Submission on Australian Medical Education

“Doctors lacking in anatomy are like moles: they toil in the dark and the fruits of their handiwork are mounds of earth”

Friedrich Tiedemann 1781-1861

Prepared by:
Stephen Milgate
Executive Director
Australian Doctors Fund

15 April 2006
RATIONALE

In response to growing concerns by its members and supporters within the ranks of the Australian medical profession and from significant numbers of medical students at Australian medical schools, the Australian Doctors’ Fund convened a conference, entitled Rescuing Medical Education, on 18 February 2005.

Attendance and interest in the content of Australian medical education resulting from the announcement of the conference exceeded the expectations of the convenors.

Growing disquiet at the direction and content of Australian medical education now had a voice.

No system is perfect or without its critics. Nevertheless, growing alarm over recent changes in medical education is significant and cannot be disregarded.

In our view, it is motivated by genuine concern about future standards and safety of medical practice and all that will mean to the next generation of doctors, their patients and the national interest.

This submission unashamedly presents the views of those who would not otherwise be heard in a debate on medical education: namely medical education academics, practitioners and students most of whom have not been consulted over the direction and content change in undergraduate medical curriculum.

We ignore their concerns at our peril.

Dr Bruce Shepherd
Chairman
Australian Doctors’ Fund

To hold him who has taught me this art as equal to my parents and to live my life in partnership with him, and if he is in need of money to give him a share of mine, and to regard his offspring as equal to my brothers in male lineage and to teach them this art - if they desire to learn it - without fee and covenant; to give a share of precepts and oral instruction and all the other learning to my sons and to the sons of him who has instructed me and to pupils who have signed the covenant and have taken an oath according to the medical law, but no one else.

Hippocrates (460BC-377BC)
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(Adelaide University 1961)
Nobel Prize 2005
(Helicobacter pylori and stomach ulcers)

Dr Barry J Marshall M.B., B.S.
(University of Western Australia 1974)
Nobel Prize 2005
(Helicobacter pylori and stomach ulcers)
EXECUTIVE SUMMARY – An Upheaval in Australian Medical Education

The last decade has seen what could only be called an **upheaval in the way medical students are educated at Australian universities**. In 1998, new Deans were appointed to 8 of Australia’s 10 medical schools. In March 2006 Australia had 17 medical schools, including 2 schools awaiting accreditation, with around 10,000 medical students. In April 2006 the Federal Government announced that Deacon University would open a medical school bringing the total to 18.

In addition to a rapid expansion in medical student numbers the last decade has also seen changes in the selection process, student population profile, course structure, course content and teaching methods.

At a time when Australia is importing record numbers of doctors from overseas to staff our struggling public hospital system, educators have decided to delay the age at which Australian trained medical graduates can enter the medical workforce. This not only impacts on aggregate workforce productivity through loss of potential working years, but as Prof Paul Davies has indicated for physics and mathematics students “it carries the obvious danger that the students will be past their prime before they grasp the subject, let alone contribute to it”.

The same may be said of our brightest and best medical students.

Not everyone is happy with the changes. There is a rising chorus of concern across the medical profession that not-so-young doctors are being expected to treat patients to the same standards as their predecessors, without exposure to the necessary amount of training in anatomy (dissection of the human body), physiology, biochemistry and pathology (especially post mortem examination).

This criticism could easily be dismissed as the bellow of dinosaurs, were it not so widespread and emanating from medical academics, clinical tutors and practising doctors who have no agenda other than their concern for public safety.

This submission provides substantive evidence of that concern and recommendations for improvement.

In March 2006 The Australian Doctors’ Fund (ADF) surveyed 4,000 contributors (all qualified doctors) to find out what they believe an undergraduate medical curriculum should contain. Respondents were asked to rate their reaction to the questions on a 5 point scale from ‘totally agree’ to ‘totally disagree’.

92.5% of respondents totally agreed with the proposition that all medical schools should graduate students of equivalent standards. **89.4% totally agreed that minimum tuition standards should be defined for the basic sciences of anatomy, physiology, histology, biochemistry, pharmacology, pathology and microbiology**; and 89.4% totally agreed with the statement **that a curriculum board should include medically qualified practising clinical tutors**. When the columns of ‘totally agree’ and ‘somewhat agree’ are added together, the percentages are 98.6%, 99.1%, 98.6% respectively.

Most importantly, our medical students, despite considerable risk and difficulty are finding ways to express their frustration with aspects of their medical undergraduate programmes. (It appears that medical students have not been surveyed on a national basis to establish their views on the content and quality of their education, despite their considerable personal investment in its cost.) In March 2006 the ADF received a letter signed by concerned 3rd year medical students at a large Australian university medical school. The students explained their letter was not signed “for fear of the

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1 A sea change in Australian medical education, Lawson AK et a, MJA 1988: 169:653-658

2 Paul Davies, The need to cater for the precocious before they pass their peak, SMH, 21/12/, p11
difficulties” that could be incurred in their 5th and 6th year if they went public. The letter is a cry for help over the content and teaching methods being used at their university (and many others). “During the first two years, an enormous amount of time was wasted on medical ethics and laws, non-specific teaching and community/social medicine. Whilst we believe that these subjects are important, surely it is better that we know the pathology behind an appendicitis, the anatomy of the appendix and surrounding organs, how it works normally and a good understand of antibiotics, rather than just being thrown onto the wards with little knowledge in this area”. Concerning problem based learning, the students wrote “Whenever we ask them a question during a tute, they continually say, “Sorry, we are not allowed to tell you the answer, you have to go home and look it up”, or, “The faculty have told me that I cannot teach you, so the answer is ‘no’”.

Our investigation into the justification for some of the major changes in Medical Education lead us to the same conclusion as the Editor of the Australian Medical Journal, Dr Martin B Van Der Weyden, who wrote as an editor’s reply in the AMJ of 1 November 2004, “Forbes [Prof. Forbes] concedes that the evidence underpinning these changes to medical education is wanting. And herein lies the rub. Despite continued calls for educational research that matters (and perhaps in keeping with opinions as to how difficult performing such research might be), the medical education community has yet to report solid evidence to support the intentions of these resource-intensive changes. The profession, hardened by the evidence-based movement, expects no less”.

The ADF asserts that there is sufficient evidence for a major rethink of the move away from basic sciences in medical undergraduate curriculum. The criticism of the application of problem based learning cannot be ignored. Whilst self directed learning is highly desirable, abandonment of a duty to teach and educate is not. Budgetary pressures may be behind some of the changes in course content and teaching methods rather than the high ideals of education.

In particular the disciplines of anatomy and pathology must be re-introduced to undergraduate medical education to ensure safe future medical practice.

The nonsensical restriction on PBL clinical tutors not being allowed to answer students’ questions must be re-examined.

The Australian Doctors’ Fund calls on the Federal Minister for Education, Science and Training to undertake such investigations as is required to assure herself and the Federal Government that Australian medical students are being equipped to adequately meet the clinical needs of the Australian population. An independent national survey of Australian Medical students would be a good starting point.

Perhaps the last word should go to a clinical tutor with over 30 years experience, “after 30 years of teaching I am occasionally appalled at some standards........ Basic pathology knowledge is at a woeful low in my view and 5th and 6th year students are unable to tell me about the basics of pneumonia!!! Medicine has been taught with anatomy and pathology as a mainstay for centuries. It’s time to go back to the basics. The students do not know basic Anatomy and Pathology. God help us when a final year student tells me he does not know where the scaphoid is!!!”

It’s time to seriously question the direction of Australian medical education. The ADF believes there is sufficient evidence that public safety and medical workforce productivity have been unnecessarily damaged by the wholesale adoption of changes that remain untested. Urgent action is required.

Stephen Milgate
Executive Director, Australian Doctors’ Fund

3 MJA Vol. 181, No.9, 1 November 2004

Sir Howard Florey, M.B.,B.S.
Adelaide University 1921
Nobel Prize 1945
(work on penicillin)
Changes in Selection Process

<table>
<thead>
<tr>
<th>Q6 All applicants to the Faculty of Medicine should meet the same standards of entry</th>
<th>Totally agree</th>
<th>Somewhat agree</th>
<th>Neither agree or disagree</th>
<th>Somewhat disagree</th>
<th>Totally disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>71%</td>
<td>17.2%</td>
<td>4.1%</td>
<td>6.6%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

Figure 1: ADF Medical Undergraduate Curricula Questionnaire, March 2006

Prof Helen Beh (2005)

“The change has gone from virtually unrestricted entry as it was when I was a student – five B’s in the Leaving Certificate was enough to get you into the University of Sydney Medical School – not that I got 5Bs but that was enough. Early in the 1990’s entry to, I think, every Medical School in Australia except the University of Newcastle was on the basis of HSC performance. That has changed now to entry on the basis of performance on a number of selection tools. It’s not just the score one gets in the HSC, it’s the graduate status if you are going into a graduate medical programme, it’s the results of an interview that the students undertake, and the result of the GAMSAT score. Now, there’s quite an involved selection process for Medical Schools throughout Australia.”

Dr Randal Williams (2005)

Medical school selection is another big issue in Adelaide at the moment. Many academically gifted students are missing out. We find that students with five or six or seven perfect scores in their matriculation are not getting into medicine in Adelaide and having to go elsewhere. Our selection is based on the TER, which is the matriculation score, the UMAT, and the structured interview.

The structured interview - and I’ve done these myself - rewards verbal and communication skills. I ask is this assessment reliable at age 17. I think we heard earlier that perhaps it is, but I’m not sure about that. Also females do better at this age and I think that may explain why we now have a preponderance of female medical students.

There is evidence that people can be coached through the UMAT and the interview and that was certainly not the intention of it.

Dr Peter Cameron (2005)

“I fail to see how a test of dubious significance followed by a 20-minute interview of a nervous adolescent can better predict the quality of a doctor after 10 more years of training than a TER score which reflects years of hard work. At least half a dozen of the state’s brightest students are forced to go elsewhere every year to do medicine because in Adelaide mere merit is not enough.”

4 GAMSAT, in contrast to UMAT, is a test of knowledge, communication and intellectual skills gained through prior experience and learning which specifically assesses reasoning in humanities and social sciences and in biological and physical sciences, as well as written communication”, MJA 1998

5 Rescuing Medical Education, conference transcript, The Achievement and Rewarding of Excellence is not Elitism, Australian Doctors’ Fund 18/2/05, www.adf.com.au

6 Tertiary Entrance Rank, the university aggregates for all students in the state are put in rank order and assigned a TER number between 1-100

7 Undergraduate Medicine and Health Sciences Admission Test (ACER)

8 Rescuing Medical Education, conference transcript, A Surgeon’s perspective on Recent Changes to the Medical Education Curriculum, Australian Doctors’ Fund 18/2/05, www.adf.com.au

9 Adelaide GP and father of Alexander Cameron TER score 99.9 now studying at Melbourne University Medical School, Weekend Australian 12.3.05
**Prof Ted Cleary (2005)**

“But what’s happened now with the reverse engineering of the UMAT - there are training programmes. ACER assured us you couldn’t study for this and practice up for it. The reverse - it’s the opposite of course. And now we’re getting better and better monkeys coming into medical school because they’ve been trained to lie and they’ve been trained to tell the interviewers what they want to hear, rather than what they believe. So one takes a cram dump course for getting into a self directed learning programme and then we have an enormous amount of time spent trying to convert them to adult learners again. That’s a problem for us, it costs us money”

[It]…is our job to select students into hospitals. In the same way, I would say, is the job of high schools to select students into universities. And my view is that the Tertiary Ranking Examination has reached the stage where it actually is anti educational...

… we’re only accepting 39 students from Adelaide [having been educated in SA as opposed to other states] this year in the UMAT selection process. We don’t have any control over that. That’s based on the Australian Constitution. We’re not allowed to interfere with free trade between States so we have to take all comers. But we have a large proportion of out of state people as well as full fee paying overseas students, and our clinical staff resent it, and they’ve got every right to resent it, I believe.10

**Prof Judith Sloan (2004)**

“We have been trying to get some accountability about the entry system. Entry systems vary but only Adelaide put such reliance on UMAT and interviews – it’s an absolute joke”11.

The UMAT is a joke. This said, students can clearly be coached to achieve better marks. To our knowledge, all those who were interviewed at the University of Adelaide (i.e. received a sufficiently high UMAT score) had undertaken preparation courses. Where is the evaluation/research that confirms that UMAT is a guide to students’ suitability to become doctors?

There would appear to be no consistency in the approach of or questions asked in the interviews. In some cases, one interviewer is aggressive whereas in others, both interviewers are passive. Some interviewers speak poor English and make it difficult for candidates. There is no transparency about the procedure and candidates are given few clues as to the criteria being applied.

There is a disturbing lack of consistency in terms of admissions across the country. Students are receiving offers from other universities where interviews are part of the procedure but not from Adelaide.

The minimum TER score (90) applied at the University of Adelaide is also a joke. I discovered when I was interstate with my daughter that the students refer to this university as a “Med School for Dummies”!

The system creates unnecessary emotional turmoil for our young people – it is ironic that empathy is seen as a key characteristic of doctors yet the system devised is absolutely brutal, including an excessive number of last minute offers12.

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10 Rescuing Medical Education, conference transcript, Factors Affecting the Outcomes of Medical Education, Australian Doctors’ Fund 18/2/05, www.adf.com.au
11 Adelaide labour market economist whose daughter was unable to study medicine in Adelaide despite a tertiary entrance rank score of 99.9, She later enrolled at the University of Melbourne, Weekend Australia 12.3.05
12 Professor Judith Sloan, medic SA, April 2004
Dr Matthew Hutchinson (2004)

UMAT is not a perfect solution, but with over 1800 applicants to a medical school, can anybody suggest a better way of sorting out who deserves an interview?

We are not saying that the UMAT is the best predictor of who will be the greatest doctor in fifteen years time. What the UMAT offers medical schools is a standardised way to assess a student’s critical thinking, problem solving and interpersonal skills.\(^\text{13}\)

Dr Anne Swinbourne (2002)

“At the beginning of 2002 the first year enrolment at the 11 medical schools throughout Australia was surveyed on behalf of CDAMS\(^\text{14}\). Respondents were asked whether they agreed with the statement that the selection procedures followed by their medical school were likely to produce competent and effective doctors. Responses were made along a 6-point scale with a score of 1 representing strong agreement with the statement and 6 indicating that the respondent strongly disagreed with the statement. On average respondents tended to answer towards the ‘agreement’ end of the scale (mean 2.5± 1.2) and over 60% of respondents gave the selection procedure at their school a score of either 1 or 2”.

“To allow comparison with previous years’ surveys, the agreement variable was dichotomised into those respondents who ‘Strongly agreed’ with the selection criteria vs. all other responses. The medical school with the highest proportion of respondents endorsing ‘Strongly agree’ was James Cook (46.4%) and the lowest proportion was at Tasmania (8.5%).”\(^\text{15}\)

Figure 2: CDAM Entry Survey 2002 showing % of students who strongly agree (black) vs. all other responses (grey) that the selection process followed by their medical school is likely to produce competent and effective doctors

\(^{13}\)National President – Australian Medical Students Association

\(^{14}\)Committee of Deans of Australian Medical Schools

Prof Robert Sanson-Fisher (1998)
“…the TER is a necessary but not sufficient criterion for entry. If you believe both technical competence and the ‘care dimension’ are important, then you should select for both - ability to acquire and regurgitate information in set formats, but also ability to work and talk with people.”

Prof Derek Frewin (1998)
“…the effect in Adelaide [of introducing an entrance hurdle of TER 90 or above plus UMAT plus structured interview] has been to almost double the number of feeder high schools (from about 20 to 35) and to more than quadruple the number of country students (from 5% to 22% in 1998). Students are also more socially interactive and more collegial in approach.”

Conclusion
1. Despite initial confidence that UMAT would be an objective selection tool for medical entry there is now clear evidence that students can be successfully coached to improve their performance on this test.
2. The CDAMS entry survey of 2002 shows that students themselves in a large number of university medical schools do not have confidence that the selection criteria being used by their university is able to produce “competent and effective doctors”.
3. The policy which sees many students with a high TER ranking unable to find a placement in a medical school in a state where they live is not only personally disruptive to themselves and their families but in conflict with optimal future training needs and location choices that young doctors make.
4. A strong reliance on academic merit (objectively assessed) together with competency in English as a selection method will act against the unhealthy tendency to socially engineer the medical profession by discriminating against those whose motivation and interest does not fit pre-conceived politically derived stereotypes.

Prof Graeme M Clark, M.B.,B.S
(Sydney University) 1957
(the cochlear implant)

17 ibid
Graduate vs. undergraduate entry at Australian medical schools

<table>
<thead>
<tr>
<th>Q8 - Graduates applying to enter the faculty of medicine must have studied the basic sciences of anatomy, physiology, biochemistry and histology as part of their primary courses.</th>
<th>Totally agree</th>
<th>Somewhat agree</th>
<th>Neither agree or disagree</th>
<th>Somewhat disagree</th>
<th>Totally disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>63%</td>
<td>21.1%</td>
<td>8.4%</td>
<td>5.2%</td>
<td>2.3%</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3: ADF Medical Undergraduate Curricula Questionnaire, March 2006

<table>
<thead>
<tr>
<th>University</th>
<th>Entry qualifications</th>
<th>Duration</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melbourne</td>
<td>Graduate entry</td>
<td>4½ years</td>
<td>GAMSAT</td>
</tr>
<tr>
<td>Western Australia</td>
<td>Graduate entry</td>
<td>4½ years</td>
<td>GAMSAT</td>
</tr>
<tr>
<td>ANU</td>
<td>Graduate entry</td>
<td>4 years</td>
<td>GAMSAT</td>
</tr>
<tr>
<td>Flinders</td>
<td>Graduate entry</td>
<td>4 years</td>
<td>GAMSAT</td>
</tr>
<tr>
<td>Griffith</td>
<td>Graduate entry</td>
<td>4 years</td>
<td>GAMSAT</td>
</tr>
<tr>
<td>Notre Dame WA</td>
<td>Graduate entry</td>
<td>4 years</td>
<td>GAMSAT</td>
</tr>
<tr>
<td>Queensland</td>
<td>Graduate entry</td>
<td>4 years</td>
<td>GAMSAT</td>
</tr>
<tr>
<td>Sydney</td>
<td>Graduate entry</td>
<td>4 years</td>
<td>GAMSAT</td>
</tr>
<tr>
<td>Wollongong *</td>
<td>Graduate entry</td>
<td>4 years</td>
<td>GAMSAT</td>
</tr>
<tr>
<td>Western Australia</td>
<td>Under Graduate entry</td>
<td>6 years</td>
<td>UMAT</td>
</tr>
<tr>
<td>Melbourne</td>
<td>Under Graduate entry</td>
<td>6 years</td>
<td>UMAT</td>
</tr>
<tr>
<td>Adelaide</td>
<td>Under Graduate entry</td>
<td>6 years</td>
<td>UMAT</td>
</tr>
<tr>
<td>James Cook</td>
<td>Under Graduate entry</td>
<td>6 years</td>
<td>High school exit assessment</td>
</tr>
<tr>
<td>NSW</td>
<td>Under Graduate entry</td>
<td>6 years</td>
<td>UMAT</td>
</tr>
<tr>
<td>Newcastle</td>
<td>Under Graduate entry</td>
<td>5 years</td>
<td>UMAT</td>
</tr>
<tr>
<td>Tasmania</td>
<td>Under Graduate entry</td>
<td>5 years</td>
<td>UMAT</td>
</tr>
<tr>
<td>Monash</td>
<td>Under Graduate entry</td>
<td>5 years</td>
<td>UMAT</td>
</tr>
<tr>
<td>Western Sydney *</td>
<td>Under Graduate entry</td>
<td>5 years</td>
<td>UMAT</td>
</tr>
<tr>
<td>Bond</td>
<td>Under Graduate entry</td>
<td>4.6 years</td>
<td>UMAT</td>
</tr>
</tbody>
</table>

* subject to accreditation

Figure 4: Graduate and undergraduate offerings at Australia’s medical schools as at March 2005 based on information published on websites by individual universities

Prof John P Harris (2005)

I think there are some people being badly hurt by the existing programme. With the graduate medical programme, if someone has a vocation to undertake medicine, they undertake a pre-med degree which may be arts, science or whatever. Then if they pass that and they get through the GAMSAT and all the other hurdles they may enter medicine and embark on a four year medical programme. However, if their vocation was to do medicine and they embark on this dog leg of doing a three year pre-med degree, which may not have been their choice, had they known they weren’t getting into medicine, they miss out. They are not represented and I don’t know what the implications of this are for their own opportunities which have been lost and some time wasted.

You could argue that the entry point to the graduate medical programme now is essentially coming through medical science, and that the other broader pathways that were meant to be part of this programme are dropping aside.
As we’ve moved with the graduate medical education, we’ve moved away from the bedside teaching that many of us grew up in, where the relationship was between the individual clinician and student, that we had more than our share of didactic lectures and basic science, but we approached the bedside with that background and we learnt the basics of history taking and physical examination. Now rather than the bedside, the students are usually assembled in a tutorial room with self directed learning, focusing on problem based learning, usually with a non clinician facilitator, and an emphasis on societal skill and lifelong learning. In the 1960’s 75% of clinical training was round the bedside. In the US it was less than 16% in the late 1990’s. I suspect it might even be lower in some of our settings.

So in ascendency we have the role of the medical educator, we have increased use of computer based health care educational resources and an emphasis on the public health rather than the medical practitioner. And in decline is the clinical based teaching, the clinical content of the modern curriculum, and I draw your attention to a particular concern which is world wide and not unique to Australia - the decline of the role of university clinical academic departments and the decrease of interest in the academic career paths18.

Move to Graduate Medical Education

- Clinician student
- Didactic lectures
- Basic sciences
- Bedside teaching
- Emphasis on history and examination

1960’s
75% clinical teaching at beside

- Tutorial room
- Self directed learning
- Problem Based Learning
- Non-clinician facilitator
- Societal skills
- Preparation for life-long learning

Now

Ref. Prof J.P. Harris

Prof Helen Beh (2005)

It was argued that students were coming into the undergraduate medical degree, without adequate motivation – they were sort of falling into that degree pattern without having really decided that they wished to become doctors. It was felt that if there was greater student maturity and wider student life experience that they would get people who were more inclined to remain in the medical profession.19

18 Rescuing Medical Education, conference transcript, Emerging problems with Graduate Medical Education: An Academic Surgical Perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
19 Rescuing Medical Education, conference transcript, The Achievement and Rewarding of Excellence is not Elitism, Australian Doctors’ Fund 18/2/05, www.adf.com.au
Prof Paul Davies (2004)

As human life expectancy has risen over the past decades, so the pace of education has slowed. Today, it is not uncommon for students to be in their mid-20s before they receive even basic tertiary qualifications. PhD students are often nudging 30.

The explanation for this leisurely schedule is that education is broader these days, which has the advantage of turning out well-rounded individuals rather than narrow specialists.

But in fields like physics and mathematics it carries the obvious danger that the students will be past their prime before they grasp the subject, let alone contribute to it. Unless the system can accommodate those bright youngsters who prefer to accelerate towards a chosen specialty, we risk stifling our most creative talent.

By the age of 14 I knew I wanted to be a theoretical physicist, so I dropped all arts subjects. By 16 I was studying only physics and mathematics, and I completed my PhD thesis before my 24th birthday20.

Prof Judy Searle (2004)

In promising a more diverse student population, the new Australian graduate entry programmes opened up their entry to graduates from either science or humanities backgrounds, only to find that the majority of their cohorts still came from the biological sciences.

It could be argued that school-leavers wishing to study medicine at the time of secondary school graduation simply mark time by taking a biological science degree until they can begin medicine. Thus, graduate programmes are drawing from the same pool of prospective students as are undergraduate programmes.

Previous research has suggested an association with increasing age at entry and choice of careers in primary care. This was not borne out by a large UK study of 5449 graduates, where age at entry was not found to be a predictor of long-term career choice. Slightly concerning were Hill et al’s findings in an Australian study on preparation for junior doctor years, which showed that older graduates scored lower on confidence, patient management and prevention than their younger peers. Whilst age does not necessarily equate with maturity, older students within medical programmes potentially bring with them the challenges of more complex lives, including greater financial and family responsibilities.

One programme in Australia has seen a variable pattern in the proportion of female students entering over the past 9 years since its move to graduate entry, with an overall average of 51% of students being women. Further analysis of the trends in gender proportions in graduate and school-leaver programmes is required.

Whilst the move to graduate entry programmes in both the UK and Australia promoted the perceived benefits of graduates over school-leavers, the common aspiration of the educationalists involved concerned major curricular reform. Adoption of a new graduate entry programme brought the opportunity for curricular reform in selection processes, teaching methodologies (mostly problem-based learning) and assessment.

Inevitably, this has resulted in much of the analysis of the potential benefits and weaknesses of these programmes being muddied by multiple changes in educational variables occurring simultaneously. Thus, the question of effectiveness – is the policy of admitting graduates versus school-leavers to medical programmes effective in producing better doctors – has not been answered by the literature so far.

20 Paul Davies, The need to cater for the precocious before they pass their peak, SMH, 21/12/, p11
The lack of evaluation of an educational intervention’s effectiveness is problematic from a number of perspectives. Effectiveness studies in clinical practice counsel us to examine both the perceived benefit of an intervention and also its potential harmful effects. These newer graduate entry programmes have arisen within the larger context of curricular reform and organisational change\textsuperscript{21}.

Prof Richard Larkin (1998)

“This [running graduate and undergraduate entry] is because of the very strong arguments in favour of both undergraduate and graduate entry. Students who’ve done extremely well at high school and know exactly what they want to do should not have to study things they’re not really interested in for three years, and then do a four-year concentrated course in medicine with little chance for lateral extension during that time . . . but there are also lots of students who miss the opportunity to go straight into medical school through educational disadvantage, or because they are “late developers” or decide only later to go into medicine. They also deserve a realistic opportunity of getting into medicine. Mixing the two groups of students from different backgrounds will provide mutual support and benefit.\textsuperscript{22}”

Conclusion

1. Prof Searle has provided clear evidence that the change to graduate entry medicine, so readily embraced by Australian universities, was not clearly evaluated prior to its introduction.
2. The change to graduate entry was introduced at a time of wholesale renovation in medical education, namely changes in selection criteria, curriculum structure and content. This makes analysis of any one factor problematic.
3. For a sector strong in rhetoric over the need for evidence based change, the absence of any cost-benefit analysis and broad debate preceding wholesale restructuring of university medical schools leads to the conclusion that the sector is as prone to fad and fashion (keeping up with the Americans) as any other non-academic organisation.
4. Prof Searle also points out that graduate entry is drawing substantially from the same student population pool as its non graduate entry predecessor. The result is students being made to ‘mark time’ completing their first degree instead of getting on with their prime intention i.e. to study medicine.
5. By delaying the contribution of our best and brightest medical students, graduate entry not only robs the medical workforce of potential productivity, but also adds a danger, “that the students will be past their prime before they grasp the subject let alone contribute to it\textsuperscript{23}.”

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\textsuperscript{21}Graduate entry medicine: what it is and what it isn’t, Medical Education 2004: 38: 1130-1140

\textsuperscript{22}A sea change in Australian medical education, Lawson AK et al, MJA 1998:169:653-658

\textsuperscript{23}Paul Davies, The need to cater for the precocious before they pass their peak, SMH, 21/12/, p11

Dr John Cade, M.B.,B.S.
Melbourne University 1934
(lithium compounds & bipolar disorder)
Changes in Curriculum Design and Content

University of Sydney Pre GMP

- **Year 1**
  - Biology, Chemistry, Physics, Mathematics
- **Year 2**
  - Pharmacology, Human Biology, Biochemistry
- **Year 3**
  - Microbiology & Immunology, Anatomy, Human Biology (Cell & Molecular), Biochemistry, Clinical Statistics, Behavioural Sciences in Medicine, History & Philosophy of Medicine
- **Year 4**
  - Anatomy, Histology & Embryology, Behavioural Sciences in Medicine, Medical Communication, Physiology, Medical Biochemistry
- **Year 5**
  - Infectious Diseases & Pharmacology, Medical Communication, Clinical Diagnosis, Immunology, Pathology, Clinical Physiology, Neuroscience, Clinical Epidemiology
- **Year 6**
  - Infectious Diseases, Pathology, Pharmacology, Public Health, Medicine, Surgery

University of Sydney

- **Years 1-3**
  - Basic and Clinical Sciences
  - Patient & Doctor
  - Patient and Community
  - Personal and Professional Development
- **Year 4**
  - Child & Adolescent Health
  - Perinatal & Women’s Health
  - Community Practice
  - Psychological Medicine - Drugs & Alcohol
  - Option

Figure 5: A comparison between pre-graduate entry (6 years subject based medical course) and graduate entry (4 year theme based medical course) at Sydney University
Changes in curriculum design and content continued

<table>
<thead>
<tr>
<th>Question</th>
<th>Totally agree</th>
<th>Somewhat agree</th>
<th>Neither agree or disagree</th>
<th>Somewhat disagree</th>
<th>Totally disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 - There should be a fundamental uniformity in the basic structure of curricula across all Australian Medical Schools</td>
<td>78.6%</td>
<td>18.7%</td>
<td>1.4%</td>
<td>0.7%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Q2 - All Australian Medical Schools should graduate students of equivalent standards</td>
<td>92.5%</td>
<td>6.1%</td>
<td>0.9%</td>
<td>0.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Q3 - The medical profession only should determine undergraduate medical curricula.</td>
<td>64.0%</td>
<td>26.1%</td>
<td>3.7%</td>
<td>4.4%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Q4 - It is necessary for a joint curriculum board to be formed for all Australian Medical Schools</td>
<td>65.1%</td>
<td>24.1%</td>
<td>6.2%</td>
<td>3.6%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Q5 - A curriculum board should include medically qualified, practising clinical tutors</td>
<td>89.4%</td>
<td>9.2%</td>
<td>1.1%</td>
<td>0.2%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Q13 - I prefer the teacher/mentor and apprentice/student model for teaching clinical medicine</td>
<td>67.6%</td>
<td>25.6%</td>
<td>5.0%</td>
<td>1.4%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Q14 - The best curricula will have a balance between medical and social science, theory and practice, didactic teaching and problem based learning.</td>
<td>78.3%</td>
<td>17.9%</td>
<td>3.8%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Figure 6: ADF Medical Undergraduate Curricula Questionnaire, March 2006

Prof Helen Beh (2005)

In terms of course content there has been a change from a focus on pure science and medical science to a focus on what I call medical practice and all that that entails – you know, the social aspects of it, the clinical aspects and what have you. And you are also all aware that there has been a change from a subject based approach to medical teaching to a theme based approach.

The reasons given here were that what was needed in the medical courses was a greater integration of medical science and medical practice; that prior to the change students had been exposed pretty much to pure science and medical science, and at the end of their training in the sciences they were then given clinical training. That it was hard for the students to link the knowledge they had obtained in the sciences to their clinical practice. So the aim of this was to integrate the science training or teaching with the actual clinical teaching.

Several studies had reported that the bedside manner of doctors had all but disappeared and there was concern about this, and it was believed that if you changed or included in the course content material on patient doctor communication and interaction this would overcome that problem.

So let’s look at what it used to be …in first year the study was pure science, and in second year you moved from pure science into the medical sciences for years two, three, four, five and indeed six, although five and six tended to concentrate on clinical teaching. But the basic science was provided as the underlying tool for the understanding of the medical sciences which followed in second year, third year and later courses.

I was unable to obtain that Sydney University graduate entry medical curriculum from the web so I rang some colleagues of mine who were still in the Faculty of Medicine and the response was no, it’s not publicly released, it changes too frequently, so we can’t provide it to you. And I found that a rather disturbing response to a request for information.
The medical programme [at Sydney University] is integrated across disciplines between years, and learning is based on clinical problems presented in tutorial settings. The programme is organised around four major themes. … the themes are the basic and clinical sciences, patient and doctor, patient and community, personal and professional development, and those themes run throughout the first three years. The emphasis is on progressive development across the four themes and the themes form the basis for both the design of the curriculum and student assessment.

What those responsible for course development have tried to do is integration across a given year of training as well as vertical integration from years one through to year four. I believe that that is a very worthwhile aim and is something that anybody developing a course should strive for\textsuperscript{24}.

Prof Ted Cleary (2005)

This is my fifth curriculum revision [University of Adelaide]. And what we need to do, then, is just let’s go back to our patient. I can agree that there’s a crisis in medical education. I think we all agree with that. Now the question is that we have differences in terms of what are the diagnoses, and especially we have differences about what are the proposed most effective treatments. Our alternative has been to say we want to have a curriculum which is integrated from top to bottom and though the years, horizontally, so the students don’t recognise subjects. We don’t teach any individual subjects in the first three years. We call it “scientific basis of medicine”. We also start the students on clinical skills training in first year - these are high school graduates - and we do that in our clinical skills laboratory in the medical school. Then we send them out into the hospitals for their second year, and they are supposed to learn some clinical skills there. And then for the third year we deemed that they would be ready to go out into general practice and to have an effective experience there one day a week. That’s proved to be an interesting experiment but it hasn’t particularly met the students’ requirements and so we’re bringing them back into the medical school for additional clinical training.

Our curriculum we see as being contextual. That is, they learn around patients from the beginning. It is self directed, and it relies on the principles of adult learning.

And in the trial course I ran we had no assessment, it was just for interest.

Basically what we’re saying is that the prior knowledge assumptions of the old curriculum were false\textsuperscript{25}.

Former teaching professor (2005)

Our ‘new curriculum’ students lack the basic knowledge base that the so-called ‘traditional’ course students came out with. It is not the students’ fault, but rather the fault of the system, they were never taught. As one of my students said at a curriculum conference for the new curriculum, ‘you call it flexible / case based learning, we call it abandonment’.

Many have asked why we are abandoning lectures, practical classes, group tutorials, wet prac, anatomy dissections, short and long case exams, formal teaching sessions of how to examine patients and many more ‘traditional’ teaching tools.

The Australian Medical Council has to approve all Med courses in Australia and NZ, and they demand retention of anatomy teaching, pathology, and all other basic sciences, plus lectures, lab sessions etc, etc.

\textsuperscript{24} Rescuing Medical Education, conference transcript, The Achievement and Rewarding of Excellence is not Elitism, Australian Doctors’ Fund 18/2/05, www.adf.com.au

\textsuperscript{25} Rescuing Medical Education, conference transcript, Factors Affecting the Outcomes of Medical Education, Australian Doctors’ Fund 18/2/05, www.adf.com.au
The answer, my friend, is in the ‘almighty dollar’, nothing to do with education. Medical Faculties all around Australia are facing significant difficulties in adequately resourcing teaching, by following the fashion of ‘flexible/case based learning’ significant costs can be cut whilst the pretence of better education can be maintained. Cutting costs by decreasing contact time is undoubtedly an effective way of paying less in the way of salaries. Abandoning anatomy dissections and pathology teaching (through lectures, practical classes, surgical reviews and through post-mortems), eliminates major infrastructure and maintenance cost. In addition with decreased need for resources, numbers of international, full-fee paying medical students can be increased. No it is not in the name of education we have moved to the ‘new medical curriculum’, it is in the name of money.

Dr Randal Williams (2005)

These are some of the justifications I’ve heard for the new curricula. Doctors have been poor communicators. I’m not sure about that. I think there will always be good and bad communicators in every walk of life. I think we can address this, but certainly not at the expense of scientific knowledge.

I hear that medical knowledge is expanding exponentially. Of course it is, and all the more reason to have a thorough grounding in the basics.

Medical practice in future will be based on public health and preventative medicine. Boy, this is real ivory tower stuff. I mean, for the conceivable future we have an aging population that needs treatment, the sick need to be treated26.

Dr Bryan Hall (2004)

Rigorous theories require the development of a model that can be subjected to empirical testing or validation. The ultimate purpose of the model being to make predictions under various scenarios. Where the development of rigorous theories fails weaker theories seek to explain possible relations between events which seemingly ought to be related to one another. These types of theories provide for guided speculation in the given subject. In physics, it has been said that there are general theories, then there is guided speculation, followed by speculation, then wild speculation and finally cosmology.

Many of the Theories of Learning represent descriptions of various types of learning or learning capacities. The theories of learning provide for guided speculation and should productively be viewed in that light.

The theories of learning provide a philosophical position through which protocols and procedures of learning and teaching can be analysed. The philosophical position (and hence the theories themselves) substantially influence the conceptual analytical framework and the questions about learning deemed admissible. The set of admissible questions will in turn affect the research methodology and the conclusions reached27.

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26 Rescuing Medical Education, conference transcript, A Surgeon’s Perspective on Recent Changes to the Medical Education Curriculum, Australian Doctors’ Fund 18/2/05, www.adf.com.au
27 Psychological & Sociological theories of learning, Dr Bryan Hall, 31.3.04, Paper presented to the ADF
### Conclusion

1. The belief that traditional subject-based medical curricula have somehow failed as an effective medical education pathway flies in the face of the reality that Australian medical schools have enjoyed an enviable reputation primarily because of the quality of their graduates.

2. Whilst integration of curricula is a desirable educational aim, caution must be exercised in blind adherence to any particular educational theory or learning modality. So-called theories of education have been unable to deliver certainty or predictability of outcome. Educational psychology remains an inexact “science”.

### Problem based learning vs. didactic teaching

<table>
<thead>
<tr>
<th>Q9 - Problem-based learning should be introduced after completion of basic science tuition</th>
<th>Totally agree</th>
<th>Somewhat agree</th>
<th>Neither agree or disagree</th>
<th>Somewhat disagree</th>
<th>Totally disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>52.6%</td>
<td>29.9%</td>
<td>12.5%</td>
<td>4.5%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

| Q15 - Problem based learning should be assigned to a defined segment of the clinical curriculum. | 49.0% | 32.6% | 14.4% | 3.4% | 0.7% |

| Q16 - Problem based learning should be supervised only by a medical practitioner. | 57.0% | 29.5% | 8.0% | 3.9% | 1.6% |

**Figure 7: ADF Medical Undergraduate Curricula Questionnaire, March 2006**

**Concerned 3rd Yr Medical Students (2006)**

Whenever we ask them a question during a tute, they continually say, “Sorry, we are not allowed to tell you the answer, you have to go home and look it up,” or “The faculty have told me that I cannot teach you, so the answer is ‘no’.” “I cannot draw a diagram of the biliary tree and its insertion into the duodenum for you.” It’s not their fault.

A student listed a number of symptoms for Acute Lymphoid Leukaemia in a tute recently. We asked what were the reasons behind one of the symptoms (infection) and she (the student) could not answer it. So we asked the consultant who replied. “You will have to look it up because I am not allowed to tell you.” This is just so stupid and such a waste of resources and time for all concerned.

**Prof Helen Beh (2005)**

There has been a change from didactic teaching to problem-based learning, and a change from lecture-based teaching to tutorial-based teaching. Reasons for changing – there has been a shift in education philosophy from teaching as a passive process to learning as an active process. The shift was largely based on the evidence of the effectiveness of problem-based learning, and I believe that problem-based learning became fashionable as an educational tool which also directed people to picking this up and bringing it into those programmes. I worry about educational fashion because I remember the Cuisenaire rods in mathematics and the flash cards in reading. I think if you misuse them you get the same problem that you’ve got if you misuse PBL in university teaching.  

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Prof Ted Cleary (2005)
I’ve mentioned about the adverse effect on education of the tertiary ranking system in high school. Our students are actually taught and allowed to learn by enquiry learning in the first ten years of school. In years 11 and 12, the principals will tell you, we stop teaching students and we move over to teaching curriculum. And it’s anti educational. The students come in straight to us, straight from school, and what they are saying is, tell us what we’ve got to learn. Your job is to teach, and you just tell us what to learn. We’re good at learning it, and we’ll learn it. And I said, sorry mate, one of the things you’re going to have to do here is learn what’s important, and work it out. We’ll help point you in the direction, but if you don’t master that and get to learn how to learn for yourself you’re never going to be going anywhere in the long term.

We don’t have problem based learning in the clinical years. We actually believe the best way to learn medicine in the clinical years is to go see patients and to be mentored by a clinician.

If I ask someone to come into teaching I am doing them a disservice because they will have major difficulties in getting promoted as a teacher29.

Dr Randal Williams (2005)
Is the move away from didactic teaching aimed at reducing costs and staffing in medical schools? I think that has to have come into it. We’ve already heard the cost pressures that have come into universities in recent years30.

Dr Andrew Scott (2005)
The tutor/student ratio was about 1 to 10 when I was a lad. Even that was barely adequate. The tutors were experienced doctors, motivated postgraduate scientists and medical fellowship candidates. Tutors had sound grounding with relevant knowledge bases.

It is beyond my comprehension that the modern equivalent is a group of ten (postgraduate) students with disparate, not necessarily scientific, backgrounds “facilitated” in their self-initiated discussion by a tutor who might be an arts major31.

Dr Dror Maor (2005)
The continuing erosion of quality teaching as a result of escalating service pressure and financial challenges for university departments, hospitals and doctors, has seen both a short and a long term destabilising force for our present and future doctors. What is an even bigger concern is that whilst the availability of tutorial and clinical teaching is decreasing today, the number of medical students around Australia is widely increasing. In our public hospital system, consultant sessions are being reduced, RMO and resident numbers have been cut despite the increasing amount of work that is required from them. Therefore it is evident there are less doctors to teach our students and even the ones who are willing to teach have less time to do so.

Surgeon, teach thyself, I hear you say. If only that was the case32.

Assoc Prof Hardman (2005)
It has become politically unfashionable in recent years to teach material in an intellectually rigorous manner. Instead there has been a view that students don’t need to learn anything by heart

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29 Rescuing Medical Education, conference transcript, Factors Affecting the Outcomes of Medical Education, Australian Doctors’ Fund 18/2/05, www.adf.com.au
30 ibid
31 Dr Andrew Scott, Regional Imaging Riverina, Medical Education email to Stephen Milgate, 25 May 2004
32 Rescuing Medical Education, conference transcript, Are Teaching Hospitals failing to teach acceptable clinical skills? – A Student’s perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
because they can always look it up but the problem with that is there is no time to continually make good the lack of knowledge.

At the same time there are two opposing views of what surgeons are or should be; one is that we are working scientists, the other that we are working social workers. Unfortunately the latter view has dominated in recent years so that communication skills are being taught at the expense of basic anatomy.  

Dr Scott Kinkade (2005)

In 2003, a Web-based questionnaire was sent to education deans or directors of medical education at the 123 Liaison Committee on Medical Education-accredited medical schools in the United States. The respondents indicated whether or not they were using PBL and what percentage of faculty-student contact hours in the preclinical years used PBL.

All 123 schools responded. Of them, 70% used PBL in the preclinical years. Of schools using PBL, 45% used it for less than 10% of their formal teaching, while 6% used it for more than half of their formal teaching. Of the 30% of schools not using PBL, 22% had used it in the past, and 2% had plans to incorporate it in the future.

Use of PBL is widespread in the preclinical curricula of US medical schools. That use is limited, however, since fewer than 6% of programs use it for more than 50% of their instruction.

Dr Randal Williams (2005)

Learning is now problem orientated and largely self-directed, yet I constantly hear students asking for more didactic teaching. Curricula now emphasise social/behaviour sciences and communication skills, but unfortunately at the expense of traditional basic medical sciences, particularly human anatomy. Clinical students now are commencing their hospital training with insufficient grounding in these sciences.

Dr Louise Tindal (2005)

“There have been extensive changes in the health care delivery systems, societal and global expectations, medical knowledge, medical practice, medical training requirements and medical student expectations over the last thirty years, accelerating in the last ten years. During this period Problem Based Learning has been introduced. Is there a measurable difference between traditionally trained and PBL trained doctors? The jury would still appear to be out.”

Dr Kevin Forbes (2004)

However, there is as yet no hard evidence that incorporating self-directed and problem-based learning techniques into medical curricula has any beneficial effect. Although it is not yet possible to measure the long-term effects of the changes in medical curricula, in the short term objective measures are encouraging. Today’s Australian Medical school graduates function well as interns and residents. However, many in the profession are concerned about the level of knowledge of current graduates, particularly (but not exclusively) about anatomy. Although knowledge of anatomy needed by doctors varies considerably between disciplines, the basic sciences, including anatomy, do need to be included in college training programs.

33 Surgical News, Vol 5 No 8, September 2004 “Anatomy, soft subjects jeopardising anatomy teaching”, p14
34 A Snapshot of the Status of Problem-Based Learning in US Medical Schools 2003-04, Academic Medicine, Vol. 80, No. 3/March 2005
35 Rescuing Medical Education, conference transcript. A surgeon’s perspective on recent changes to the Medical Education Curriculum, Australian Doctors’ Fund 18/2/05, www.adf.com.au
36 PBL – What is the Evidence, Dr L Tindal, March 2005
37 Medical education and hard science, Letters, MJA Vol. 181, No.9, 1 November 2004
Prof Paul McMenamin (2004)

Firstly, it should be pointed out that problem-based learning has not “all but displaced didactic teaching” in Australian medical schools. Many schools have hybrid courses and a wide variety of teaching methods are used. Secondly, including outcomes such as “communication skills and compassion” in the curricula can hardly be less than desirable.

Individual surgeons, the RACS, and their United Kingdom counterparts have lamented the decline in medical students’ anatomical knowledge for generations, even when students were taught 500-700 hours or more of anatomy. There is nothing new in this call-cry.

It is now the responsibility of surgeons and anatomists to deliver postgraduate programs that address the desired outcomes for RACS training (and the UK equivalent). We at the University of Western Australia have launched a Graduate Diploma in Surgical Anatomy\(^{38}\).

Dr Catherine D DeAngelis (2004)

The title most sought after by academicians is “professor”. Ironically, it is most difficult to achieve this goal as a medical educator. In fact, in most medical schools, the more time a faculty member spends teaching, the less likely she or he would become a professor, especially a “professor” with no adjective attached\(^{39}\).

Conclusion

1. Problem based learning is a broad brush term including everything from a well prepared small group learning session directed by a leader with extensive experience and wisdom in the subject area, to a leaderless group discussion where entrants have little if any entry knowledge.
2. There is no compelling evidence that the PBL modality alone delivers superior academic results compared to didactic teaching, nor is there any evidence to show that well prepared and well led PBL learning experiences are inferior to didactic teaching.
3. Medical education research on modalities such as PBL should be regarded with a healthy degree of scepticism. As Dyke\(^ {40}\) concluded, “few studies have been based on randomized comparisons, many have been subject to unmeasured degrees of volunteer bias”… “there is little Australian research that compares the effect of contrasting curricular approaches on student outcomes in the early years of undergraduate education….”
4. Claims that PBL is widely used in the US have been challenged by Kincaid’s survey of 123 US accredited medical schools: “of schools using PBL 45% used it for less than 10% of their formal teaching, while 6% used it for more than half of their formal teaching”.

\(^{38}\) Letters, MJA Vol. 181, No.9, 1 November 2004

\(^{39}\) Professors Not Professing, JAMA, September 1, 2004- Vol. 292, No.9, p1060-61

\(^{40}\) Dyke P, Jamrozik K, Plant A A randomized Trial of a Problem-based Learning Approach for Teaching Epidemiology Academic Medicine 2001 76(4) p373-379, as cited by L Tindal, PBL What is the Evidence?
Anatomy teaching in ANZ medical schools

<table>
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<tr>
<th>Medical School</th>
<th>Dissection</th>
</tr>
</thead>
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<tr>
<td>Adelaide</td>
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</tr>
<tr>
<td>Auckland</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Flinders</td>
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<td>Western Australia</td>
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Dissection in 3/16 19%

Anatomy: Teaching in other courses

<table>
<thead>
<tr>
<th>Programme</th>
<th>Hours</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Sydney Graduate Medical Programme</td>
<td>65</td>
<td>No dissection, prosected specimens, self directed</td>
</tr>
<tr>
<td>Sydney Undergraduate Medical Programme</td>
<td>500</td>
<td>13-14 week semester, Abdomen/Thorax, Head &amp; Neck</td>
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<td>Science 6 unit science Anatomy</td>
<td>91-98</td>
<td>(dissection) x2 1hr lecture, 1hr tutorial, 3hrs dissection/week</td>
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<td>Chiropractor</td>
<td>156</td>
<td>No dissection, 13-14 week semester</td>
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<td></td>
<td></td>
<td>Limbs, back &amp; trunk, head and neck x4 hr/week</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x2 lectures, x2 hr practical with tutor</td>
</tr>
</tbody>
</table>

~15% of US hospital residents from osteopathic schools of medicine

Ref. Prof J.P. Harris
Experienced clinical teacher of 30 years

“After 30 years of teaching I am now occasionally appalled at some standards. We recently had a Radiology Registrar in our Department unable to tell me parts of the brain on C.T. and unable to tell me major trunks of the aorta (she had never done anatomy!!! – ever!!!). If you think that is bad I was recently told of a 5th year student who did not know where the prostate was.

Basic pathology knowledge is now at a woeful low in my view and 5th and 6th year students are unable to tell me about the basics of pneumonia!!

Medicine has been taught with Anatomy and Pathology as the mainstay for centuries. It’s time to get back to basics. The students do not know basic Anatomy and Pathology. God help us when a final year student tells me he does not know where the scaphoid is!!!

Associate Prof Don Sheldon (2005)

“It is a great failure of the system, in that the ultimate quality assurance safeguard, the post mortem examination, has largely been abandoned by our health systems and hospital administrations. All the other quality programmes are trivial compared with the rigor of independent post mortems, and if the authorities are serious about quality control, and improved safety in health service delivery, that anomaly has to be addressed.”

Prof John P Harris (2005)

Using anatomy as a quick example, traditional undergraduate dissections basically are no longer sustainable in our medical schools for cost, time constraints and loss of really experienced and skilled staff. Innovative programmes have been offered as an alternative. If we look at the various clinical schools in New Zealand and Australia, only three - and two of those are in New Zealand - still offer dissection. If you look at the shift, when we went through, we did about 500 hours of undergraduate anatomy which you could argue is probably excessive, but I contend that the 65 hours at the moment is probably too little, and certainly less than our science students or chiropractors are doing.

… fundamentally future doctors may be proficient in general and societal aspects of medicine but it would seem their knowledge of the basic facts of anatomy, physiology and pathology may be wanting. I would agree that the anatomy learnt in 500 hours of dissection is excessive but I would contend what we are doing at the moment is minimalistic and we’ve basically potentially thrown the baby out with the bath water.

… the pattern of clinical practice is not reflected in the makeup of the curriculum which we currently offer our students. And from a surgical perspective I’d point out that it’s still a pretty important discipline.

With surgery - and I point out that our graduates come out of our programme still MBBS, the surgical content - the general surgical content - is covered in a 32 week block with 16 topics which involve one lecture and one tutorial, and there is some clinical exposure through an integrated clinical attachment to a ward.

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41 Letter to ADF, Name supplied, 16 March 2006


43 Rescuing Medical Education, conference transcript, Emerging problems with Graduate Medical Education – An Academic Surgical Perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
Assoc. Prof. Barry Oakes (2005)

I taught for 35 years at Monash University, Department of Anatomy until 2002. The dumbing down of the new 5 yr. Undergraduate Medical course at Monash forced my early retirement. I could not be part of it, to disenfranchise a whole generation of medical students from essential, anatomical data required to safely and adequately practise medicine.

One cannot easily learn as an Undergraduate both macro and micro-anatomy outside the university environment. This state of affairs has been created wittingly by current federal government policies, but not understood by the common community, who fund universities because they are not aware of these huge curriculum changes.

Funding for medical education has been drastically reduced over the last 10 years to dangerously low effective staff numbers, when paradoxically, student numbers are increasing annually almost exponentially. Severe cuts in basic science medical Undergraduate studies have forced medical courses to adopt total PBL learning and SDL as ‘pseudo-effective’ strategies against fund cutting and rapidly rising student numbers.

The mistaken current belief in academia [is] that electronic learning can replace competent lectures and that didactic lectures are a poor means of learning. But [they] are probably better than zero or minimal fragmented learning (PBL), without any real life medical perspective. Currently at Monash there is almost zero detailed anatomy taught, such that even basic knowledge of the major neurovascular limb bundles are not known as well as detailed basic tissue structure i.e. histology.

Sydney University does not now teach gross topographic anatomy, and is now starting to produce a summer course of gross anatomy in 2005. Science students at Monash have more detailed gross anatomy instruction than Medical Undergraduates. Head and neck anatomy is taught in 14 sessions with minimal active learning, as is for the rest of gross anatomy. Passive learning with demonstrators is the order of the day with minimal examinations. If you do not have exams you cannot fail your paying clients.

A knowledge of gross anatomy and function of the larynx and pharynx are obviously not important at Monash, when these lectures plus the oral cavity are crammed into one 3 hr. teaching slot.

I do not believe one can safely practise any form of medicine without a reasonable knowledge of macro and micro-anatomy. The basic anatomical foundation of medicine has been severely gutted at Monash and replaced with population based medicine and what I would call non-core subjects.44

Dr Jean Fasel (2005)

Owing to human nature’s irrepressible urge to change things, the decline of anatomy teaching will continue. It will not be stopped, but one phenomenon we fear cannot fail to occur: an increase in malpractice lawsuits pointing at anatomic shortcomings. Particularly surgeons and interventional radiologists will be at risk for having failed to meet standards of care. Should we wait for legal and public pressure to oblige medical schools to reconsider their position towards anatomy?45

Assoc Prof Hardman (2005)
The standard of exams hasn’t changed but the standard of knowledge that the trainee brings to the process is much poorer than it has been in previous generations.

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44 Public Statement on Medical Education, B.W Oakes MD 9/2/05
45 Drs Jean H D Fasel, Philippe Morel, Philippe Gailloud, University Medical Centre & Department of Surgery, Geneva, Switzerland (JHDF, PM); Division of Interventional Neuroradiology, John Hopkins, Baltimore, MD, USA (PG), The Lancet, 26 February 2005 – A Survival Strategy for Anatomy
“I believe the College now must act proactively to address the situation by holding bridging courses for trainee surgeons, in hospitals and morgues around the country, probably in modules so that students can at least learn what they need to learn.

“The students themselves are being short-changed and quite clearly if all we can do is give patients a hug then all we can expect is to see more lawyers.”

The reduction from six to four years in the under-graduate programme and the move toward safer working hours for surgical trainees has dramatically exacerbated the problem46.

Dr Andrew Perry (2005)

Twenty years ago there’s no doubt that the emphasis was solidly on the hard sciences. So where do I think the pendulum lies. I think the pendulum has swung too far in favour of soft sciences. I want to say something else though, that soft science is important. So I think we need to keep that in mind when we’re looking at this debate. I believe that there’s not enough anatomy, physiology, biochemistry, pharmacology, etc in the course. So, how much do I think there should be? Well, it’s almost how long is a piece of string, but I think it must be said that there can be too much of a good thing. I still remember my first lecture in medical school…

In fact, at Adelaide, you may be interested to know, that we’re now down to about five hours of lectures a week whereas in my course it was close to about fifteen.

Dr Dror Maor (2005)

…. talking about Tasmania. The number of teaching hours last year, or the last two years, has died from fifteen hours of pathology to just one. And that is one hour of pathology47.

Dr Randal Williams (2005)

Human anatomy I believe to be the basis of medicine. As you’ve already heard we spent many many weeks and months dissecting cadavers. We had to have regular vivas and pass that section before we could move on, and there was a searching exam at the end. Nowdays of course we see that has gone, that there is a self directed study of pro-sections. I’m not sure how this anatomical knowledge that’s obtained in this way is assessed.

We do have a too large swing of the pendulum away from the basic sciences, there’s no doubt about that.

Compounding the problem, I believe, is that teaching in the clinical years relies on the goodwill of clinicians who may not wish to teach basic science, may not even be competent to do so. And also we find that reductions in working hours for junior doctors now limit their exposure and their stimulus to add to their knowledge.

To me the concept that less training in anatomy and other basic sciences will produce better doctors is kind of counter intuitive, I can’t understand it, it seems bizarre to me. What is the evidence that this is actually going to take place, and we’ve already heard that we need to get that evidence48.

Prof Phillip Allen (2005)

There is no doubt the hospital autopsy is very close to death. The hospital autopsy rate at Flinders Medical Centre is about 1%. A few coronials increases the rate a little, whereas at the Queen

46 Surgical News, vol.5, 8 Sept 2004, p14
47 Rescuing Medical Education, conference transcript, Are Teaching Hospitals failing to teach acceptable clinical skills? – A Student’s perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
48 Rescuing Medical Education, conference transcript, A Surgeon’s perspective on recent changes to the Medical Education Curriculum, Australian Doctors’ Fund 18/2/05, www.adf.com.au
Elizabeth Hospital, which is out of the centre of Adelaide, down the road, the autopsy rate in the hospital is zero. All the autopsies are transported up the Port Road to the Adelaide Hospital where they are performed there, and goodness knows what use that would be to the clinicians who are down at the Queen Elizabeth, they wouldn’t have a clue what’s going to happen at the autopsy. There’s no feedback - absolutely useless. Well, the autopsy at the moment is close to death\textsuperscript{49}.

Prof Richard Gordon (2005)
I have been particularly concerned by the demise of autopsy-based teaching, both undergraduate and post graduate, with its unequalled power as a quality assurance tool. I was fortunate enough to have 6 months performing autopsies as a compulsory rotation during my time as a medical registrar at Princess Alexandra Hospital in Brisbane in the early 1960s. This was the most instructive period of my training, UG or PG. The weekly “death meetings” (one surgical and one medical) which utilised the autopsy finding, at which attendance by interns, residents, registrars and all relevant consultants was compulsory, represented the best form of quality assurance that has ever been devised\textsuperscript{50}.

Dr Debra Graves (2004)
The RCPA recently published an article in the Medical Journal of Australia which provides considerable evidence to support the continual use of the autopsy as a tool for improving safety and quality (among other things). The article shows that the medical error rate detected at autopsy is still considerable (those were 23.5\% of clinical missed diagnoses involving the principle or underlying cause of death and 9\% of errors which would and could have affected the patients’ outcome), as is the discordance in autopsy findings and original cause of disease on death certification of 53\%\textsuperscript{51}.

Dr (Harold) Reginald Magee (2003)
Future doctors may be proficient in the general and social aspects of medicine, but it would seem that their knowledge of the basic facts of anatomy, physiology and pathology and their understanding of the mechanism of disease may be no better than that of a “medicine man”\textsuperscript{52}.

Conclusion
It is incomprehensible that the practice of medicine can be safe for both doctor and patient without a comprehensive understanding of anatomy (dissection of the human body), physiology, biochemistry and pathology (especially post-mortem examination).

\textsuperscript{49} Rescuing Medical Education, conference transcript, The Death of Autopsy & Oslerian Principles, Australian Doctors’ Fund 18/2/05, www.adf.com.au
\textsuperscript{50} Letter to Dr Bruce Shepherd, Chairman Australian Doctors’ Fund, 12/4/2005
\textsuperscript{51} Chief Executive Officer, Royal College of Pathologists of Australia, medicSA, August 2004 – Autopsies
\textsuperscript{52} MJA 2003 179(4);223-224
The Rise of Social science (soft science)

Dr Randal Williams (2005)

“Are we producing medical sociologists? What was so wrong with the previous curriculum? Communication skills have become the holy grail of medical medication, and I differentiate communication skills from language skills. I think we must have adequate English.

….they’re coming into fourth year now with inadequate basic science knowledge. And clinical tutors such as myself and the postgraduate colleges are having to plug the gaps. Communication skills and those sorts of associated skills are rightly emphasised, I have no problem with that, and possibly we had too little training in the past. But I think we must keep our eye on the ball of scientific training at all times.

…. contrasting the difference between when I started in 1965 in the Adelaide Medical School and what is happening now in 2005. I’ll just point out, though, that we did do a course called medicine and the humanities, so we weren’t entirely Philistines in those days.53

Prof John P Harris (2005)

I think we should reaffirm the aims of medical education which basically, in my view, should be to prepare young doctors to serve the Australian community as clinicians, and lesser but important aims of the doctor as a social engineer and the doctor as a scientist and researcher54.

Prof Helen Beh (2005)

There’s no question that the new system graduates have got better communication skills and communicate better with their patients. The evidence is equivocal whether there’s been any change in their social interaction with their patients and in their social skills, and, as we’ve heard, whether there’s been any change in their clinical skills. Certainly there are poorer clinical skills when they come into the advanced specialist training. They are not as prepared to enter those advanced programmes. We’ve heard they have greater confidence but I question whether that greater confidence is based on greater ignorance – nobody has looked at that – and an interesting finding that has come out is that the new system graduates tend to have a lower career commitment, possibly because they’ve invested less intellectual capital in their degree.

Three suggestions for improvement. I suggest the pendulum has swung too far away from the sciences, and that the balance between science and social science needs adjustment. One of the arguments put when the graduate medical programme course was being developed was that all that science --- what you are doing is training them to be researchers, and we therefore don’t need to give them that much science. Well, my argument is that doctors are researchers. When a patient comes to you with a problem you have to discover why they have got that problem and in the absence of knowledge you are not going to be able to come up with the answer. I also argue that the emphasis on social sciences may be misplaced because of the role of personality in human interaction. There’s evidence that our personalities are pretty much set like a jelly by the time we are in our 20’s and some people would argue they are set like a jelly from the time we are born. All the teaching in the world about how you interact with your patients and so on – you might know what you should be doing but whether you can do it is another question entirely.55

53 Rescuing Medical Education, conference transcript, A Surgeon’s Perspective on recent changes to the Medical Education Curriculum, Australian Doctors’ Fund 18/02/05, www.adf.com.au
54 Rescuing Medical Education, conference transcript, Emerging problems with Graduate Medical Education – An Academic Surgical Perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
55 ADF Rescuing Medical Education Conference Transcript, Australian Doctors Fund, 18/2/05 www.adf.com.au
Conclusion
The proposition that exposing a medical student to lectures in social science will enhance empathy and compassion has no basis in science. In medical practice, the ability to communicate is important. Knowing what you are communicating more so.

Professor Terry Dwyer M.B., B.S.
(University of New South Wales, 1971)
(link between SIDS & babies sleeping position)
Medical Student Demographics & Characteristics

The following characteristics of Australian medical students are taken from the CDAM Entry Survey of 2002 compiled by Dr Anne Swinbourne. All percentages have been rounded to the nearest percentage point and refer to respondents to the survey.

- 60% of all medical students in all states surveyed were born in Australia
- Over 50% of all medical students surveyed attended a university in the state in which they were born. However, students surveyed who declared themselves Australian citizens had different results. In SA only 27% of students who are Australian citizens and attend a university in SA, were born in SA, 25% were born overseas (not including international fee paying students - IFPS) and 19% were born in VIC; 12% were born in NSW
- Most Aboriginal and Torres Strait Islanders (ATSI) students attend JCU (2%)
- Most overseas born students were born in Malaysia with Asia being the region of birth of 4 of the top 5 overseas countries
- 75% of students had English as their first language (Mandarin having the highest percentage of non-English first language speakers)
- 62% of all medical students came from Australian capital cities
- 40% of all medical students completed their education at a government school
- Over 60% of all medical students did not have a previous university degree
- 81% of non degree students had not undertaken any university study
- 55% of all medical students reported that their father was professional and/or managerial and 18% reported that their parents were either doctors or health professionals (18.1% for male parents, 17.5% for female parents)
- Over 50% of all medical students’ parents were born overseas (55.9% of mothers and 56.7% of fathers); most parents born overseas were born in Malaysia (over 20%)
- Most parents born overseas whose children are Australian citizens or permanent residents were born in the UK (13.5% fathers, 12.2% mothers) followed by Malaysia (10% fathers, 10.4% mothers)
- Most parents born overseas of international fee paying students were born in Malaysia (38.7% fathers, 38.4% mothers) followed by Taiwan (5 & 7%)
- 90% of students were single and over 1/3 were living with their parents
- 63% of students relied on their parents as their source of income, 26% had government assistance, 21% had part-time work, 17% scholarships, 25% were self supporting (note: multiple answers were allowed, hence total does not equal 100%)
- 46% of male students and 51% of female students gave “a desire to help” as their first reason for studying medicine
- Intellectual curiosity rated 32 and 31% respectively.
- 56% of students preferred their future practice to be in a capital or major Australian city, 22% overseas, 20% rural, 3% remote.
- Of students who were Australian citizens, the intended future practice was 63% capital cities (29% IFPS), 23% rural (5.4% IFPS), 3.3% remote (0% IFPS), 10.6% other country (66% IFPS)
- Students prefer to practice where they have lived in the past
- ‘Surgery’ was nominated as the preferred type of practice by 19% of students (Surgery was preferred by 26% males, 13% females) followed by paediatrics 15%, general practice attracted 10% males, 15% females as a future clinical destination, psychiatry 3%, pathology 0.3%. The lowest occupational medicine 0.2%.

Ref. Summarised from CDAM entry survey 2002
Dr Randal Williams (2005)
I’ve collected up some things that University of Adelaide medical students have said to me over the last few years. One of the important points that keep cropping up is that they don’t believe they are ready for problem based learning straight out of school. They go into first year medicine and they are presented with a clinical problem. They’ve got to go and research it but they’ve got no framework on which to hang it. They don’t know any anatomy; they don’t know any physiology or biochemistry. So they believe they’ve been thrown in at the deep end.

I think the students are keen, the students I see, and I attach no blame to the students whatsoever for what is happening. The students are keen, enthusiastic and well presented. They communicate and engage well with staff. They work well in teams. More importantly, they recognise the deficiencies in their knowledge and they try to address them and look for help from us in doing it. And perhaps unlike my generation, they are aware of a need for a balanced life style.

Another issue that I’m concerned about is the demographics. Last year in Adelaide Medical School we had only 30% local students and 70% female students. Flinders Graduate School has similar ratios. We’re going to have major workforce problems in South Australia because a lot of the students who are now going interstate because they can’t get into Adelaide Medical School won’t come back56.

Dr Andrew Perry (2005)
… Medical students are realising that perhaps the course that they are being taught, that they are being told is best for them, could be improved to some extent57.

Prof Ted Cleary (2005)
Television and computer games are a major input to students. They are visual learners. Basically their view of medicine comes from ER and other similar television programmes. It’s all black and white, it’s all instantaneous decision making, or a test sorts it out instantly, and all you’ve got to do is administer the magic treatment and they all get better and live happily ever after. Now that’s true.

‘Get a life’ is a serious issue, and the students are not willing to put in the hours. And in many instances, because of the economic pressures that they are facing, a large proportion of our students are working in order to maintain their quality of life. We did a survey a few years ago of the fourth year students. Some of them were working 25 hours a week.

…. because we’ve changed the system the students are not going to be the same as they were. We’re saying we are allowing access to the basic science people to teach in the later years of the course. We don’t expect them to know everything that they used to - or were said to know - by the time they come to fourth year58.

Dr Dror Maor (2005)
We have analysed medical school places and so has the AMA and institutions such as CDAMS [Committee of Deans of Australian Medical Schools]. These figures show that by 2008 the potential intake will be between 2,300 and 2,400 students each year. Now this represents a 40% increase on last year’s intake which had already been boosted by 12%. And these figures further

56 Rescuing Medical Education, conference transcript, A Surgeon’s Perspective on recent changes to the Medical Education Curriculum, Australian Doctors’ Fund 18/2/05, www.adf.com.au
57 Rescuing Medical Education, conference transcript, the Downgrading of basic Sciences – A Student’s Perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
58 Rescuing Medical Education, conference transcript, Factors Affecting the Outcomes of Medical Education, Australian Doctors’ Fund 18/2/05, www.adf.com.au
show that by 2011 there will be an 85% increase in medical school graduates, that is an 85% increase in the number of interns that we are putting into the health system.

Let’s look at Tasmania for example. Students last year did teaching ward rounds in groups ranging from five to fifteen. Now, most of the people in this room would have been on ward rounds, and obviously the more people you have, the more medical students you have, and the more people you have striving for that knowledge, the harder it is to teach.

**Prof John P Harris (2005)**

When I went through you did the Leaving Certificate (5 years) and then you went into medicine, and basically the medical course at that time was six years, which is eleven. With the HSC there is an additional year, with pre-med there’s three, with the graduate medical programme there’s four. Students often take a break during this time for good reasons and they travel or whatever. But the result of it is that their mean age of graduation is 29, and if they’ve then got to do a four to seven year specialty programme they enter their definitive vocation at 33 or 36. If you look at the working hours of doctors you can see the effective professional lifetime of a medical practitioner basically starts to taper off after 55 or so. So if we’ve got folk coming into definitive vocations at 33 or 35, the return that society is getting for that training is not what it might perhaps be. The curve is not a normal distribution.

In my view there are implications of age. 14% of people are over 35 at graduation. I believe that affects their vocational choice and has implications because of the length of specialty training, and they have a shorter effective practice life and you have to wonder about the return to the taxpayer. For the individuals caught up in this process, I think it has implications for their financial wellbeing, for housing and for family. For surgeons, if you are looking at hand/eye skills, elite performance really relates to the age at which you are first exposed to something and the amount of practice. Our Surgeon-in-Chief in the college has estimated it takes 10,000 hours to become a competent surgeon. With musicians of course, if they don’t start learning by 5 or 9 they’re not going to make it. I contend that you’re not expecting people to learn surgery at 5 or 9, but I don’t believe they should be learning surgery in their 30’s, as the initial start to that profession.

**Conclusion**

Are today’s medical students substantially different from their forebears? Undoubtedly, they have embraced the benefits of modern technology. It would be wrong however to assume that their goals as medical students are radically different. The anatomy of the human body is the same today as it was 500 years ago. To know and understand as much as possible about the human condition and how to relieve suffering is still the noble aim of the dedicated medical student and medical practitioner.

As Dr Van der Weyden states “What doctors are, and do, in the 21st century is thus not much different to what Osler espoused 100 years ago. Their tasks are embodied in the questions that preoccupy patients when consulting doctors: what is wrong with me? (Diagnosis); what will happen to me? (Prognosis); what can we do? (management plan, priorities and co-ordination); and who will do it and be responsible (competent, up-to-date and experienced practitioners, who are indemnified, and whose expertise is underpinned by broad and rigorous training).”

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59 Rescuing Medical Education, conference transcript, Are Teaching Hospitals failing to teach acceptable clinical skills? – A Student’s Perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
60 Rescuing Medical Education, conference transcript, Emerging problems with Graduate Medical Education – An Academic Surgical Perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
61 Dr Martin Van Der Weyden, MJA Vol 183, 11/12.p560


**Student grading**

**Prof John P Harris (2005)**

To touch a little bit on student assessment, rank and honours - in the five year programme that I went through honours was based on cumulative success in subjects so there was an incentive to exceed and excel in subjects. In the current programme [Sydney University] you can put up your hand to do a programme for honours which is unrelated to your core programme and in my view is distracting from the main programme, and it is possible for a very mediocre student to get honours. Further, there is now no university medal so we don’t reward excellence in our programme, and between 1997 and 2002 that was reflected in the year book being dropped, and I’m sure many of you will remember how valuable that document becomes in years looking back on your medical training. It has now thankfully been reintroduced.

One of the problems we’ve got, and we talked a little bit about assessment - this is formative assessment of last year’s Year 3 surgery, and the bulk of students did fine. But attendance for this formative assessment is voluntary and only 31 turned up. The results are anonymous, and there were 11 students whose performance was unsatisfactory, and I don’t know who they are. It is left up to that individual student to seek remedial preparation before their barrier exam.

So in the absence of ranking, and with a fail/pass or a satisfactory/unsatisfactory system, how do you sift out the poor student and how do you reward the good student. In the absence of objective criteria how do you fairly rank people for residency placement, selection into speciality training, and award honours⁶².

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**Student assessment, rank, honours**

- 5 yr Undergraduate programme
  - Honours based on cumulative success
  - Incentive to excel in each subject
- USydGMP
  - Honours based on extra-project
  - Unrelated to core and distracting from the programme
- No University Medal in Medicine
- No Year Book 1997-2002

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**Ref. Prof J.P. Harris**

**Dr Randal Williams (2005)**

I’m concerned about the non graded pass/fail system, we’ve heard again about that. The rationale is to discourage competition between students working in groups, apparently. But I don’t think it works, I really don’t. It fails to reward merit. It fosters mediocrity, in my view. How are we able to identify excellent students? And good students don’t like it. The lazy students do - the minority of

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⁶² Rescuing Medical Education, conference transcript, Emerging Problems with Graduate Medical Education – An Academic Surgical Perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
lazy students love it - the good students don’t. Has this approach already failed in pre-university education?

Another concern I have is the adoption of a non-graded pass/fail system in the Adelaide Medical School. This apparently is to discourage students from competing with each other and to foster co-operation with student groups. But, in reality, does it foster mediocrity? How do we identify and reward excellence?963

Dr Andrew Perry (2005)
I believe that the current medical education climate is such that we encourage the achievement of basic competencies, and put that over and above trying to encourage people to go beyond them. In my view that is encouraging mediocrity at the medical school level.

But I think the central message I’m hearing from students over the last three years is that really they want more feedback, and they don’t really care if it’s formative or summative. Really so long as they are getting something, something to tell them how they’re going, that is primarily what they’re after. So if I had one take-home message in that area it would be, if the MEU’s were to consider increasing the amount of assessment that takes place for the students64.

Prof Ted Cleary (2005)
I’m paying 28 thousand bloody dollars a year for this and you’ve got to pass me. And we have the parents down from Hong Kong to tell us we’ve got to pass them, and then they go through appeals and appeals and appeals, and it just goes on and on. We have to answer all that stuff. It’s going to get worse.

We have a full time staff of three people helping these people to acculturate, and to speak English65.

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<th>Question</th>
<th>Totally agree</th>
<th>Somewhat agree</th>
<th>Neither agree or disagree</th>
<th>Somewhat disagree</th>
<th>Totally disagree</th>
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<td>Q10 - A common grading system for all Australian Medical schools should be introduced</td>
<td>69.1%</td>
<td>23.2%</td>
<td>5.5%</td>
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<tr>
<td>Q11 - A merit based grading system based on examination results should be introduced in all Australian Medical Schools</td>
<td>62.3%</td>
<td>28.2%</td>
<td>8.4%</td>
<td>0.9%</td>
<td>0.2%</td>
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<td>Q12 - Honours grading should be awarded on graduation for excellence throughout the entire course</td>
<td>67.9%</td>
<td>22.6%</td>
<td>7.0%</td>
<td>1.6%</td>
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Figure 9: ADF Medical Undergraduate Curricula Questionnaire, March 2006

Conclusion
A rigorous merit-based grading system, of which honours is the highest achievement will help reduce uncertainties that some medical students are not being graded on their merits. The words of British poet, Lord George Lyttelton (1709-1773) should be heeded in debates over grading systems, “where none admire, tis useless to excel”.

63 Rescuing Medical Education, conference transcript, A Surgeon’s Perspective on recent changes to the Medical Education Curriculum, Australian Doctors’ Fund 18/2/05, www.adf.com.au
64 Rescuing Medical Education, conference transcript, The Downgrading of Basic Sciences, Australian Doctors’ Fund 18/2/05, www.adf.com.au
65 Rescuing Medical Education, conference transcript, Factors Affecting the Outcomes of Medical Education, Australian Doctors’ Fund 18/2/05, www.adf.com.au
Funding

Prof Ted Cleary (2005)

In our university we have an interesting trick called socialisation. What this means is they take money from the medical faculty, which is given at a higher rate, and pay us at the same base line rate everyone else does, and spread the money around to the other faculties who don’t get paid so well.

We have a darg of fee paying students we have to take. If we don’t get that many up they take that money away from our budget and a penalty as well. Our universities, like most other institutions, are now becoming business model focused. That means the centre gets fatter and the people out at the periphery do all the work and get less and less money to do it66.

Conclusion

Whilst flexibility in the management of University spending is desirable and necessary, the claim that revenue generated from medical students’ fees is being used to cross subsidise non-medical courses will promote uncertainty as to the quality of medical education being delivered.

Summary & Conclusions

Prof Helen Beh (2005)

I suggest the pendulum has swung too far away from the sciences, and that the balance between science and social science needs adjustment. One of the arguments put when the graduate medical programme course was being developed was that all that science --- what you are doing is training them to be researchers, and we therefore don’t need to give them that much science. Well, my argument is that doctors are researchers. When a patient comes to you with a problem you have to discover why they have got that problem and in the absence of knowledge you are not going to be able to come up with the answer. I also argue that the emphasis on social sciences may be misplaced because of the role of personality in human interaction. There’s evidence that our personalities are pretty much set like a jelly by the time we are in our 20’s and some people would argue they are set like a jelly from the time we are born. All the teaching in the world about how you interact with your patients and so on – you might know what you should be doing but whether you can do it is another question entirely.

Another area I think which might need improvement, selection procedures might need to improve to target those with the social and communication skills, so you don’t have to be teaching them, they’ve already got them. We know they are set at about age 20, pick them, because they are good at interacting. And the third thing – room for improvement – I think there’s a need for a better balance of theory and practice and a better balance of didactic and problem based teaching.

Dr Randal Williams (2005)

What can medical schools do? Change the selection process. Try to get some more didactic teaching. Make sure anatomy is properly taught. And listen to the concerns of students and clinicians67.

66 ibid
67 Rescuing Medical Education, conference transcript, A Surgeon’s Perspective on recent changes to the Medical Education Curriculum, Australian Doctors’ Fund 18/2/05, www.adf.com.au
Dr Dror Maor (2005)
The quality and safety of health care in this country are under serious threat and unless there is a substantial improvement in the way education and training is funded and resourced we will have major problems.

Dr Andrew Perry (2005)
It’s actually a system failure, the way things are going now, it is impossible for medical education to continue in its current sustainable format. The reason for this – and it’s been mentioned before – is that service delivery is taking priority over teaching.

Prof John P Harris (2005)
So the way forward. I think we need to re-emphasise clinical training in our programme as the prime role of our preparation of doctors who serve the community. The other aspects of training and professional behaviour are important but not as important. I think we need to base our curriculum more on feedback from the students and from doctors in practice about what they need to learn from our universities and our training programmes. I think there needs to be a fusion of resources and skills between our colleges and our universities and I think we need to think about our medical school entry being based upon realistic projections of work-force needs in this country, and not poach off other places which I think, in my mind, raises ethical issues.

Finally, I draw to your attention the impending demise of clinical academic departments which, at the end of the day, may be the most major issue that we need to face.

<table>
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<th>Neither agree or disagree</th>
<th>Somewhat disagree</th>
<th>Totally disagree</th>
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<tbody>
<tr>
<td>Q18 - Teaching hospitals should utilise and develop dedicated day surgery centres/units for clinical teaching.</td>
<td>51.9%</td>
<td>32.8%</td>
<td>12.8%</td>
<td>2.1%</td>
<td>0.5%</td>
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<tr>
<td>Q19 - Selected private hospitals and day surgery centres facilitate opportunities for medical student teaching while protecting the status of private patients by opt in / opt out conditions</td>
<td>52.7%</td>
<td>32.7%</td>
<td>10.5%</td>
<td>3.2%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Q20 - Medical student apprenticeships should be introduced in the final years of the curriculum.</td>
<td>43.1%</td>
<td>34.6%</td>
<td>18.5%</td>
<td>3.6%</td>
<td>0.2%</td>
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<tr>
<td>Q21 - Medical schools and teaching hospitals should include the teaching of rural and remote medicine within the undergraduate medical curriculum</td>
<td>66.9%</td>
<td>26.3%</td>
<td>4.8%</td>
<td>1.8%</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

Figure 10: ADF Medical Undergraduate Curricula Questionnaire, March 2006

68 Rescuing Medical Education, conference transcript, Are Teaching Hospitals failing to teach acceptable Clinical Skills? – A Student’s perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
69 Rescuing Medical Education, conference transcript, The Downgrading of Basic Sciences – A Student’s perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
70 Rescuing Medical Education, conference transcript, Emerging Problems with Graduate Medical Education: An Academic Surgical Perspective, Australian Doctors’ Fund 18/2/05, www.adf.com.au
SUMMARY OF CONCLUSIONS

Changes in Selection Process

Conclusion
1. Despite initial confidence that UMAT would be an objective selection tool for medical entry there is now clear evidence that students can be successfully coached to improve their performance on this test.
2. The CDAMS entry survey of 2002 shows that students themselves in a large number of university medical schools do not have confidence that the selection criteria being used by their university is able to produce “competent and effective doctors”.
3. The policy which sees many students with a high TER ranking unable to find a placement in a medical school in a state where they live is not only personally disruptive to themselves and their families but in conflict with optimal future training needs and location choices that young doctors make.
4. A strong reliance on academic merit (objectively assessed) together with competency in English as a selection method will act against the unhealthy tendency to socially engineer the medical profession by discriminating against those whose motivation and interest does not fit pre-conceived politically derived stereotypes.

Graduate vs. undergraduate entry at Australian medical schools

Conclusion
1. Prof Searle has provided clear evidence that the change to graduate entry medicine, so readily embraced by Australian universities was not clearly evaluated prior to its introduction.
2. The change to graduate entry was introduced at a time of wholesale renovation in medical education, namely changes in selection criteria, curriculum structure and content. This makes analysis of any one factor problematic.
3. For a sector strong in rhetoric over the need for evidenced based change, the absence of any cost-benefit analysis and broad debate preceding wholesale restructuring of university medical schools leads to the conclusion that the sector is as prone to fad and fashion (keeping up with the Americans) as any other non-academic organisation.
4. Prof Searle also points out that graduate entry is drawing substantially from the same student population pool as its non graduate entry predecessor. The result is students being made to ‘mark time’ completing their first degree instead of getting on with their prime intention i.e. to study medicine. Prof Harris has also pointed to the vocational cost in delayed entry into medical practice.

Changes in curriculum design and content

Conclusion
1. The belief that traditional subject based medical curricula have somehow failed as an effective medical education pathway flies in the face of the reality that Australian medical schools have enjoyed an enviable reputation primarily because of the quality of their graduates.
2. Whilst integration of curricula is a desirable educational aim, caution must be exercised in blind adherence to any particular educational theory or learning modality. So called theories of education have been unable to deliver certainty or predictability of outcome. Educational psychology remains an inexact “science”.

Page 38 of 69
Problem based learning vs. didactic teaching

Conclusion
1. Problem based learning is a broad brush term including everything from a well prepared small group learning session directed by a leader with extensive experience and wisdom in the subject area, to a leaderless group discussion where entrants have little if any entry knowledge.
2. There is no compelling evidence that the PBL modality alone delivers superior academic results compared to didactic teaching, nor is there any evidence to show that well prepared and well led PBL learning experiences are inferior to didactic teaching.
3. Medical education research on modalities such as PBL should be regarded with a healthy degree of scepticism. As Dyke71 concluded, “few studies have been based on randomized comparisons, many have been subject to unmeasured degrees of volunteer bias”…. “there is little Australian research that compares the effect of contrasting curricular approaches on student outcomes in the early years of undergraduate education…..”
4. Claims that PBL is widely used in the US have been challenged by Kincaid’s survey of 123 US accredited medical schools “of schools using PBL 45% used it for less than 10% of their formal teaching, while 6% used it for more than half of their formal teaching”.

The decline of anatomy, pharmacology and pathology (hard science)

Conclusion
It is incomprehensible that the practice of medicine can be safe for both doctor and patient without a comprehensive understanding of anatomy (dissection of the human body), physiology, biochemistry and pathology (especially post-mortem examination).

The Rise of Social science (soft science)

Conclusion
The proposition that exposing a medical student to lectures in social science will enhance empathy and compassion has no basis in science. In medical practice, the ability to communicate is important. Knowing what you are communicating more so.

Today’s medical students

Conclusion
Are today’s medical students substantially different from their forebears? Undoubtedly, they have embraced the benefits of modern technology. It would be wrong however to assume that their goals as medical students are radically different. The anatomy of the human body is the same today as it was 500 years ago. To know and understand as much as possible about the human condition and how to relieve suffering is still the noble aim of the dedicated medical student and medical practitioner.

As Dr Van der Weyden states “What doctors are, and do, in the 21st century is thus not much different to what Osler espoused 100 years ago. Their tasks are embodied in the questions that

71 Dyke P, Jamrozik K, Plant A A randomized Trial of a Problem-based Learning Approach for Teaching Epidemiology Academic Medicine 2001 76(4) p373-379, as cited by L Tindal, PBL What is the Evidence?
Students preoccupy patients when consulting doctors: what is wrong with me? (Diagnosis); what will happen to me? (Prognosis); what can we do? (management plan, priorities and co-ordination); and who will do it and be responsible (competent, up-to-date and experienced practitioners, who are indemnified, and whose expertise is underpinned by broad and rigorous training).\textsuperscript{72}

**Student Grading**

**Conclusion**

A rigorous merit-based grading system, of which honours is the highest achievement will help reduce uncertainties that some medical students are not being graded on their merits. The words of British poet, Lord George Lyttelton (1709-1773) should be heeded in debates over grading systems, “where none admire, tis useless to excel”.

**Funding**

**Conclusion**

Whilst flexibility in the management of University spending is desirable and necessary, the claim that revenue generated from medical students’ fees is being used to cross subsidise non-medical courses will promote uncertainty as to the quality of medical education being delivered.

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\textsuperscript{72} Dr Martin Van Der Weyden, MJA Vol 183, 11/12.p560  
\textsuperscript{73} Dr Martin Van Der Weyden, MJA Vol 183, 11/12.p560
MAJOR RECOMMENDATIONS

1. That the Federal Government direct the Australian Medical Council to:
   a. compel medical schools to provide for direct entry into medical faculties for high school graduates based on academic merit and expertise in English and hence reverse the move to delay entry into the medical workforce through imposed graduate entry programmes.
   b. fund an independent national survey by a non-university based organisation of all Australian medical students to determine their level of satisfaction with the quality of their medical education, in particular in the area of basic sciences.
   c. determine minimum tuition standards and educational outcomes in the sciences of anatomy, physiology, histology, biochemistry, pharmacology, pathology (post-mortem examination) and microbiology for all medical students at all Australian medical schools.
   d. ensure that all medical undergraduate curriculum boards be required to include medically qualified practising clinical tutors.
   e. ensure that all medical courses include a merit based grading system for each subject and that coercion of any person to change the result of a student without formal procedures, be considered an offence.
   f. ensure that requests for tax payer funding for medical education include the requirement for a public declaration of the quantity of any funding transferred outside the faculty (i.e. cross subsidisation). External audit requirements may assist in the achievement of this goal.

2. That the Federal Minister for Education, Science and Training note the rising concern by practising doctors over the quality of medical education outcomes particularly in the areas of basic medical science and that the Minister move to ensure the quality of medical practice is not eroded through any policy desire to reduce standards of training in order to meet workforce targets derived from estimates of future demand.

3. That State Ministers for Health ensure the development and availability of Day Surgery Centres in Public Teaching Hospitals for clinical teaching.
## APPENDIX 1

### ADF Survey Results

| Q1 - There should be a fundamental uniformity in the basic structure of curricula across all Australian Medical Schools | 78.6% | 18.7% | 1.4% | 0.7% | 0.7% |
| Q2 - All Australian Medical Schools should graduate students of equivalent standards | 92.5% | 6.1% | 0.9% | 0.5% | 0.0% |
| Q3 - The medical profession only should determine undergraduate medical curricula. | 64.0% | 26.1% | 3.7% | 4.4% | 1.8% |
| Q4 - It is necessary for a joint curriculum board to be formed for all Australian Medical Schools | 65.1% | 24.1% | 6.2% | 3.6% | 0.9% |
| Q5 - A curriculum board should include medically qualified, practising clinical tutors | 89.4% | 9.2% | 1.1% | 0.2% | 0.0% |
| Q6 - All applicants to the Faculty of Medicine should meet the same standards of entry | 71.0% | 17.2% | 4.1% | 6.6% | 1.1% |
| Q7 - Minimum tuition standards should be defined for the basic sciences of anatomy, physiology, histology, biochemistry, pharmacology, pathology and microbiology | 89.4% | 9.7% | 0.2% | 0.7% | 0.0% |
| Q8 - Graduates applying to enter the faculty of medicine must have studied the basic sciences of anatomy, physiology, biochemistry and histology as part of their primary courses. | 63.0% | 21.1% | 8.4% | 5.2% | 2.3% |
| Q9 - Problem-based learning should be introduced after completion of basic science tuition | 52.6% | 29.9% | 12.5% | 4.5% | 0.5% |
| Q10 - A common grading system for all Australian Medical schools should be introduced | 69.1% | 23.2% | 5.5% | 2.0% | 0.2% |
| Q11 - A merit based grading system based on examination results should be introduced in all Australian Medical Schools | 62.3% | 28.2% | 8.4% | 0.9% | 0.2% |
| Q12 - Honours grading should be awarded on graduation for excellence throughout the entire course | 67.9% | 22.6% | 7.0% | 1.6% | 0.9% |
| Q13 - I prefer the teacher/mentor and apprentice/student model for teaching clinical medicine | 67.6% | 25.6% | 5.0% | 1.4% | 0.5% |
| Q14 - The best curricula will have a balance between medical and social science, theory and practice, didactic teaching and problem based learning. | 78.3% | 17.9% | 3.8% | 0.0% | 0.0% |
| Q15 - Problem based learning should be assigned to a defined segment of the clinical curriculum. | 49.0% | 32.6% | 14.4% | 3.4% | 0.7% |
| Q16 - Problem based learning should be supervised only by a medical practitioner. | 57.0% | 29.5% | 8.0% | 3.9% | 1.6% |
| Q17 - The role of post-mortem examination should be considered an essential element in medical student teaching | 59.6% | 27.7% | 9.1% | 2.5% | 1.1% |
| Q18 - Teaching hospitals should utilise and develop dedicated day surgery centres/units for clinical teaching. | 51.9% | 32.8% | 12.8% | 2.1% | 0.5% |
| Q19 - Selected private hospitals and day surgery centres facilitate opportunities for medical student teaching while protecting the status of private patients by opt in / opt out conditions | 52.7% | 32.7% | 10.5% | 3.2% | 0.9% |
| Q20 - Medical student apprenticeships should be introduced in the final years of the curriculum. | 43.1% | 34.6% | 18.5% | 3.6% | 0.2% |
| Q21 - Medical schools and teaching hospitals should include the teaching of rural and remote medicine within the undergraduate medical curriculum | 66.9% | 26.3% | 4.8% | 1.8% | 0.2% |
APPENDIX 2

ADF Survey Summary

Questionnaire in Undergraduate Medical Education
April 2006

Interim Analysis of Data

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Data Analysis of individual questions – see Appendix 1

Conclusion
The (interim) data from this questionnaire provides important collaborative support to expressions of concern by an increasingly large number of eminent medical professionals, some of which are included above, about the downgrading of standards of undergraduate medical education over the past 10 years, or more.

The question is asked and must be answered, why so many radical changes made to the former curricula when no evidence was provided that such changes were necessary?

As a result of the extensive diagnostic pharmaceutical and operative technological development over the past 15 years, medical practice has become much more exacting. These changes demand a comprehensive knowledge of the basic and clinical sciences which together form the foundation and cornerstones of medical practice.

Analysis of this data will continue and a further questionnaire may be necessary to elucidate criteria for changes to existing curricula so as to redress their identified failings. The highest standards of undergraduate medical education are mandatory if we are to produce highest skilled graduates.

Dr Lindsay Roberts
Conference Convenor,
Australian Doctors’ Fund
APPENDIX 3
Public Statement Concerning the Future of Australian Medical Education

Following due consideration of issues raised by medical practitioners, academics and medical students over the direction of medical education in Australian universities, and following the summit conference entitled “Rescuing Medical Education” held in Sydney on Friday 18th February 2005 (available on www.adf.com.au), the Australian Doctors’ Fund calls on:

1. The Deans of medical schools and those involved in curriculum development to ensure that:
   a. all medical students receive a comprehensive practical education in anatomy, physiology, microbiology, biochemistry, pharmacology and pathology as an essential requirement and foundation of their medical education and hence reverse the downgrading of these basic medical sciences
   b. the proper balance between medical and social science, theory and practice, didactic teaching and problem based learning is achieved in all curricula.
   c. the Hippocratic tradition of master/mentor and apprentice/student be maintained and enhanced as the preferred model for the teaching of clinical medicine.
   d. the recommendations of recognised medical colleges as to content of curricula be highly regarded and duly considered.
   e. all students be given a grading by examination for completed course work and that grading systems rank all students from zero to high distinction.
   f. the role of post mortem be re-affirmed as an essential element in the teaching of medical science and as a requirement for quality assurance, and that medical students be exposed to dissection as an essential part of their medical education.
   g. all entrants to undergraduate medicine meet the same standards of entry regardless of their financing arrangements.

2. Federal and State Governments to:
   a. Protect the Australian public by requiring that all overseas trained medical practitioners meet the standards required of Australian trained medical practitioners prior to being registered to practise in Australia.
   b. Reverse some of the impact of mature aged entry and increased feminisation on the medical workforce by early identification and where practical the streaming of medical students into the medical workforce including an apprenticeship system as health care workers in hospitals prior to graduation.
   c. Allow for universities to give preference to students who receive their secondary education in the state where the medical faculty is located and for post graduate specialist training to give preference to those candidates who are likely to reside and practise in the state in which they are trained.
   d. consider making it an offence for any academic to direct or act on a direction that a student be passed on any grounds other than academic merit.

3. State Governments to recognise and respect the honorary role of doctors as teachers in the Australian public hospital system and allow for, encourage and recognise but not compel the teaching of medical students as a central part of the operation of public hospitals.
4. University Boards to ensure that university fees paid by students and the taxpayer for their medical education be spent for that purpose and not diverted in the form of cross subsidies to other faculties or programmes.

5. Private hospitals and day surgery centres to facilitate opportunities for the teaching of medical students which protects the status of private patients and simultaneously allows for practical exposure to clinical medicine.

6. Medical colleges and teaching hospitals to recognise the unique role of the rural and remote practitioner and the need to introduce procedural training at the undergraduate, postgraduate and vocational training level for medical students contemplating a career in independent rural and remote medical practice.

Issued on behalf of the Australian Doctors’ Fund 22/3/05
Enquiries: Stephen Milgate Ph: (02) 9567 5595; Fax: (02) 9567 4050

Rescuing Medical Education Conference available on www.adf.com.au
Q1 - There should be a fundamental uniformity in the basic structure of curricula across all Australian Medical Schools

78.6% Totally agree
18.7% Somewhat agree
1.4% Neither agree or disagree
0.7% Somewhat disagree
0.7% Totally disagree
Q2 - All Australian Medical Schools should graduate students of equivalent standards

92.5%  
6.1%  
0.9%  
0.5%  
0.0%  
10.0%  
20.0%  
30.0%  
40.0%  
50.0%  
60.0%  
70.0%  
80.0%  
90.0%  
100.0%  

Totally agree  
Somewhat agree  
Neither agree or disagree  
Somewhat disagree  
Totally disagree  

Response Scale 1 to 5

Frequency of Response

Response Scale 1 to 5
Q3 - The medical profession only should determine undergraduate medical curricula

- Totally agree: 64.0%
- Somewhat agree: 26.1%
- Neither agree nor disagree: 3.7%
- Somewhat disagree: 4.4%
- Totally disagree: 1.8%
Q4 - It is necessary for a joint curriculum board to be formed for all Australian Medical Schools

**Response Scale 1 to 5**

- **Totally agree**: 65.1%
- **Somewhat agree**: 24.1%
- **Neither agree or disagree**: 6.2%
- **Somewhat disagree**: 3.6%
- **Totally disagree**: 0.9%
Q5 - A curriculum board should include medically qualified, practising clinical tutors

89.4%
9.2%
1.1% 0.2% 0.0%
10.0%
20.0%
30.0%
40.0%
50.0%
60.0%
70.0%
80.0%
90.0%
100.0%

Response Scale 1 to 5
Frequency of Response

Totally agree
Somewhat agree
Neither agree or disagree
Somewhat disagree
Totally disagree
Q6 - All applicants to the Faculty of Medicine should meet the same standards of entry

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Q7 - Minimum tuition standards should be defined for the basic sciences of anatomy, physiology, histology, biochemistry, pharmacology, pathology and microbiology

Totally agree: 89.4%
Somewhat agree: 9.7%
Neither agree or disagree: 0.2%
Somewhat disagree: 0.7%
Totally disagree: 0.0%

Response Scale 1 to 5
Frequency of Response
Q8 - Graduates applying to enter the faculty of medicine must have studied the basic sciences of anatomy, physiology, biochemistry and histology as part of their primary courses.
Q9 - Problem-based learning should be introduced after completion of basic science tuition

Totally agree: 52.6%
Somewhat agree: 29.9%
Neither agree or disagree: 12.5%
Somewhat disagree: 4.5%
Totally disagree: 0.5%

Response Scale 1 to 5
Frequency of Response
Q10 - A common grading system for all Australian Medical schools should be introduced

69.1%
23.2%
5.5%
2.0%
0.2%
0.0%

10.0% 20.0% 30.0% 40.0% 50.0% 60.0% 70.0% 80.0%

Totally agree  Somewhat agree  Neither agree or disagree  Somewhat disagree  Totally disagree

Response Scale 1 to 5
Q11 - A merit based grading system based on examination results should be introduced in all Australian Medical Schools

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Q12 - Honours grading should be awarded on graduation for excellence throughout the entire course

Response Scale 1 to 5

- Totally agree: 67.9%
- Somewhat agree: 22.6%
- Neither agree or disagree: 7.0%
- Somewhat disagree: 1.6%
- Totally disagree: 0.9%
Q13 - I prefer the teacher/mentor and apprentice/student model for teaching clinical medicine

Response Scale 1 to 5

- Totally agree: 67.6%
- Somewhat agree: 25.6%
- Neither agree or disagree: 5.0%
- Somewhat disagree: 1.4%
- Totally disagree: 0.5%
Q14 - The best curricula will have a balance between medical and social science, theory and practice, didactic teaching and problem based learning.
Q15 - Problem based learning should be assigned to a defined segment of the clinical curriculum

Frequency of Response

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Q16 - Problem based learning should be supervised only by a medical practitioner

Totally agree: 57.0%
Somewhat agree: 29.5%
Neither agree or disagree: 8.0%
Somewhat disagree: 3.9%
Totally disagree: 1.6%
Q17 - The role of post-mortem examination should be considered an essential element in medical student teaching

Totally agree: 59.6%
Somewhat agree: 27.7%
Neither agree or disagree: 9.1%
Somewhat disagree: 2.5%
Totally disagree: 1.1%

Response Scale 1 to 5
Q18 - Teaching hospitals should utilise and develop dedicated day surgery centres/units for clinical teaching

- Totally agree: 51.9%
- Somewhat agree: 32.8%
- Neither agree nor disagree: 12.8%
- Somewhat disagree: 2.1%
- Totally disagree: 0.5%

Response Scale 1 to 5
Q19 - Selected private hospitals and day surgery centres facilitate opportunities for medical student teaching while protecting the status of private patients by opt in / opt out conditions

52.7% Totally agree
32.7% Somewhat agree
10.5% Neither agree or disagree
3.2% Somewhat disagree
0.9% Totally disagree

Response Scale 1 to 5
Q20 - Medical student apprenticeships should be introduced in the final years of the curriculum

Totally agree: 43.1%
Somewhat agree: 34.6%
Neither agree or disagree: 18.5%
Somewhat disagree: 3.6%
 Totally disagree: 0.2%
Q21 - Medical schools and teaching hospitals should include the teaching of rural and remote medicine within the undergraduate medical curriculum

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<tr>
<td>Totally disagree</td>
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APPENDIX 5 - Profiles

Prof Helen Beh
Prof Beh is the Chief Executive Officer, Australian Orthopaedic Association. She is the former Pro-Dean of the Faculty of Science, Dean of the Faculty of Science and Acting Pro-Vice-Chancellor of Sydney University. Her disciplines are psychology and law.

Dr Randal Williams
Dr Williams is a general surgeon in Adelaide, SA and a Senior Visiting Surgeon at Modbury Public Hospital with many years experience as a clinical tutor.

Dr Peter Cameron
Dr Peter Cameron is a general practitioner in Adelaide and father of Alexander Cameron (TER score 99.9) who is now studying at Melbourne University Medical School.

Prof Ted Cleary
Prof Cleary is the Associate Dean for Curriculum in Medicine at the University of Adelaide.

Prof Judith Sloan
Professor Judith Sloan is an economist, company director, Productivity Commissioner and former Director of the National Institute of Labour Studies at Flinders University.

Dr Matthew Hutchinson
Dr Matthew Hutchinson is a former president of the Australian Medical Students Association (AAMSA)

Dr Anne Swinbourne
Dr Anne Swinbourne is a lecturer at the School of Psychology at James Cook University, Townsville.

Prof Robert Sanson-Fisher
Prof Robert Sanson-Fisher is the Dean of the Faculty of Health Sciences at the University of Newcastle.

Prof Derek Frewin
Prof Derek Frewin is the former Dean of the Faculty of Health Sciences and Medical School at the University of Adelaide.

Prof John Preston Harris
Professor John Harris is Professor of Vascular Surgery and Chairman, Division of Surgery, Royal Prince Alfred Hospital and former Head, Department of Surgery RPAH.

Prof Paul Davies
Prof Paul Davies is the Professor of Natural Philosophy of the Australian Centre for Astrobiology at Macquarie University.

Prof Judith Searle
Prof Judith Searle is the Dean of the School of Medicine, Griffith University.
Prof Richard Larkins
Professor Richard Larkins is the vice-chancellor at Monash University and former Dean of Medicine, Dentistry and Health Sciences at Melbourne University.

Dr Bryan Hall
Dr Bryan Hall is a mathematics lecturer and tutor who holds a PhD in quantum physics and recently completed a Diploma of Education.

Dr Andrew Scott
Dr Andrew Scott is a radiologist in rural NSW.

Dr Dror Maor
Dr Dror Maor is a former President of the Australian Medical Students Association (AAMSA).

A/Prof David Hardman
A/Prof David Hardeman is the Chairman of the Anatomy Working Group and member of the Board of Anatomy of the Royal Australasian College of Surgeons (RACS).

Dr Scott Kincade
Dr Scott Kincade is the Assistant Professor and Director of Predoctoral Education, Dept of Family and Community Medicine, University of Texas USA.

Dr Louise Tindal
Dr Louise Tindal is a medical administrator and clinical supervisor in the NSW public hospital system.

Dr Kevin Forbes
Dr Forbes is the Head of Years 3 & 4 of the MBBS programme, University of Queensland, Mayne Medical School.

Prof Paul McMenamin
Prof Paul McMenamin is the Assoc Dean (Teaching and Learning) at the Faculty of Medicine and Dentistry, University of Western Australia.

Dr Catherine D DeAngelis
Dr Catherine D DeAngelis is the Editor-in-Chief of the Journal of the American Medical Association (JAMA).

A/Prof Don Sheldon
A/Prof Don Sheldon is the Chair of the Council of Procedural Specialists and lecturer in surgery at Royal Prince Alfred Hospital and Sydney University.

A/Prof Barry Oakes
A/Prof Barry Oakes is an anatomy teacher at Monash University.

Adjoint Prof Jean Fasel
Adjoint Prof Jean Fasel is Adjoint Professor of Anatomy at University Medical Centre, Geneva, Switzerland.
Dr Andrew Perry
Dr Andrew Perry is a former Vice President of the Australian Medical Students Association (AAMSA).

Prof Phillip Allen
Prof Phillip Allen is the past President of the International Academy of Pathology.

Dr Deborah Graves
Dr Deborah Graves is the Chief Executive Officer of the Royal College of Pathologists of Australia.

Dr (Harold) Reginald Magee
Dr Reginald Magee is the former Associate Clinical Professor of Vascular Surgery at Princess Alexandra Hospital, Brisbane.

Prof Richard Gordon
Emeritus Prof Richard Gordon is the former President of the Queensland Hypertension Association and Emeritus Professor of the University of Queensland.

Outstanding Medical Researchers honoured in this submission

p.5  Dr J Robin Warren and Dr Barry J Marshall, Nobel Prize for Medicine – Helicobacter pylori and its role in gastritis and stomach ulcers
p.7  Sir Howard Florey – first to make penicillin
p.11 Prof Graeme Clarke – the Cochlear implant
p.15 Dr John Cade – Lithium compounds and the treatment of bi-polar disorder
p.30 Prof Terry Dwyer – Link between SIDS and baby’s sleeping position
p.40 Prof Fiona Stanley – Link between folate intake and spina bifida (in collaboration with Prof Carol Bower whose full c.v. we were unable to obtain in time for this submission)