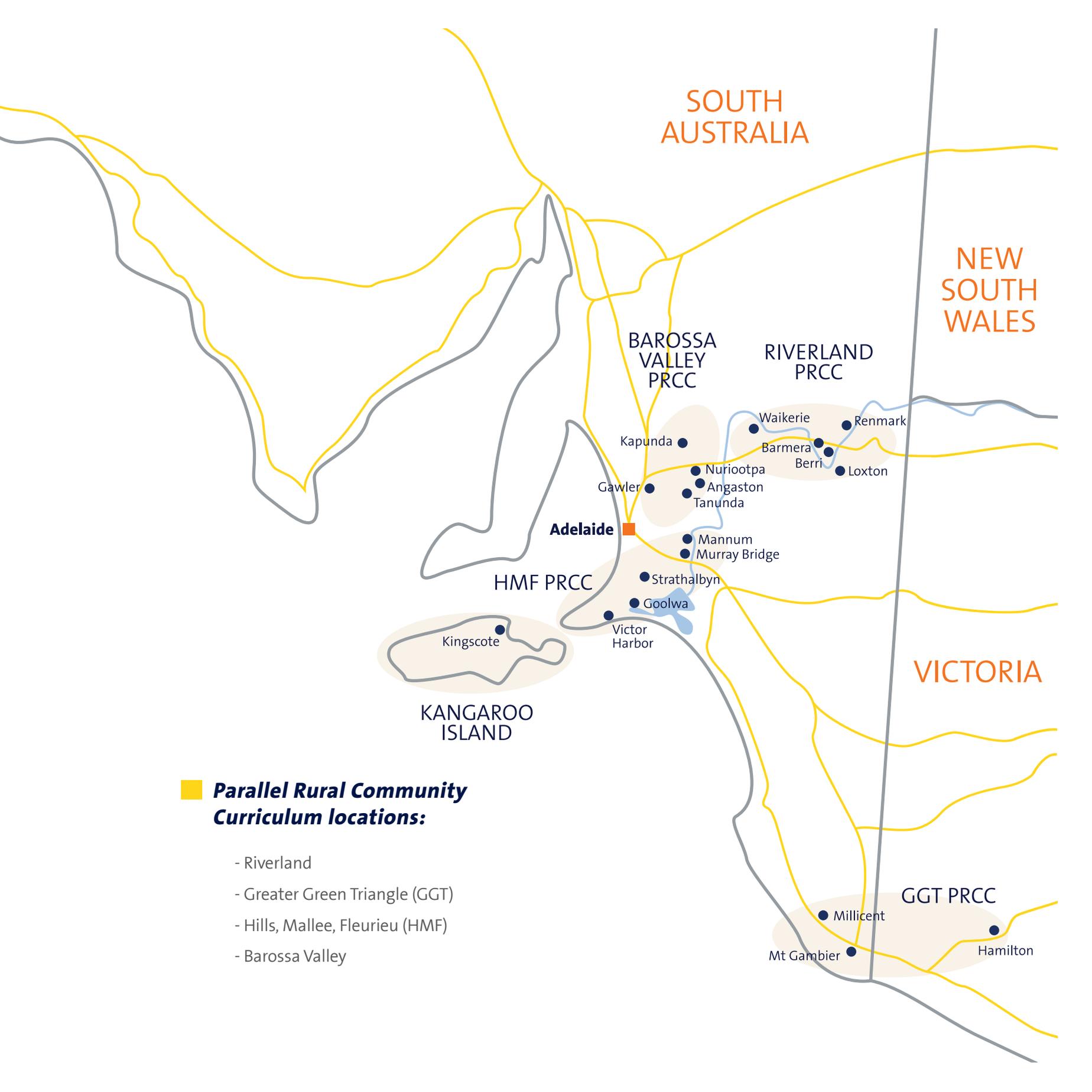
The Waterman visit for Professor Norcini included trips to the rural program in the Riverland and Mount Gambier. He says rural education in Australia is 'really a beautiful thing'. 'They do a superb job of that. I was interested to learn about it and it also gave me an opportunity to talk a little bit about assessment that occurs in the context of those kinds of setting.'

Professor Norcini describes Flinders as a very forward-looking educational institution that does cutting-edge work in a variety of areas.



EXTENDING COMMUNITY-BASED MEDICAL EDUCATION: LONGITUDINAL INTEGRATED CLERKSHIPS

IN 2008, Flinders' Parallel Rural Community Curriculum was being extended to include a fourth site, in the Barossa Valley. In addition, plans were being made to establish the Onkaparinga Community Education Program in the outer southern suburbs of Adelaide.



SOUTH AUSTRALIA

NEW SOUTH WALES

BAROSSA VALLEY PRCC

RIVERLAND PRCC

HMF PRCC

VICTORIA

GGT PRCC

Adelaide

Kapunda

Waikerie

Renmark

Gawler

Barmera

Berri

Loxton

Nuriootpa

Angaston

Tanunda

Mannum

Murray Bridge

Strathalbyn

Goolwa

Victor Harbor

Kingscote

KANGAROO ISLAND

Millicent

Mt Gambier

Hamilton

Parallel Rural Community Curriculum locations:

- Riverland
- Greater Green Triangle (GGT)
- Hills, Mallee, Fleurieu (HMF)
- Barossa Valley



**PROFESSOR
MALCOLM COX**

*Department of Veterans Affairs,
Washington, US*

2008 Oration:

***Building Human Capital: Shaping
the Health Care Workforce for the
21st Century***

At the time of his visit, Professor Cox was the Chief Academic Affiliations Officer for the US Department of Veterans Affairs and Adjunct Professor of Medicine at the University of Pennsylvania. He was also the immediate past Dean for Medical Education at the Harvard Medical School.

The Harvard Medical School was the context for the Cambridge Longitudinal Integrated Clerkship. This involved a fundamental restructuring of the clinical education program of Harvard, integrating the traditional specialist student clerkships or rotations into a single year-long clerkship focused on patient care, close mentoring and collaborative learning.

Professor Cox published the rationale for this approach in the *New England Journal of Medicine*. This approach at Harvard had, in turn, drawn extensively on research undertaken at Flinders in the Parallel Rural Community Curriculum initiative.

His 'oration', entitled *Shaping the Health Care Workforce for the 21st Century*, provided both the rationale for longitudinal integrated clerkships and evidence of their success. The former was argued through the need for a more generalist medical workforce to deal with the health needs of ageing populations. For the latter, enhanced student outcomes in the National Board

examinations in the US and measures of professionalism and clinical skills were presented.

The principles of longitudinal integrated clerkships were well understood in the medical school through the Parallel Rural Community Curriculum (developed in 1997) in rural general practice settings and small rural hospitals.

Professor Cox's visit and presentations were timely as Flinders had just commenced a longitudinal integrated clerkship in the Noarlunga Basin (the Onkaparinga Clinical Education Program) and there was interest in applying the principles underlying the Parallel Rural Community Curriculum and the Onkaparinga Clinical Education Program to the clinical learning programs within the hospital environment of Flinders Medical Centre. However, there was some scepticism that this could be achieved.

Professor Cox's contribution was to demonstrate that the introduction of such a program was feasible and led to enhanced student learning outcomes. His visit proved to be seminal in the subsequent establishment of the medical school's own longitudinal hospital-based program at Flinders Medical Centre.

ON REFLECTION

HAVE patients. Plenty of them. For a long time. That's a key message from Professor Malcolm Cox, who espouses the benefits of longitudinal integrated clerkships, in which a medical student partners with a clinician and a setting, for up to a year. He says such continuity of workplace learning teaches students to focus on the patient.

Previously, clinical clerkships used to be organised in much shorter blocks. 'You did a bit of kidney disease; you did a bit of heart disease; you did a bit of lung disease,' he says. 'It was intensive subspecialty-oriented training, whereas I was promoting, in this talk, a more generalised longitudinal continuity or iterative-based experience, in which the trainees were more connected to individual physician teachers than to blocks of different subspecialty content. Over a period of 12 months, because the common things are common, they actually get to see pretty much the same stuff (as each other).'

He believes it is more important to learn how to think about clinical issues than it is to know everything about clinical issues.

Students are 'very smart' about finding the content part of the curriculum on the internet. So the real issue is to get them to think about the patient as the centre of the puzzle and to be able to get the information they need in a different way.

'So they need teachers who are with them on a continuous or iterative basis and this is one of the things I was particularly interested in in the (Flinders) rural training.'

They all went to different practices. They all got to see different things but they were taught the professional value to focus on the patient. The rural educational programs in Australia are actually, across the world, used as an exemplar of how to do this sort of apprenticeship-type learning – learning in practice. Professor Cox says studies have compared longitudinal



Students in the longitudinal integrated clerkships have a much more patient-focused or patient-centred view.

- Professor Malcolm Cox

“

As much as we give, we get a whole lot in return. That's really a critical part of the family's forethought in putting together the money for these fellowships.

- Professor Malcolm Cox”



integrated clerkships with control groups taught in blocks of individual specialties. In general, the quality of the student experiences was equivalent. ‘The big difference was that the students in the longitudinal integrated clerkships have a much more patient-focused or patient-centred view, which is what, in my view and the view of increasing numbers of people in education today, is far more important than the subspecialty.’

His oration explored ways to shape a medical workforce to deal with modern health problems and he emphasised cooperation.

There are about two dozen different health professions, with little interconnection between their education. He cites the relatively new subspecialty of geriatrics, where problems are complex and interconnected, as an example of an area which needs interprofessional workforces.

Professor Cox says the Waterman Fellowship gave him an opportunity to study rural education and the veterans’ health care system in Australia. ‘It really is a two-way street,’ he says. ‘As much as we give, we get a whole lot in return. That’s really a critical part of the (Waterman) family’s forethought in putting together the money for these fellowships. I want to give recognition to what I think of as a broader aspect of the lectureship.’

Paul (Worley) and his colleagues were wonderful hosts and that's important because developing relationships beyond just academic or professional relationships is important.'

SOCIAL ACCOUNTABILITY: A RENEWED COMMITMENT

THE Parallel Rural Community Curriculum was important in two ways. The first was the strong sense of social accountability that medical schools have – a duty to society to educate the best possible doctors not only for urban regions but also for rural and remote areas. Because of this, learning through immersion in remote areas is important.

The second important aspect is the educational concept of longitudinal integrated clerkships. In longitudinal integrated clerkships, students do not move from one discipline to another during their clinical years but, rather, follow patients starting with the GP. In this model, students work alongside a GP in a rural or remote area and may follow the patient to hospital. Here, the patient story is the integration for learning, rather than the model of health care organisation. Although this may look intuitively obvious, it was revolutionary at that time – and for some, it still is.

In 2008, Flinders renewed its commitment to social accountability by becoming a founding partner in the Training for Health Equity Network (THEnet) – a global network of medical schools committed to social accountability. Such a commitment ensures that medical schools remain accountable for their courses as well as the selection and retention of students for the local communities they serve.

Flinders' membership of THEnet resulted in important connections being established with two leading clinical academics with a focus on social accountability – Dr Fortunato Cristobal from the Philippines, and Dr Arjun Karki from Nepal – who became the 2009 and 2010 Waterman Fellows, respectively. Their visits were important, particularly as Flinders began to expand its medical course to the Northern Territory.





PROFESSOR FORTUNATO CRISTOBAL

*Founding Dean, School of
Medicine, Ateneo de Zamboanga
University, Philippines*

2009 Oration:
***Medical Education for Health
Development: The Philippines
Experience***

DR Cristobal's invitation for the Waterman Fellowship came through the School of Medicine's membership of the Training for Health Equity Network (THEnet), an international organisation committed to enhancing social accountability in medical education.

Flinders was selected as a founding member for THEnet, particularly for its commitment to health equity for rural and Indigenous Australians.

Dr Cristobal was Founding Dean of the Ateneo de Zamboanga University School of Medicine in the Philippines. This school is also a founding member of THEnet. It is a low resource school in an outlying area of the Philippines which has an enviable record of recruiting and retaining local students. This is in contrast to other Philippine medical schools, where many graduating students choose to leave and work overseas.

Dr Cristobal's oration focused on his school's contribution to health development in the Philippines. He was able to provide evidence that since the establishment of the school, key health statistics, such as infant mortality, have improved in the region. He attributed this to the retention of graduates in the area where formerly there had been few permanent resident doctors. He also demonstrated how the School had continued to develop and thrive

despite its location in an area of terrorist activity and its physical destruction in a catastrophic cyclone.

Dr Cristobal's contribution to the School of Medicine at Flinders was to provide a visible and practical demonstration of how medical schools could redress health inequity.

Despite Flinders' membership of THEnet, the concept of a medical school being a force in addressing health inequity was not universally understood. Dr Cristobal's contribution as a Waterman Fellow went a long way to broadening such an understanding. His visit also enhanced medical education research collaborations within THEnet, resulting in a number of multi-institution publications, including in *The Lancet*.

***The Ateneo de Zamboanga
medical school has an
enviable record for recruiting
and retaining local students.***

ON REFLECTION

MEDICAL students in the Philippines are building houses out of plastic Coke bottles and devising faster ways to purify water. Posted to some of the poorest parts of southwestern Mindanao, students spend half their course in the community and each is challenged to help resolve one problem which stands in the way of improved health.

Dr Fortunato Cristobal says the School of Medicine at Ateneo de Zamboanga University, which began in the 1990s, is a radical success, winning at social accountability, and winning at skilling doctors to meet and surpass national standards.

‘We don’t call ourselves community-oriented; we call ourselves community-engaged medical education,’ he says. ‘So right from the first year, the students get in there, find out what the problem is, meet with the local people and then together sit down with them, find out what solutions can be done. The people are involved in the solution. When they disengage after five years, then the community can get on better because the infrastructure, the system, the management is in place already. So, we moved from the curative to developmental.’

The interventions have led to a sharp drop in infant mortality, from 75 per 1000 live births in 1994, to no more than 8 per 1000 in 2017. About 96 per cent of graduates remain in the Philippines and 70 per cent return to base themselves in regional areas. Where 85 per cent of municipalities once were without doctors, that figure now is about 60 per cent. In the final year of their degree, students spend about 10 months in the community.

One student challenged locals to collect all the plastic soft-drink bottles they could find to use as hollow blocks to construct a building. They built a midway house because the community is remote and mothers in labour struggle to reach a health facility in time. The plastic-bottle house has become a place for an entire family to wait once the end of pregnancy is drawing near.



‘In the Philippines, at first, they were very sceptical because we’re a new medical school; nobody would want to come to our area because it’s a troubled area,’ Dr Cristobal says. ‘Now they are beginning to see because we have the evidence. It’s working and they could not deny. Our graduates are actually using a problem-based approach to education, rather than the discipline-based, and when we take the examinations, the written (licensing) board examinations, it’s their exams that we take and we compete with them. In fact, we have about five of our students through the years who have gotten into the top 10 students in the country.’

Dr Cristobal says it was a ‘radical idea’ when he introduced the community-based course but the Philippine Medical Association is ‘softening’. ‘In fact, they’ve made it a ruling that any new medical school that opens in the Philippines has to visit us and look into our curriculum.’

‘So, we’re now becoming an acceptable member and not just the younger guy in the neighbourhood.’ In 2018, the school was awarded the Charles Boelen International Social Accountability Award from the Association of Faculties of Medicine of Canada.





DOCTOR ARJUN KARKI

*Founding Vice-Chancellor,
Patan Academy of Health
Sciences, Nepal*

2010 Oration:
***Bridging Urban-Rural
Health Divide and Fostering
Peace in Nepal***

Dr Karki was invited to be a Waterman Fellow through membership of THEnet. At the time, he was founding Vice-Chancellor of the Patan Academy of Health Sciences in Nepal. The Academy was specifically established to address rural medical workforce shortages in Nepal. It has a commitment to recruiting and retaining students for work in underserved rural and remote communities. Most Nepali doctors choose to work in Kathmandu or overseas.

Dr Karki's oration focused on how the Academy was attempting to bridge the rural-urban divide through its programs. He also pointed out the difficulties in health provision during the civil war in Nepal.

Dr Karki's presentation assisted staff at Flinders to reflect upon and evaluate Flinders' own programs and commitments to rural South Australia, the Northern Territory and Australia.

While the Flinders programs are set within a resource-rich health system, many of the principles of social accountability and equitable health provision outlined by Dr Karki apply equally well in the Flinders context.

This was important as the Flinders programs were undergoing a period of expansion. The major initiatives for providing the entire medical course in

the Northern Territory and addressing Indigenous health were also under development at this time. Dr Karki's contribution was thus very timely.

Dr Karki's visit also coincided with Flinders hosting an international conference on community-engaged medical education. Known as 'The Muster', this was the second in what has become a biennial series of international conferences co-hosted by Flinders and the Northern Ontario School of Medicine (NOSM).

This conference was held in the Barossa Valley, and Flinders' next 'Muster' would be held in 2014 at Uluru, in the Northern Territory. In 2008, 2012 and 2016, the conference was held in Northern Ontario. In 2018, the Muster was held in Mount Gambier. These Muster conferences have resulted in Flinders and NOSM being acknowledged globally as leaders in community engagement, a key contributor to social accountability.

Dr Karki's oration explored the bridge his Academy was trying to create between the rural-urban divide, encouraging Flinders' staff to reflect on the medical school's own programs and commitments to rural Australia.



ON REFLECTION

IN 2010, Arjun Karki arrived in Adelaide from one of the poorest countries in the world – Nepal. He was brimming with hope and shared why in his Waterman Oration.

Just months earlier, the newly established Patan Academy of Health Sciences, had enrolled its first cohort of medical students. These would be no ordinary students; their curriculum would be novel and their value to Nepal profound. Dr Karki believed it then and he believes it even more so now.

The aim of the Academy was to help narrow down the ‘tremendous’ health disparities between the urban and rural Nepalese. In most aspects, including the incidence of infant mortality and of maternal deaths in labour, rural areas fared far worse. They had fewer health services and a shortage of doctors willing to serve in rural and remote locations.

‘It’s something that’s not entirely unfamiliar to the medical community in Australia but the nature and the magnitude is completely different,’ Dr Karki says, while stressing that the terrain, the economy and the organisation of the health system are less favourable in Nepal.

For a decade, from 1996 to 2006, the country had been torn apart by civil war, with thousands of lives lost and hundreds of thousands of people displaced. Dr Karki believes one of the drivers of the unrest was resentment about disparities.

‘In order to have a chance for sustainable peace, we had to do something about the structural causes of it. Health is one of these facts; it was an area we could do something about.’

Having described the problem, Dr Karki broadly shared with Flinders what his new medical school proposed to do. There would be a multitude of interventions, beginning with the way students were selected. They would come from the rural areas and, where provided with scholarships, there would be

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To have a chance for sustainable peace, we had to do something about the structural causes of it. Health is one ... area we could do something about.

”

- Dr Arjun Karki

conditions attached. Students who received a full scholarship must work in rural health for a minimum of four years after graduation, or for a lesser period after a partial scholarship.

The Academy employed problem-based learning but also devoted about 25 per cent of the curriculum to public health, how the health system works, why preventive programs are important, palliative care and social determinants of health. During their degree, students would spend part of their time in rural hospitals. They also would spend brief periods living with families in the community, to understand them, their living conditions and needs. By 2018, rural exposure had lengthened to five months in a student’s final year.

‘The whole idea is, you can’t ask people to go and serve in the rural areas when you teach them only in the urban-centred big hospital, where there are layers of faculty and specialty departments,’ Dr Karki reasons. ‘It’s as if you are nurtured in such a well-protected environment and upon graduation you tell the person to go and serve in the remotely located areas.’ He says other medical schools in Nepal take little interest in where their graduates find work. Many would go overseas or to large clinics and hospitals in Kathmandu.

The Patan Academy of Health Sciences, however, was seeing about 60 per cent of students accept rural jobs in the public health system after graduation. Dr Karki says he is confident the Academy's students are being instilled with more motivation and commitment to rural work and that they will contribute to equity and peace in Nepal.



BUILDING ON THE LONGITUDINAL INTEGRATED CLERKSHIP

2011 saw a renewed focus on the longitudinal integrated clerkship, with Dr David Hirsh from the US. Rather than focusing on this approach in smaller, community-based settings, Dr Hirsh explored the longitudinal integrated clerkship model in larger, tertiary teaching hospitals. This coincided with plans to develop such a model at Flinders Medical Centre.

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You can't ask people to go and serve in the rural areas when you teach them only in the urban-centred big hospital.
”

- Dr Arjun Karki



DOCTOR DAVID HIRSH

*Director of Academy Fellowship
in Medical Education,
Harvard Medical School, US*

2011 Oration:

***On the Edge of Possible: Educational
Transformation at Flinders, Harvard
and Beyond***

Dr Hirsh's Fellowship represented a return to the theme of the longitudinal integrated clerkship.

Dr Hirsh is an active clinician-academic at the prestigious Harvard Medical School and a major contributor to the longitudinal clinical education programs at the Cambridge Health Alliance, a smaller hospital in Cambridge Massachusetts associated with Harvard. He is also active in the international Consortium of Longitudinal Integrated Clerkships.

Dr Hirsh provided both a local and international perspective on integrated clerkships and, in particular, the transformation of education and medical student learning in the longitudinal approach. As an active hospital clinician, Dr Hirsh was able to communicate effectively with the clinical staff at Flinders, particularly those working at Flinders Medical Centre.

At the time, plans were well advanced for a longitudinal program within the Flinders Medical Centre but staff needed information on how it would operate and, importantly, a demonstration of the additional learning gains for students that could not be obtained in more traditional approaches. Dr Hirsh readily demonstrated this both in his oration and in subsequent meetings with key Flinders Medical Centre clinicians.

Following his oration, key clinicians from Flinders Medical Centre were invited to visit Harvard Medical School to see the Cambridge program firsthand. This resulted in significant advances in the planning and operation of the longitudinal program at Flinders, and was influential in the pilots that led to Flinders, in 2017, becoming only the second school globally to change from a traditional rotation-based curriculum and adopt this longitudinal integrated clerkship approach as the major form of clinical teaching and learning for all students.

Dr Hirsh's visit also resulted in an acceleration of research collaborations between Flinders and Harvard scholars in the science and outcomes of the longitudinal integrated clerkship approach. This resulted in numerous publications in the highest ranked international journals in the field of medical education, confirming Flinders' acknowledged position as a global research and development leader in this field.

ON REFLECTION

ONCE upon a time, there was an unchallenged tradition of block-rotation of medical students through the various specialties in a teaching hospital. It made sense, says David Hirsh, because that was where the patients were.

‘In the olden days, everybody pretty much got admitted,’ he says. ‘Also, clinicians and the patients were together in the hospital for a very long time. It could be days and days but it was often weeks and weeks, or even months.’ So, students would spend about eight weeks each in disciplines such as obstetrics and gynaecology, psychiatry, internal medicine and surgery. The hospital was the place to be, to understand the patient’s experience of illness; to understand the illness; to understand decision-making.

To understand anything, students needed to be in a place where the patients went and stayed. Over the past 30 years, however, hospital stays have shortened and, for some conditions, are now unnecessary.

Recognising this, and following the very early lead of the University of Minnesota Medical School, Flinders developed a community-based clinical training program, beginning in 1997, in the Riverland. Called a longitudinal integrated clerkship, it replaces compartmentalised rotations with continuous relationships and care across disciplines. For medical students, these continuous relationships are twofold – with supervisors, who are most often GPs, and with patients from the community in which the students are immersed.

Dr Hirsh argues it was the most logical move to make. ‘In GP offices all over Australia, what happens is, the curriculum walks in the door,’ he says. ‘First lady who walks in has pain in the belly; next lady who walks in, she’s got a red eye; then this guy walks in with a broken hand.



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*In GP offices all over Australia,
the curriculum walks in the door.*

”

- Dr David Hirsh

All the things that you want to learn about are residing in real people coming to a real place of care where 99 per cent of care is delivered.’

He says students will still cover the same topics, see the same kinds of patients and master the same skills they would have on block rotation. At the same time, they will hone their communication and understanding of people. They will learn about their patients’ ‘lived experience’, the context of their

experience of disease, their values and their place in families and communities. 'If you think about it, there's really no such thing as a gynaecology patient,' Dr Hirsh reasons. 'She has an issue which might be definably helped by people who study female health, so-called gynaecologists, but she's just her. Tomorrow, if it turns out it actually wasn't a gynaecology issue, it was actually that she had appendicitis, she doesn't turn into a surgical patient, she's still just her.'

He says students will become better clinicians if they see the person first and then understand the disease in the context of the person.

By the time Dr Hirsh arrived at Flinders for his Waterman Fellowship in 2011, Flinders had expanded its LIC program. About half of all third-year students were undertaking LICs in rural or urban community settings.

He says students become a relevant member of the health care team with which they are placed. They are watched closely by the actual clinicians but they still have meaningful roles, rather than being passive observers.

'When you have a meaningful role, you learn more and better. The driver of your learning isn't the test; the driver of the learning is duty and commitment. You're on this team; you're part of the team.'

So, if community placements hold such value for medical students, where does this leave academic teaching hospitals?

Dr Hirsh maintains they very much have a place in clinical learning but they cannot return to shunting students through brief intensives of the various specialties. They can fashion their own longitudinal clerkships, based on the wealth of information which comes from studying the now-established community LICs.

Emphasis needs to be placed on student relationships with patients, and students need ongoing support from teachers

and mentors. 'You can't know the professional carriage of you as a real, true, living, breathing professional if you're not with mentors and role models over any substantial time,' Dr Hirsh says. 'You can't know the patient as a human being if you just know them as a one-day or two-day flash of a disease at the sickest of their life.'



“
When you have a meaningful role, you learn more and better.
”
- Dr David Hirsh





TOWARDS A FOCUS ON MEDICAL EDUCATION RESEARCH

AMIDST the focus on educational innovations to the medical course at Flinders was a series of important research developments in medical education. Increasingly, attention was being given to the link between health professions educational practice with health professions educational research outcomes.

An illustration of this trend was the emergence of best-evidence-based medical education collaborations, involving multiple disciplines. Cognitive psychological research has always had a strong influence on modern health professions education design and, with the advent of new technology, there were emerging opportunities to triangulate existing evidence with new data. One such development was the use of functional MRIs and other physiological markers in creating a better understanding of how clinical decision-making and problem-solving ability develops.

These trends in medical education research informed subsequent Waterman Fellowships, with Professor Steven Durning in 2012, Professor Geoff Norman in 2013, and Professor Cees van der Vleuten in 2014. In addition, Flinders built upon its previously formed medical education unit to appoint Professor Lambert Schuwirth as the Strategic Professor of Medical Education. This appointment resulted in the establishment of the Prideaux Centre for Research in Health Professions Education in 2014.





PROFESSOR STEVEN DURNING

*Director, Graduate Programs
in Health Professions Education,
Uniformed Services University, US*

2012 Oration:

***New Frontiers in the Assessment
of Clinical Reasoning***

STEVEN Durning is a Professor of Internal Medicine and Pathology at the Uniformed Services University of the Health Sciences in Bethesda, Maryland, in the US. He is also the Graduate School's Director.

Professor Durning has a keen interest in clinical decision-making and clinical reasoning and the way fatigue and sleep deprivation influence the quality of both.

In his research, he seeks to combine neuroscience, cognitive psychology and medical education. In many of his studies, he has used functional MRI to look at how brain centres are activated when experts and non-experts are asked to solve clinical problems. This is an amazing field of research in which three domains – neuroscience, cognitive psychology and education – come together.

His presentation as the 2012 Waterman Fellow focused on explaining how the relationship between the three domains can be very synergistic. It helped to forge stronger links between the various disciplines in the medical school and aided in establishing health professions education as a serious scientific field with sound experimentation and rigorous research.

It also demonstrated how important it is that experts from different disciplines communicate and collaborate on health

professions education, each bringing in their own specific expertise.

A friendly and humble man, Professor Durning's actions speak louder than words. He is a prolific researcher with an impressive publication output and a good radar for attracting grant money.

Professor Durning was the first Waterman Fellow to visit Flinders University after discussions commenced regarding the establishment of a research centre in health professions education. At that time it was still an unofficial research group. Therefore, his contribution was very important in demonstrating the credibility of a research group with a specific spotlight on translational research. He continues to make an important contribution to the Prideaux Centre through his academic status as an Adjunct Professor.

***Professor Durning explained
the synergistic relationship
between neuroscience,
cognitive psychology and
education, demonstrating
the importance of
collaborating with experts
from different disciplines.***

ON REFLECTION

PICK Steven Durning's brain on the future of medical exams and he sees students resting their heads in MRI machines, rather than in their hands. Magnetic resonance imaging, he says, is part of the new frontier of clinical reasoning assessment.

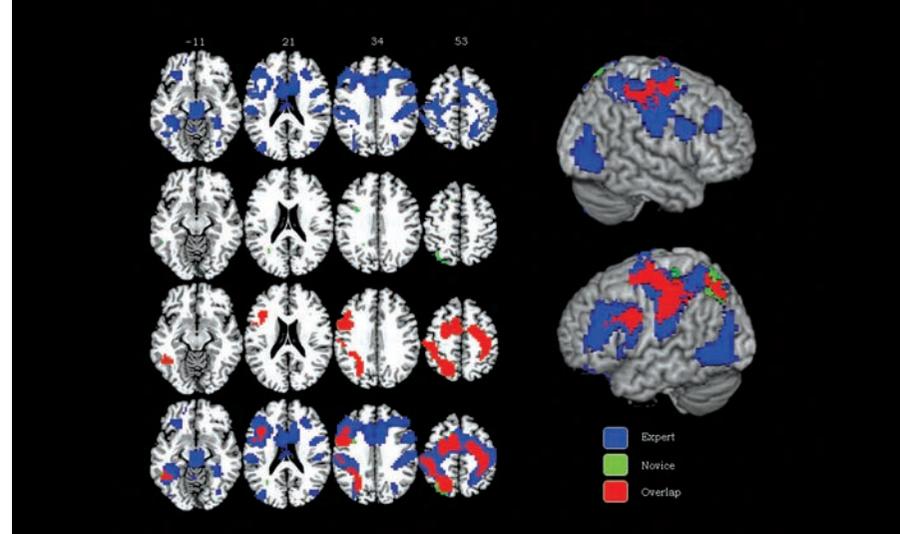
'I can see the day potentially occurring, not now but maybe some day, where I won't be asked to go take an eight-hour exam to determine if I'm competent to practise medicine by how I answer all these multiple-choice questions,' he says. 'Instead, I'm asked questions that are bread and butter to my practice and, not only by my answering the questions right or wrong but by what areas of my brain are activated, may give the examiners a sense of do I really know this topic or not.'

Professor Durning says the old frontier in assessing clinical reasoning is primarily multiple-choice question exams. Another traditional method is the complete clinical evaluation exercise, where a clinician will observe a learner from the start to the end of a single encounter, which can take up to two hours.

Examiners can have students explain what they are thinking and why but thought cannot be directly observed. That's where MRI may prove useful.

Functional MRI can give a proxy of thinking by looking at regional blood flow. It gives an idea of what parts of the brain are active while going through a task. 'It's been done so far with multiple-choice questions because you can lie flat in a functional MRI scanner and push the buttons for your answers so you get a sense of what parts of their brain are active and what parts are not. You get a sense if the different areas of the brain that are activated are what you'd expect or not.'

By looking at learners across the continuum of students, then registrars, then expert consultants, it may be possible to get a sense of the development of clinical reasoning by the different areas in the brain that are activated, from someone who is



just starting out to someone who has performed in practice, Professor Durning says.

With the wholesale use of MRI as an assessment tool still some way off, he suggests the current frontier of clinical reasoning assessment is about inspecting both the process and the outcome. He says the focus should not be on a 'single best answer' to a problem. 'We spend too much time focusing on the outcome,' he says. 'We throw our hands up in the air and say "Well, I can't see their thinking so I'm just going to focus on their decision"'

'There's a lot to the decision that we need to pay attention to. How they get there is, to me, far more important than did they get to the right answer.'

He says he would like to see assessment of clinical reasoning approached more 'holistically', taking into account factors such as electronic health records, decision support tools, confidence and cognitive load.

Professor Durning says he values the opportunity he had to be a Waterman Fellow. 'I think I can say with total certainty that I was treated extraordinarily well,' he says. 'It was a red-carpet trip and I left both tired and invigorated. Tired because of all the great discussions that stretched my thinking on the topic, and related topics, and invigorated thinking about the next steps that could be taken based upon the discussions that we had.'



PROFESSOR GEOFF NORMAN

*Professor, Department of Clinical
Epidemiology and Biostatistics,
McMaster University, Canada*

2013 Oration:

***The Things We Know, the Things We
Think We Know but Don't and the
Things We Don't Know But Should***

***Professor Norman suggested
that while there is evidence
in the literature to support
educational approaches in
the health professions, it
is sometimes difficult to
convince people to
use this evidence.***

PROFESSOR Geoff Norman is a nuclear physicist by training and he is currently Professor of Epidemiology and Biostatistics at McMaster University in Hamilton, Canada.

His work has always been in the domain of cognitive psychology and education. He is a strong proponent of rigorous experimentation and focusing on what really works, instead of following beliefs, hype and intuition. He does not mince his words, and with his sharp intellect and impressive knowledge of the literature – especially in the field of clinical decision-making, clinical reasoning and cognitive psychology – he is able to, and will, call out any bluff or unsubstantiated conclusions.

He is the editor of one of the top journals, *Advances in Health Sciences Education*, and is very firm on rigour in research.

His Waterman Oration dealt with myths in education that have been successfully debunked and some counterintuitive findings that have been rigorously established. Although his oration and rather direct approach to conversation required some acclimatisation, he clearly conveyed the message that there is sufficient strong evidence in the health professional education literature, but that it is sometimes difficult to convince people about this evidence and make them use it.

ON REFLECTION

THE cold hard fact is that Geoff Norman doesn't deal in beliefs. Academics who base decisions on beliefs and opinions are away with the fairies, as far as Professor Norman is concerned. He says facts, demonstrated by evidence, should not be subject to beliefs. 'The same clinicians who wouldn't dream of implementing a new pharmacotherapy for a stroke without good evidence, have absolutely no qualms at all in saying "well in my opinion we should teach this way";' he says.

'When it comes to clinical decision-making, evidence trumps everything else. When it comes to educational decision-making, "my experience" and "my opinion" trumps everything else.'

Professor Norman says education has an evidential basis, just as clinical medicine has an evidential basis. He says the science of learning derives from fundamental research about the way the brain works. 'That's as opposed to the kind of stuff the educational people spout all the time, along the lines of learning styles and self-actualisation,' he says.

'There's all these catch phrases that have no evidence to substantiate them. Adult learning is yet another. Adult learning theory was once again foisted on an unsuspecting world back in the '60s, about how adults learn differently from children so we have to tailor to adults, as if somehow the brain is flooded with adult hormones at age 16 and totally reconfigures itself. Not so. My take-home message is evidence matters.'

He says teachers should discount the myth that people learn differently. The nature of what has to be learned is a much bigger determinant of how to go about teaching it than anything to do with individual differences between students.

'You can give them a learning-style questionnaire and I'll tell you that I'm an abstract conceptualiser and somebody else will tell you that they're a practical organiser or something,' he says.



“
*My take-home message
is evidence matters.*
”
- Professor Geoff Norman

'I can never remember all the labels. Mainly because I don't care. The critical issue is, if I as a teacher then tailor my teaching so that abstract conceptualisers see abstract concepts and the practical organisers see practical examples, does that improve learning? Answer – not at all. A ton of evidence says it doesn't make a damn bit of difference.'

He says an example of a simple and cheap improvement to education is to teach students several skills before testing them across all of them. This would replace the more traditional method, called block practice, where students learn a formula, then practise the formula, learn a different formula and then practise that formula.

In its simplest form, students know that the questions at the end of the multiplication chapter will require multiplication and at the end of the division chapter will require division.

Professor Norman says students often have trouble recognising what kind of problem they are faced with when it's not at the end of the chapter but it's a skill they need to master.

'Once you figure out what kind of problem it is, the job's about 90 per cent done,' he says. 'You can say "oh, it's one of those", and off you go. By simply doing that, and taking exactly the same time for instruction and practice as you did with the other way, you get about a 50 per cent increment in how much people are able to use that information down the road for new problems.'

Students often have trouble recognising what kind of problem they are faced with but it's a skill they need to master.



IMPLEMENTING A NEW APPROACH TO ASSESSMENT

NEW research-based insights were not only relevant for education and learning but also for assessment. For students to be able to use assessment to support their learning, the feedback it produces must be meaningful.

The evidence that good feedback and deliberate practice are essential for the best possible expertise development cannot be overlooked.

This led to the question of whether existing assessments were capable of giving this feedback and whether it could be redesigned to shift students from 'grade-grubbing' (negotiating higher grades), to using their assessment results and feedback for meaningful learning.

This issue is extremely complex and still not fully resolved but a radical redesign of how we organise assessment programs has been a popular and promising start. Programmatic assessment has now been incorporated into the medical course at Flinders and the 2014 Waterman Fellow, Professor Cees van der Vleuten, played a major role in its development.





**PROFESSOR
CEES VAN DER
VLEUTEN**

*Professor of Education and Scientific
Director, School of Health Professions
Education, Maastricht University,
the Netherlands*

2014 Oration:

***Programmatic Assessment:
A Vision for the Future***

PROFESSOR Cees van der Vleuten is, without a doubt, the most pre-eminent medical education researcher in the world. He leads the Department of Educational Development and Research at the University of Maastricht in the Netherlands. This department is indisputably the top centre in the world, with more than 80 scientific staff members and around 90 national and international PhD students at any one time.

Professor van der Vleuten is a psychologist – a test psychologist by training – and has had a major influence on our thinking about assessment in health professions education.

His Waterman Oration on programmatic assessment for learning has had a huge impact on what the medical school is trying to achieve in its MD course. In his oration, Professor van der Vleuten highlighted the conceptual issues around programmatic assessment for learning and how it is a modern solution to some of the globally experienced problems with traditional assessment.

His mission in his professional life is to bring evidence and rationality to medical education. He has a thorough dislike of educational decisions being made solely on tradition, opinion and belief.

He views medical education as a science which produces evidence which, therefore, requires translation.

It is not an overstatement to say that he is a true collaborator and an altruistic professional, who is always happy to share knowledge and information freely with anyone who could contribute evidence to the practice of medical education.

One can only wonder whether the changes to the MD course in terms of progress testing and programmatic assessment for learning would have happened so well if he hadn't contributed to the School of Medicine as a Waterman Fellow.

***His mission is to bring
evidence and rationality
to medical education.***

ON REFLECTION

UNIVERSITIES should not be deciding students' futures based on how well they cram for exams, says Cees van der Vleuten.

He favours programmatic assessment, in which there are many moments of assessment, used as data points and collectively providing information towards a pass or fail. Importantly, those assessments also provide progressive feedback to the student.

He believes grades are a relatively poor form of feedback and carry little information the student can use. 'The very typical approach to assessment is that we have a piece of education and then, at the end of the education, we finish that off with an exam, and then you pass or fail and then you're allowed to move on.'

'This approach has many disadvantages. The one big disadvantage is that it really leads to test-directed study, often learning strategies that are not so beneficial for learning. We know that learning for a test and memorisation is short-term learning.' He says learning is better supported when students need to use their knowledge throughout the curriculum.

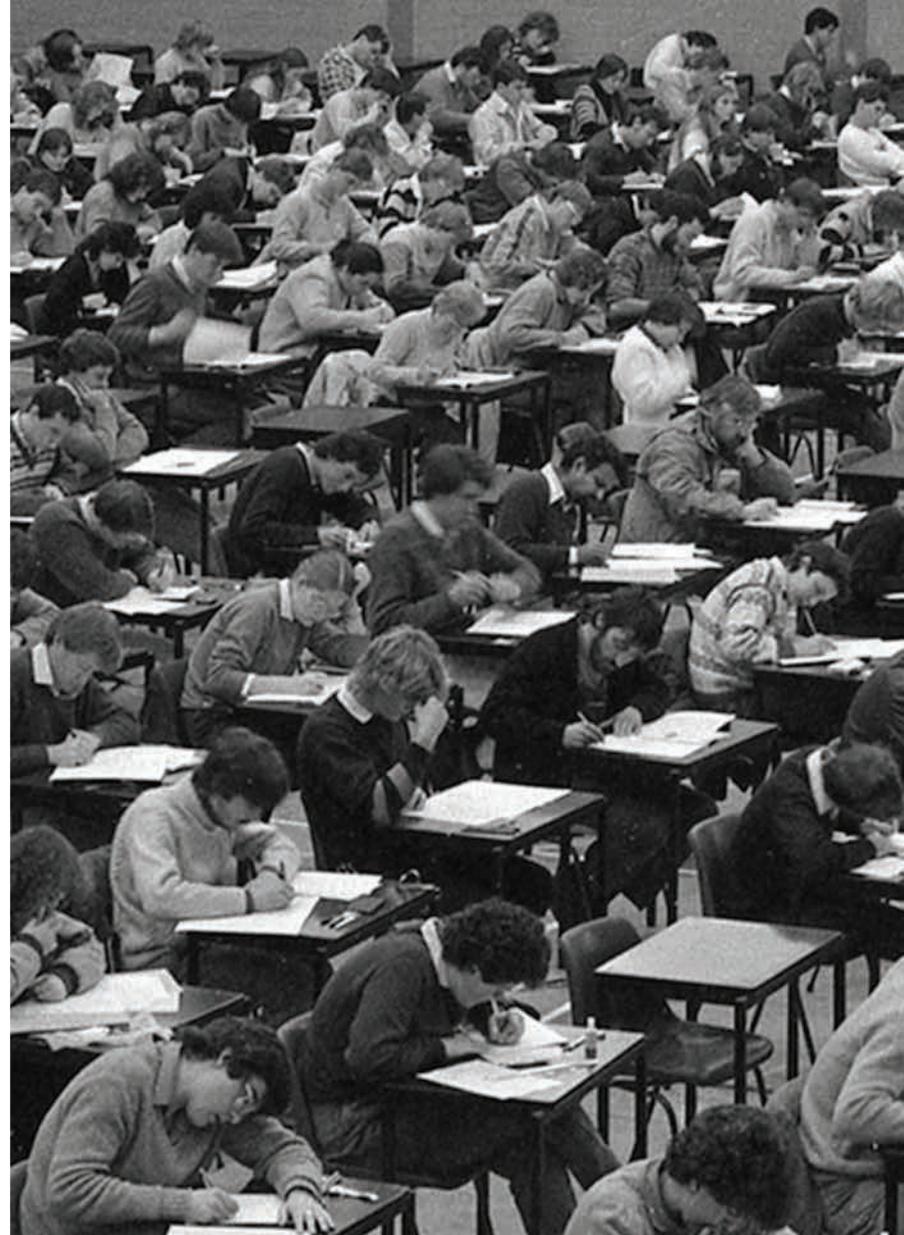
Traditional assessment is particularly unsuitable for evaluating 21st century 'labour-market skills', such as collaboration, communication and professionalism, Professor van der Vleuten argues. For these kinds of skills, numerical values such as grades have little meaning. 'We need a lot more narrative feedback, verbal feedback,' he says.

'The classical system is very limited in terms of the way it gives feedback and there's pretty much a grade culture, with learning behaviours connected to it. It also doesn't fit modern educational approaches. We move beyond learning knowledge alone. We move towards what is called competencies.'

He says competencies need to be developed in a longitudinal program and the assessment – programmatic assessment

“The very typical approach to assessment is ... at the end of the education, we finish off with an exam ... This leads to test-directed study.”

- Professor Cees van der Vleuten



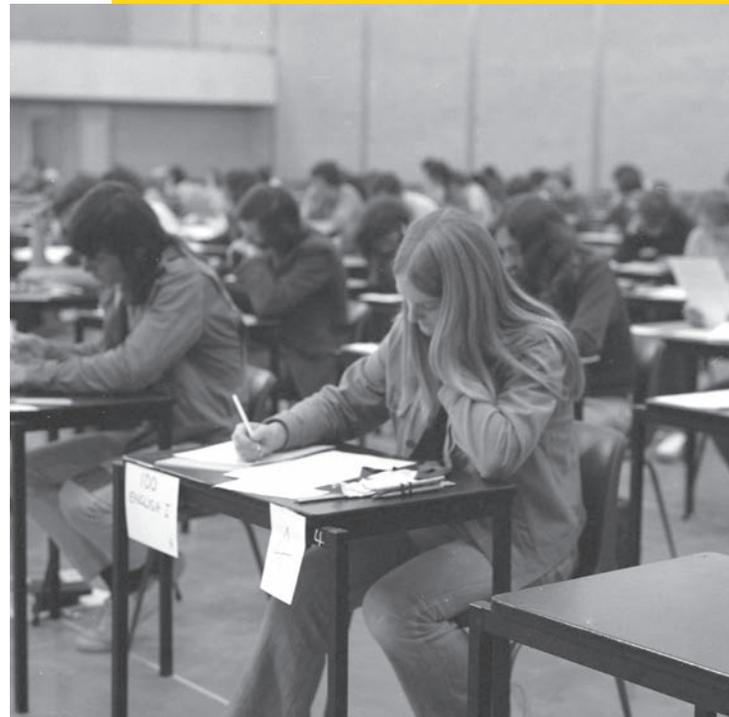
– should be aligned to that. ‘You can’t have a course on communication and then a test and then you’re a good communicator,’ he says. ‘One very fundamental rule is every individual assessment is not related to a pass-fail decision but is geared to giving information – feedback.’ Therefore, decision-making about the student is removed from the individual assessment. There is a pass or a fail but only once sufficient information has been gleaned to make that decision.

Professor van der Vleuten likens programmatic assessment to taking a picture. ‘If you have one pixel, you don’t see the picture,’ he explains. ‘If you have more pixels, you slowly start to see the image.’

Every assessment is information-rich. It is low-stake. It’s not of no stake because it may be used in the total picture but it is very low-stake because we don’t take pass-fail decisions. It means that you get a lot more information on the learner so, if there’s a problem, you can intervene very early.’

‘What we know in education is that anything that you pay attention to will grow. So, if you don’t pay attention in your training program to, for example, communication, then it won’t grow automatically.’

Professor van der Vleuten says many schools are rusted on to the old testing methods. They require a lot of effort and ‘quite a lot of convincing’ to implement programmatic assessment. ‘Now, they have to give up a very ancient approach to assessment and change the way they act in education completely. Change is not an easy thing in education.’



“
If you have one pixel, you don’t see the picture. If you have more pixels, you slowly start to see the image.
”
- Professor Cees van der Vleuten



EDUCATIONAL ORGANISATION

DESPITE all the evidence in the literature and the know-how about education in practice, it is still people who carry responsibility for making change happen. This requires organisational support.

Education is a complex phenomenon – it is not always plannable or predictable, and it is inherently contextual. The expertise of educators is, therefore, essential.

Quality health professions education is dependent on a broker in the organisation; a centre with experts who are able to translate research evidence into feasible practice. With the Prideaux Centre for Research in Health Professions Education, coupled with the then Health Professions Education unit, such brokering was available at Flinders.

Because of the desire for continual improvement, it was – and remains – important for Flinders to learn from other organisations about their structures and strategies for success.



PROFESSOR ALBERT SCHERPBIER

*Dean of the Faculty of Health,
Medicine and Life Sciences and
Professor in Quality Improvement
in Medical Education, Maastricht
University, the Netherlands*

2015 Oration:
Organisation of Education

***He understands that
you can't always get what
you want. Sometimes, you
need to settle for wanting
what you can have.***

PROFESSOR Scherpier is the Executive Dean of the Faculty of Health, Medicine and Life Sciences at Maastricht University. Professor Scherpier is an MD who also holds a PhD in medical education.

He understands the value of high-quality medical education and the need to bring evidence to practice. His keen interest in the organisational aspects of medical education is reflected in the positions he has held throughout his career.

Professor Scherpier is a very down-to-earth, pragmatic and utilitarian manager. He loathes spending money and resources on educational approaches that do not work. Consequently, it would be rare to find educational activities designed purely on the basis of belief, opinion or tradition in his organisation.

He clearly understands the need to bring evidence to practice but he also understands that you can't always get what you want and, sometimes, you have to settle for wanting what you can have.

Professor Scherpier's oration explored the role of the organisation and organisational development in making medical education thrive. He used the case of Maastricht University (currently ranked number four in the Times Higher Education Supplement Ranking of Universities Younger than 50 Years Old) to explain the cultural and organisational decisions behind the success.

His visit was highly useful in showing the necessity for a tightly run organisation with sufficient expertise in medical education to maintain an up-to-date, high-quality medical course. He also demonstrated the utility of pragmatism and no-nonsense attitudes.

The way that structures in the medical school have changed, for example with the establishment of the Medical Course Directorate, can be largely attributed to the ideas posed by Professor Scherpier during his Waterman Fellowship.

ON REFLECTION

RETHINK and reorganise. That's the essence of the message from Albert Scherpier. He encourages universities to look closely at how they organise themselves and how they teach their students because research supports the suggestion that there are better ways. He says that when he was at university, students would skip lectures or classes that were not compulsory so they could study. They also would cram for exams, which meant they did not retain as much.

'In my time, it was teacher-centred and now should become student-centred,' he says. 'We still have lectures but not too many.'

‘It’s good that students learn to become independent. They have to learn how to find something in the literature. They have to decide themselves what you do study, what you don’t study, which is very difficult for them in the beginning of course.’

Professor Scherpbier says students need some guidance in the beginning, to ensure they are making good sense of the evidence, but eventually will have to use their own initiative. ‘You keep on looking very carefully that they go in the right direction but you give them some freedom to find their way,’ he says.

‘There was no coaching, no mentoring, no nothing for me. The result was, I think in my year, around 15 per cent made it through in four years and all the others were delayed. Nowadays, it’s normal that you have a very low drop-out rate in the medical program.’

Professor Scherpbier says universities need to look at how they are organised and what changes they can make to help the teaching staff focus on their core business of medical education.

At Maastricht University, this meant relieving teachers of some of their administrative tasks, such as reserving rooms or organising educational materials. ‘The teacher is mainly there to discuss about the content, to teach and guide the students,’ he says. ‘All the other things are done by the organisation of education. If you give people with other competencies too much administration, it’s a little bit of a waste of energy and competency and money.’

He says schools need to talk a lot with students because they will be the best source of information. He gives an example from Maastricht of students not attending some twice-weekly small-group meetings. After seeking feedback, the school introduced patients earlier in the program, which motivated students to attend and take more interest.

The medical school has moved to programmatic assessment and is trying to convince other schools to do the same.

‘It’s important to do research into medical education to find out if you’re on the right track or you have to change things,’ Professor Scherpbier says. ‘You have such a group at Flinders that does these kinds of studies and that’s very important, to keep on doing that because if you have evidence then you can also explain to other people why this is the way to do it. If you don’t have evidence, then it’s difficult.’



INTEGRATING RESEARCH AND PRACTICE IN MEDICAL EDUCATION



MEDICAL education researchers, medical educators and clinician supervisors need to speak the same jargon to understand each other.

Within most biomedical and medical disciplines, the producers of knowledge (the researchers) and the users of that knowledge speak the same jargon, but this is not the case in health professions education. Although research is written using educational jargon, clinician supervisors are more accustomed to clinical jargon. Finding common ground is, therefore, paramount.

Entrustable professional activities are one way of aligning educational and clinical jargons. The focus of Professor Olle ten Cate’s work, together with his colleagues, is on bridging this ‘jargon gap’ between the medical profession and health professional educators and researchers.



PROFESSOR OLLE TEN CATE

Professor of Medical Education and Director of the Centre for Research and Development of Education, University Medical Centre Utrecht, the Netherlands

2016 Oration:

Reframing the Goal of Training in Health Care: Trusting to Care for the Patients of the Future

PROFESSOR Olle ten Cate, medically trained in the 1970s, was Director of the Centre for Research and Development of Medical Education at University Medical Centre Utrecht, in the Netherlands, from 2005 to 2017.

His background and further training with a PhD in social sciences, coupled with his role as both a medical educator and researcher, make him a powerful knowledge broker in the medical education community.

In a discipline such as medical education, which is almost by design multidisciplinary, knowledge brokers play an essential role in translating foreign concepts into the more familiar.

In medical education, cognitive psychologists and educationalists play a role in the research and development for educational improvement and innovations, while teaching staff are often either basic scientists or clinicians. Researchers like Professor ten Cate bridge this gap, enabling teaching staff to understand and embrace educational innovations.

This is best epitomised in Professor ten Cate's work on entrustable professional activities (EPAs), which seeks to redefine cognitive psychological and educational concepts of medical competence, making it more accessible to clinicians. The notion of EPAs, which he created in 2005

and developed further in collaboration with many others, has gained worldwide momentum.

His oration focused on the development and use of EPAs in a medical course. These ideas formed the backbone of the process of redefining the medical course content – an essential component in changes to the medical course, and the implementation of programmatic assessment for learning.

Professor ten Cate is a powerful knowledge broker in the medical education community. His work on EPAs formed the backbone in redefining the medical course content.

ON REFLECTION

MUCH like drivers on L plates, student doctors must prove they have all the right moves, under a quality assurance system devised by Professor Olle ten Cate. With the aim of improving patient safety, while supporting trainees and clinicians, he has developed a scheme in which students master 'entrustable professional activities' (EPAs) before being allowed to practise each skill unsupervised.

'Experience over time used to be enough to register someone as a specialist. Now we think about that very differently,' he says. 'One of the reasons is our much bigger focus on patient safety. We do realise that not everything in hospitals is safe for patients. Much of health care, specifically in teaching hospitals, many places in the world, is actually delivered by trainees. So, we should make sure that those trainees actually receive adequate supervision.'

Professor ten Cate says practical experience used to be as simple as 'see one; do one; teach one'. 'People would say, "Follow me. See what I do, look carefully, see one, and then you do one and if you're good at that, you can teach one"', he says. 'It's a famous saying in medical education, which is really not how we should train medical doctors.'

Then, about 20 years ago, Canada led the way in redefining the competencies of a medical specialist. Their framework includes that they must be skilful, a good communicator, a good collaborator, they must have professional and ethical behaviour, and they must be scholarly.

Although the competency framework has gained broad acceptance, Professor ten Cate believes it is too 'general'. Good communication, for example, should be evaluated specifically in different contexts, including communication with patients, with colleagues, with children, with the elderly, and also in taking a history and delivering bad news to patients.



That competency of good communication is just one of many required when a trainee attends to a patient admitted to hospital. They must establish a rapport with the patient, have a hypothesis, they may think of diagnostic investigations, ask for assistance from a nurse. 'The work-up of a patient is actually an activity that we would need to be able to entrust to a learner after this learner has really demonstrated they have the competencies, then we can decrease our supervision,' he says. 'So entrustable professional activities are those units of professional practice that you could call an activity or a task that involves different competencies at the same time and that trainees must be able to do by themselves. It's not enough to observe students in a skills lab doing physical examination in a simulation situation. That is important, but there's more to the decision that they can work with patients on their own. True entrustment pertains to contributions to patient care.'

He says the EPAs method should help to reduce errors in health care because it has levels of supervision, in search of assurance a trainee is capable.

'The lowest level would be that the educator demonstrates an activity; next she remains in the room, watches the learner act, and provides supervision proactively to the learner; next would be she is out of the room but available if the learner needs help,' he says. 'What we now say is, if you are qualified for an EPA, you are still a trainee but we know for this EPA we don't have to provide you with direct supervision.'

Professor ten Cate says EPAs are being used in several medical schools in the US and even mandatory in Canada. In the Netherlands, all specialty training is now being revised using EPAs and it is being expanded to undergraduate training, physician assistant training, nursing, and other health professions courses as well.



A TESTIMONIAL: INCORPORATING ENTRUSTABLE PROFESSIONAL ACTIVITIES INTO INDUSTRY

A message brought from the Netherlands, delivered in the 2016 Waterman Oration, quickly changed the way general practice registrars were assessed in South Australia. Within 10 months of hearing Professor Olle ten Cate speak at Flinders, management at ModMed had introduced entrustable professional activities (EPAs).

The non-profit organisation is responsible for the medical education and assessment program used for general practice training in SA and Western Australia. Lead medical educator Nyoli Valentine was excited to learn about EPAs. 'This was a very new concept to us. We hadn't heard of it before. From there, we went and researched it a little bit more and decided this was something that would be very valuable for us to implement.'

Dr Valentine says evaluation results from the first year of using EPAs in SA were 'really encouraging'.

A year later, in 2018, ModMed ran a pilot in WA, followed by full implementation of the program there six months later. She expects other states to follow at some stage.

She says the EPAs system articulates what was formerly unspoken.

Supervising GPs were already deciding when to allow registrars to complete particular tasks alone. Now, EPAs are assessed four times a year, formalising GPs' opinions and giving them more confidence about when they can turn activities over to the registrars. The registrar marks themselves – for example: 'I trust myself to manage paediatric patients unsupervised' – and the supervisor marks the same activity.

Dr Valentine says the EPAs system of assessment is about ensuring registrars use all the skills and knowledge they have



**DOCTOR
NYOLI VALENTINE**

Lead Medical Educator, ModMed

acquired. Does the GP trust the registrar to apply the knowledge, attributes and competencies that they need?

'Whether you trust or not is more valuable than whether you score them a four or a five,' Dr Valentine says. 'We have an opportunity to have a really accurate picture of how a registrar is progressing in their training – a much more accurate picture, which we didn't have before.'

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Whether you trust or not is more valuable than whether you score them a four or a five.

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- Dr Nyoli Valentine

THE Waterman Fellows have made a major contribution to, and impact on, the educational changes that we have made – and continue to make – to our MD course.

While the concepts and ideas that underpin the Waterman Orations can be found in books and journal articles, the physical presence of the Waterman Fellows at Flinders created and facilitated opportunities for lively scholarly debate about their ideas and experiences. This is not something that can be achieved by reading about educational scholarship. It emerges from the relationships that we have built with the international community of educational researchers in the health professions.

We eagerly continue to honour the spirit and legacy of the Sir Ewen Waterman Foundation – to continue to strive towards educational improvement to create better health professionals who are patient-centred and community-minded.





Flinders
UNIVERSITY

Sir Ewen McIntyre Waterman was a prominent South Australian businessman. After his death in 1982, Sir Ewen's daughter, Sandra, established a foundation at Flinders University in her father's memory.

This book provides an historical record of the importance of the Sir Ewen Waterman Foundation in contributing to the evolution of the medical course at Flinders University.



I would always judge a fella from any walk of life by asking him this question ...I would ask him if he were training someone to succeed him.

A man who was shaky in his own confidence would be afraid to have a strong potential successor. But a strong, able man, who could see the need to have someone to carry on for the sake of the work they were doing, was the kind of man I respected.

To such a man I would give high marks and my help in every way I could.

- SIR EWEN MCINTYRE WATERMAN (1901 – 1982)