The potential benefits of widening access to medicine- the Australian experience

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Widening access – what does it mean?

- In the US, often associated with different cultural and ethnic groups.
- In the UK, often associated with different socioeconomic groups.
- In Australia, usually associated with geographical factors (rural and remote areas) as well as socioeconomic factors; different cultural groups (this is particularly relevant with changes in migrant and refugee groups); and our Indigenous people.
- As in the UK, in Australia there is evidence to show that academic achievement at school is dependent on school type with students from independent and selective government schools achieving higher results than students from government schools.
- Students from metropolitan schools achieve higher results than those from rural schools. The gap widens with distance.
- In Australia, secondary schooling is not a ‘level playing field’

Overview

- Australian programs to increase rural student participation and programs to increase participation from lower SES applicants
- UWA Rural Student Recruitment program and its effects
- UWA Broadway program
- Benefits of widening access
- The cost of widening access

Australian programs to widen access

Rural Clinical Training and Support program

↘ Australian Government funds are provided for the following:

- 25% of Australian medical students are to undertake a minimum of one year of their clinical training in a rural area by the time they graduate (Rural Clinical School);
- 25% of Commonwealth supported medical students are to be recruited from a rural background;
- all Commonwealth supported medical students must undertake at least four weeks of structured residential rural placement outside metropolitan areas.

Outcomes

- Approximately 25% of Australian domestic medical students are from a rural background (i.e. have lived in a defined rural area for a minimum of 5 years consecutively or 10 years cumulatively)
- Medical schools vary in their approach to filling the quotas
- Not all medical schools achieve their targets
- Recently targets have been extended to include other health professions (smaller percentages)
- Currently no systematic data collection on whether these students return to practice in rural areas
- Evidence is mixed

Mixed evidence

- Some studies suggest students from a rural background are up to three times more likely than urban students to become rural doctors, while others have suggested this factor has only limited impact on career choice (1)

- The University of Queensland has undertaken a ten year longitudinal study into its rural training program, which has demonstrated that around 40% of graduates were currently working in non-urban locations (2)

1. Department of Health and Ageing, *What evidence is there that increasing rural origin admissions and undergraduate rural exposure produces more rural doctors?* Literature Review, 2008
2. Eley et al, “A decade of Australian Rural Clinical School graduates – where are they and why?”, *International Electronic Journal of Rural and Remote Health Research,* 2012

Evidence…

- James Cook University in Queensland studied 856 students who entered from 2000 to 2008. Graduates having either a rural or a remote home town at application were more likely to practise in rural towns than graduates from metropolitan/inner regional centre across all postgraduate years.

- The prevalence odds ratios (POR) for graduates practising in a rural town at postgraduate year 1 having either a rural or remote hometown were 2.6 and 1.8, respectively, times that of graduates having a metropolitan/inner regional hometown, while at postgraduate year 9 the PORs had increased to 4.2 and 9.5, respectively

Ray RA, Woolley T, Sen Gupta T. *James Cook University's rurally orientated medical school selection process: quality graduates and positive workforce outcomes*. Rural Remote Health. 2015 Oct-Dec;15(4):3424.

Socioeconomic programs

- Many of the major universities have some form of affirmative action program at a university level.
- This usually involves a lower entry score than for mainstream entry.
- For example, Monash University in Melbourne has its Monash Guarantee which admits students with a lower ATAR if they can demonstrate that they have experienced financial disadvantage; live in a low SES area; attend a Monash-listed under-represented school; or are an Indigenous Australian.
- The University of Melbourne has Access Melbourne for which applications are assessed for disadvantage, rural address or indigenous status. Points are awarded for these different categories and used to enhance the ranking of applicants for professional courses.
- UWA program which gives bonus points on the Australian Tertiary Admissions Rank (ATAR) for students from certain schools

Studying medicine at UWA

The Rural Student Recruitment program

Western Australia

WA

one third of the land mass

11% of the population

75% of the population in Perth

RCS has 14 locations around the state

Medicine at UWA

- Until 2011, a 6-year MBBS and 5-year BDSc with direct entry from secondary school
- Until 1999, entry was based only on academic scores from school
- From 1999, entry based on the Undergraduate Medicine and Health Sciences Admissions Test (UMAT), a structured interview and academic scores from school, the Australian Tertiary Admission Rank (ATAR)
- ATAR (0 to 99.95) reports a rank position relative to all other people of Year 12 school leaving age in the total population of WA
- During the period 1999 – 2011 the ATAR threshold was 96 for entry to medicine and dentistry
- From 2014 the faculty operates a 4-year graduate-entry MD and DMD
- From 2012 we still select school-leavers on a **pathway** to the MD/DMD

Aim of our revised selection process 1999

The process must be fair and equitable, allowing people from different socio-economic, geographical and ethnic backgrounds equal opportunity to compete for a place.

Indigenous students at UWA

- Indigenous students have different entry conditions from all other groups – they don't do the aptitude tests, but they are interviewed
- We have a variety of pathways for indigenous students
- All indigenous students are supported and mentored by members of the Centre for Aboriginal Medical and Dental Health in our faculty
- UWA and James Cook University in Queensland are recognised for their programs to select and retain indigenous students

Rural Student Recruitment scheme

- Set up in our faculty in 2000
- School visits – partnership with the schools is very important
- Identify students with the potential to achieve the required ATAR
- Students identified early (Year 10 if possible)
- Use of role models – medical students from a similar background
- Workshops: suturing, plastering, taking blood pressure……..
- Database of students, stay in contact, send reminders of important dates

RSR

- Transport and accommodation in Perth for the UMAT and the interview are organised and subsidised by the faculty
- Group events are organised before UMAT and interviews
- Students are supported through the complex application and admissions processes
- Orientation, mentoring and **ongoing support** are organised for successful candidates
- Academic progress is monitored
- Candidates are assisted with applications for scholarships
- The academic threshold remains the same for rural students as for others

Outcomes of the program

- Rural admissions went from 5% in 2000 to 25% in 2006
- The program works by raising aspirations and making medicine a realistic career choice
- Increased motivation* established from an early stage means capable students have the time to achieve the required ATAR
- The group events organised around UMAT and interview sessions form networks and start social associations which help with the transition into university life.

*Identified in

Powis,D.,et al. *Widening access by changing the criteria for selecting medical students.* Teaching and Teacher Education(2007),doi:10.1016/j.tate.2007.06.001

UWA study on entry intention to practice rurally

- 538 school-leavers entering medicine 2006 to 2011
- Students from rural background had OR of 7.84 for intention to practice rurally compared with those from an urban background
- Students intending to be generalists rather than specialists had OR of 4.36 for intention to practice rurally
- Rural intent students had significantly lower academic scores (p = 0.002), were more likely to be female (OR 1.93), to come from the lower 8 IRSAD deciles (OR 2.52) and to come from government rather than independent schools (OR 2.02)

IRSAD: Index of relative socioeconomic advantage and disadvantage

Puddey IB, Mercer A, Playford DE, Pougnault S, Riley GJ. *Medical student selection criteria as predictors of intended rural practice following graduation*. BMC Medical Education 2014; 14:218.

Do they really practise rurally?

- Study of 729 students at UWA from 1999 and graduated by 2011
- Actual practice location from Australian Health Practitioners Regulation Agency (AHPRA)
- Those practising rurally were more likely to have come from lower 6 IRSAD deciles (OR 2.75), to be older (OR 1.86) and to have a lower Non-verbal Reasoning score in the UMAT (OR 0.98)

- Puddey, I.B., Mercer, A., Playford, D., Riley, G. 2015 *Medical student selection criteria and socio-demographic factors as predictors of ultimately working rurally after graduation.* BMC Medical Education, 15, 1.

Impact of the Rural Clinical School

- Cohort study of UWA students who completed a year at the RCS 2002 – 2009 compared with those who did that year in an urban location (control group)
- 1017 (91%) of the graduates were traced and their practice location found from AHPRA (Australian Health Practitioner Regulation Agency)
- Of 258 RCS graduates, 42 (16.3%) were working rurally compared with 36 of 759 controls (4.7%)
- Using logistic regression, RCS participation had a strong relationship with working rurally (rural-background RCS graduates: odds ratio [OR], 7.5; urban-background RCS graduates: OR, 5.1; Rural background without RCS participation (OR, 4.2)
- Rural background together with participation in RCS is strong combination

Playford DE, Evans SF, Atkinson DN, Auret KA, Riley GJ. *Impact of the Rural Clinical School of Western Australia on work location of medical graduates.* MJA 200 (2) 2014: 104 - 107

Review of the selection process 2005/6

- Rural Student Recruitment scheme had achieved rural student representation close to the target of 25%
- **BUT** the composition of the metropolitan cohort had only changed marginally i.e. the aim of diversity in *socio-economic, geographical and ethnic backgrounds* of the students was not being achieved
- Perth's growing refugee/immigrant groups were not represented

Widening access at UWA

The Broadway program

Effects of the revised selection process

↘ Research undertaken around this time and published in 2011 showed that the major demographic changes to the cohorts from the revised selection process were:

- Increase in female representation (43% to 55%) – more applications
- Increase in rural representation (5% to 21%) due to introduction of quotas
- Decrease in students from Asian ethnicity (30% to 13%), becoming more representative of the population proportions
- Increase in proportion of students from independent schools (56% to 66%) note that some of these were new lower SES independent schools
- No change in the proportion of students from the lowest SES schools (10%)

Puddey IB, Mercer A, Carr SE, Louden W. *Potential influence of selection criteria on the demographic composition of students in an Australian medical school*. BMC Medical Education 2011; 11:97.

Research into UMAT v sociodemographic factors

- Large study involving those who sat the UMAT 2002 – 12 for the first time (118 000)
- Various sociodemographic variables calculated and put into regression analyses with the section scores and total scores for UMAT.

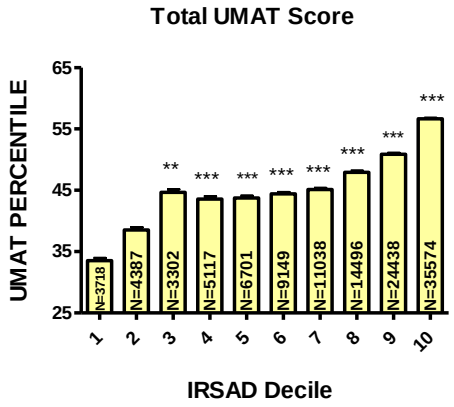
- Outcomes: Lower UMAT score predicted by
  - living in an area of relatively higher social disadvantage and lower social advantage
  - attending a government school v a fee-paying independent school
  - increasing age, female gender and speaking any language other than English at home, being Aboriginal

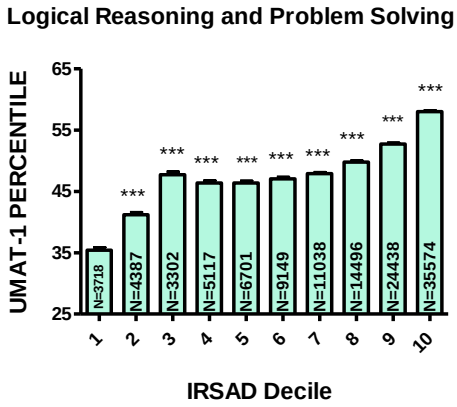
- Rurality outcomes were mixed

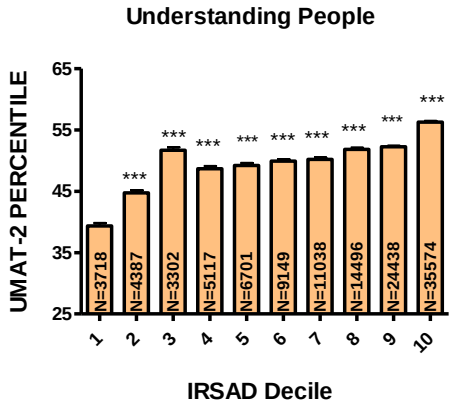
Puddey IB, Mercer A. *Socio-economic predictors of performance in the Undergraduate Medicine and Health Sciences Admission Test (UMAT).* BMC Medical Education 2013; 13:155.

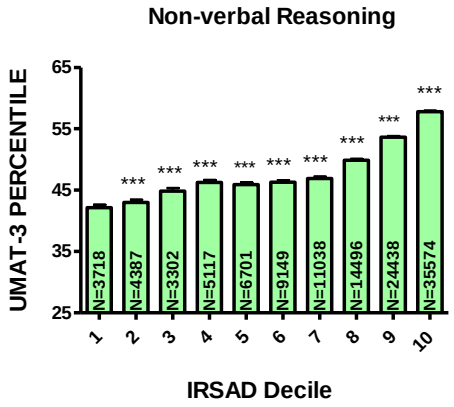
IRSAD: Index of relative socioeconomic advantage and disadvantage

IRSAD from Australian Bureau of Statistics by location









Broadway program

- Modelled on the Rural Student Recruitment scheme

- ‘Broadway’ schools are metropolitan schools either in outer metropolitan areas or with low SES indices. All Broadway schools are below the median Western Australian ICSEA (Index of Community Socio-Educational Advantage) developed by the Australian Government, measuring key factors which correlate with educational outcomes.

- Set up in 2008 following the review of the selection process, with 3 schools as trial schools

Broadway

- There are now 74 Broadway schools. In 2016, 45 of them were actively involved in the program. This varies across years depending on their cohorts.
- There are quarantined places – we have a quota of 10% of domestic places (approx. 21)
- These students are ranked separately, however they must pass all the relevant thresholds (same applies to rural students)
- In the last 5 years, 133 students have taken up a place on the pathway to the MD (i.e. they are doing undergraduate studies at UWA)
- More than 95% are maintaining the GPA required to enter the MD

Are widening participation strategies worth it?

- Data on 2829 UWA students who commenced practice from 1980 to 2011, practice location from AHPRA
- Those in the lower 8 IRSAD deciles at entry compared with those in the top 2 deciles had OR 2.05 of practising in a location in the lower 8 IRSAD deciles. The OR remained at 1.63 even after controlling for confounders.
- Positive predictors included older age at graduation, being female, and having a general practice vs specialist qualification
- Negative predictors were being from an independent school and being born overseas.

Puddey IP, Playford DE & Mercer A. *Impact of medical student origins on the likelihood of ultimately practicing in areas of low vs high socio-economic status* BMC Medical Education (2017) 17:1 DOI 10.1186/s12909-016-0842-7

Unpublished work at UWA

↘ Study of all domestic students who have entered from 1999 to 2012 (n = 2224) of whom 466 (21%) came on a special entry pathway – mainly rural and Indigenous, few Broadway in this group.

↘ Special entry students:

- Slightly older at entry
- More females than males
- More students from the lower IRSAD deciles
- More students from government vs independent schools
- Higher rate of withdrawal due to unsatisfactory academic progress. For rural students this is often in the early years
- Higher frequency of supplementary exams, longer time in the course
- Lower yearly weighted average marks

Results from 2015 MD cohort – Semester 1

- Standard entrants — 74.00 (n = 136)
- Rural entrants — 70.8 (n = 44)
- Broadway entrants — 72.1 (n = 21)
- Indigenous entrants — 56.7 (n = 9)

Benefits and costs of widening access

Potential benefits of widening access to medicine at UWA

- Students who come from lower SES areas have a higher probability of returning to work in a similar area
- The demographic profiles of special entry students are more closely aligned with those who are likely to work in either rural or lower SES areas: females, older age, generalist rather than specialist interests
- More students from government schools than independent schools, also more likely to practise in a lower SES area
- Graduates from special entry programs are older - more life experience, more mature(?).

The cost of widening access

- Higher levels of withdrawal from the course, supplementary examinations, longer time in the course, slightly lower weighted average marks especially in the earlier years of the course (rural students)
- There is a significant need for support before, during and after the rigorous selection process
- To retain special entry students when they enter the course they need ongoing monitoring of academic progress and considerable support in a variety of ways