Medical Deans

AUSTRALIA AND NEW ZEALAND

Training Tomorrow's Doctors:
all pulling in the right direction

Discussion Paper

September 2021

Medical Deans
AUSTRALIA AND NEW ZEALAND

Training Tomorrow's Doctors: all pulling in the right direction

Discussion Paper

Contents

1. Executive summary

The purpose of our medical education and training programs is to develop doctors who are capable and motivated to meet the needs of our communities. As our populations' health needs change, so too must our models and settings of care and the way we train our future doctors. Ageing populations, people living with chronic and comorbid conditions, digital disruption, geographic maldistribution of the workforce, delivering culturally safe care for Indigenous peoples, and adapting to new high-value models of care delivery are some of the many challenges our future doctors will grapple with. They will need the foundational knowledge, core attributes and critical thinking skills that will enable them to understand and navigate these challenges to serve their patients and communities, and sustain their learning throughout their medical career.

This paper proposes that we, as a sector, need to co-develop a medical training continuum to deliver a sustainable medical workforce of the right size, shape, focus and distribution, to better meet our populations' health needs, now and into the future. In summary, our future medical education and training continuum must have:

- **Generalist skills at the forefront of being a doctor** – to meet the needs of our ageing populations and the increasing number of patients with co-morbid chronic conditions, and support their ability to adapt to ongoing disruption and change, and the uncertainty it brings. We also need to examine the roles within healthcare teams to ensure that all are working at the top of their scope of practice to deliver effective and sustainable models of patient-centred care.
- **Connected and aligned training pathways that effectively support key transition stages** – to ensure graduates are well-prepared for practice and supported to progress through each stage of the training continuum, especially the crucial first step into clinical practice. These pathways should identify and facilitate opportunities to train in and for areas of medical workforce need.
- **Students and graduates learning in and for our communities** – sufficient opportunities for students and prevocational trainees to apply and further develop their skills and interest in the community-based settings where health care is most commonly provided and most sorely needed. This will rely on reform of the funding model for primary care, and other sectors such as aged care, to ensure a sufficient and sustainable level of quality clinical supervision is provided.
- **Doctors in the right places and the right disciplines** – facilitated by workforce planning that is coordinated and connected across the training continuum; focuses on the careers in the regions and specialties where doctors are most needed; provides support for students and doctors to actively manage their careers; and backed by stronger data collection and evidence-informed policies and initiatives.
- **A healthy workplace culture and environment** – with embedded systems that safeguard patient care and the health of students and doctors. Students and doctors need to be confident and trusting of these supports and systems, especially during crucial transition points, if we are to reduce the high rates of stress, burnout and suicide among junior doctors.

Section 5 of this paper suggests a range of specific recommendations to progress each of these five priority areas based on principles of collaboration, cooperation, and shared aims and accountabilities.

The global and local impacts of the COVID-19 pandemic forced everyone into new ways of thinking and working, with many examples of step-change and disruption-led innovation. This has opened the door to system-wide improvement – now we must step through. In producing this paper, Medical Deans hopes to stimulate discussion, ideas and partnerships that lead to action and a re-design of our medical education and training continuum to better meet the needs of the people we serve.

2. Background

Australia and New Zealand are recognised as providing excellent medical education and training within a world-leading healthcare system. However, numerous reviews of our health workforce tell us there is a need for fundamental change[1,2,3,4].

Better support our patients. Although the majority of patient need is for preventive and long-term care delivered close to home, the majority of doctors' early training continues to be organised around hospital-based, acute care. We continue to grapple with persistent issues in the geographic maldistribution of doctors and rely heavily on recruiting doctors trained overseas to fill the gaps in our medical workforce. There are worrying shortages in general practice, psychiatry, generalist specialties, and clinician researcher and educator roles; also, although it is growing, the number of Indigenous doctors remains disproportionately low. The "hidden curriculum[5]", and its influence on the training and career choices of students and doctors, continues to impede workforce policy[6].

Better support our doctors. Equally important is the health of our doctors. Stress, burnout and damaging workplace cultures all pose critical risks to individuals and the sustainability of our medical workforce. Seeking help continues to be stigmatised. Students and trainees face bullying and harassment from both peers and those in positions of power and influence over their training and careers. Unrealistic work expectations for junior doctors are left to the individual to challenge with their supervisor. We need to actively work to change the culture of our health systems and workplaces to one of support rather than endurance and stress, especially during the key transition stages, and deal with those factors that contribute to burn out, stress and higher rates of suicide.

Our vision is a medical education and training continuum that leads to an adaptable and supported workforce, which has the required capabilities, in the right numbers and in the right places, to serve the needs of the people of Australia and New Zealand.

Population health needs must fundamentally shape our models of care, the roles of professionals in health care teams, and how we train our doctors[7]. We also need to take onto account technology advances and shifts in societal expectations. Accordingly, these changes need to be reflected in the medical curricula and clinical placement opportunities provided, from medical school to prevocational and eventually vocational training. It is these core elements that will fundamentally influence the training experiences, career aspirations and choices of our graduates and junior doctors – and therefore the size, shape and distribution of our future medical workforce.

The pathway to becoming a doctor is long and complex, and depends on multiple stakeholders who are often working in silos[8]. Many reports have stressed that policies aimed solely at one part of the training

---

[1] *Mason, J. (2013) Review of Australian Government Health Workforce Programs.*
[2] *Australian Department of Health (2019b) National Medical Workforce Strategy Scoping Framework. pg. 31.*
[3] *KBC Australia commissioned by the Australian Department of Health (2020) Independent Evaluation of the Rural Health Multidisciplinary Training Program: Final Report to the Commonwealth Department of Health.*
[4] *MartinJenkins & Associates Limited commissioned by New Zealand Ministry of Health (2020) Health Workforce Funding Review.*
[5] *Hafferty, F.W. (1998) Beyond Curricula Reform: Confronting Medicine's Hidden Curricula. Academic Medicine vol. 73:4 April, pages 403-7.*
[6] *Nicholson, S., Hastings, A.M., McKinley, R.K (2016) Influences on students' career decisions concerning general practice: a focus group study. British Journal of General Practice Vol. 66 (651): e768-e775. DOI: https://doi.org/10.3399/bjgp16X687049*
[7] *NHS (February 2019) The Topol Review: Preparing the healthcare workforce to deliver the digital future*
[8] *Australian Health Ministers' Advisory Council, Council of Australian Governments (2015) Review of Medical Intern Training: Final Report, page 13.*

continuum have little impact on achieving the desired outcomes for the whole; instead, it is connected and consistent efforts along the training continuum that achieve policy goals[9].

Medical schools in Australia and New Zealand play an important role in shaping the future medical workforce. Through our medical programs, we are responsible for selecting, educating, supporting and graduating individuals with the required skills, knowledge and attributes to develop into the doctors our communities need. And our responsibilities do not end with graduation: we work with our postgraduate and health service partners to support graduates' transition to clinical practice and employment, and also contribute to improving patient and population health through innovative research, high quality education, and thought leadership.

Medical schools are the gateway into the profession and the choices they make in how they promote, encourage and select applicants into their medical program are the first step in shaping the future medical workforce. As the providers of the critical first stage in the medical training continuum, medical schools can foster an interest among graduates by offering early and positive exposure to areas of acute medical workforce need. However, experience demonstrates that this interest will generally not translate into a career in these areas unless encouraged and enabled by aligned and connected training pathways. To stimulate the medical careers needed by our populations, the design of training pathways must span the entire training continuum, reinforcing the importance of generalism, teamwork, and preventive and long-term care, and crossing traditional care boundaries.

We must also start the discussion in Australia and New Zealand about how we move towards a more self-sufficient, sustainable, and appropriate medical workforce and the contribution of our domestic-trained students to achieving this. International Medical Graduates (IMGs) have made a significant contribution to those communities facing doctor shortages, especially in rural communities and general practice. However, COVID-19 has highlighted our vulnerability to this reliance. As recognised in the Australian government's National Medical Workforce Strategy, continuing this dependence is not sustainable, efficient or ethical.

The ideas in this paper were developed through the lens of the entire medical training continuum, deliberately taking a systems-based approach. Medical Deans and our member schools seek to engage and partner with health services, student associations, medical colleges, regulators, representative bodies, and government to contribute to the extensive work being carried out by these stakeholders and co-develop a medical education and training continuum aligned to the needs of those we serve.

[9] *Council of Australian Governments (2015) Review of Medical Intern Training: Final Report.*

3. Now is the time for change

3.1 Our patients' health needs, expectations, and access to health care are changing

People are living longer, with increasingly complex and comorbid conditions. They are better educated about their health, with greater expectations of being included in decision making on what care looks like for them and where and how it is delivered. Almost half of Australia's population lives with one or more chronic conditions, many of which share the same preventable risk factors, such as tobacco use, poor diet, lack of exercise and substance abuse[10]. The populations most affected by chronic conditions are not evenly distributed among our communities. Indigenous people are more likely to have chronic conditions and comorbidities. The risk of chronic conditions and comorbidities is also higher among those living in remote areas and those experiencing socioeconomic disadvantage[11,12]. These issues influence the relationship between doctor and patient, as patients gain more agency and seek to be empowered partners rather than passive recipients[13].

Australia

- Between 2017 and 2057, the number of people aged over 65 will more than double.
- 60 per cent of the population over 65 years of age report having two or more chronic conditions.

New Zealand

- The number of people aged over 65 is likely to almost double by 2043 compared to the 2016 population.

Whilst access to acute care when needed is vital, we need to focus far more on preventative, early and ongoing care for chronic conditions, which is provided in community-based settings close to, and sometimes in, the patient's home[14]. This includes general practice, Aboriginal and Torres Strait Islander and Māori community-controlled health services, residential aged care, mental health services, and the disability sector. Data shows us that this is where the majority of healthcare need lies, and where more care will be needed as our populations continue to age. A generalist approach provides a more affordable, equitable and accessible model and is associated with a reduced risk of mortality[15]. Consequently, continuing to perpetuate a model whereby the majority of the training of our future doctors occurs in the acute care sector does not make sense. We need to change direction and invest more in training placements and pathways that better match the current and future healthcare needs of our populations.

We need more doctors in primary care. All doctors need to: practice preventative healthcare, understand the impact of the social determinants of health on chronic and co-morbid conditions, and support their patients in taking a greater role in self-care, both physically and mentally. They also need to be willing to provide these services where our communities need them – in regional and rural areas as well as in urban and outer-metropolitan areas[16,17].

---

[10] *Australian Department of Health (2019a) Australia's Long Term Health Plan.*
[11] *Australian Institute for Health and Welfare (2020a) Health across socioeconomic groups. Retrieved from https://www.aihw.gov.au/reports/australias-health/health-across-socioeconomic-groups.*
[12] *Australian Institute for Health and Welfare (2020b) Rural and remote health. Retrieved from https://www.aihw.gov.au/reports/australias-health/rural-and-remote-health.*
[13] *Australian Department of Health (2019a) Australia's Long Term Health Plan.*
[14] *Mason, J. (2013) Review of Australian Government Health Workforce Programs.*
[15] *Starfield, B.,Shi, L., Macinko, J. (2005) Contribution of primary care to health systems and health. Milbank Q. 2005;83(3):457-502. doi: 10.1111/j.1468-0009.2005.00409.x. PMID: 16202000; PMCID: PMC2690145.*
[16] *Australian Government (2019a) Australia's Long Term National Health Plan.*
[17] *Mason, J. (2013) Review of Australian Government Health Workforce Programs.*

3.2 Better ways of working

Healthcare teams, new roles, models of care, and emerging technologies

Health care is increasingly provided by multidisciplinary teams across different locations. Nurses and Nurse Practitioners, Aboriginal Health Workers and the allied health workforce are essential to managing the care and risk factors of patients with chronic conditions. High quality teams are associated with improved patient satisfaction and reduced mortality;[18] Valuing the benefits of working in a team, and ensuring that all are supported to work to the top of their scope of practice, is crucial to realising this potential.

New models of care are also evolving, often through the integration of digital technologies. Telehealth, genomics, Artificial Intelligence-based (AI) technologies, and digitally enabled healthcare are already disrupting care provision models, and this will only accelerate in the coming years. We need to be ready to tap into the benefits they will offer and prepared for the challenges and uncertainties caused by rapid and continuous innovation.

The COVID-19 pandemic highlighted the importance of doctors being lifelong learners, constantly seeking and open to new ways of working. They need to be able to adapt to disruption that fundamentally changes how and where care is delivered, whether caused by health or environmental shocks or technological advancements. They also need to be creators of this change, using their training and experience to contribute to systems-level improvements through scholarly input and clinician leadership.

New models of care and increased integration of technologies will – indeed should – have a significant impact on the planning for and development of our health workforce. There will be many contexts in which taking an historical perspective will not suit what we need nor take account of what is now possible. We must be open to new ways of working to improve patient care.

3.3 The strength of partnerships

The foundation of medical education is learning and applying new knowledge and skills while training in the workplace. COVID-19 demonstrated the importance of strong partnerships between medical educators, supervisors, health services and regulators to sustain this immersive clinical training. Whether it was protecting clinical placements, establishing roles and models of shared responsibility with health services (e.g. the Assistants in Medicine role piloted in NSW), or providing surge support to health services through our clinical teaching staff, these partnerships were essential during the crisis.

Closer cooperation during the pandemic has created an important opportunity for medical schools and health service providers to collaborate more closely on a permanent basis, to overcome some of the systemic problems in the medical education and training pipeline. Currently, the transition from medical school to prevocational training is stressful and can often leave graduates and new doctors feeling unsupported. After completing their internship, new doctors are expected to make career-defining decisions with incomplete information and navigate disconnected training pathways with little oversight or support for their progression. Another widely recognised pressure is the over-reliance by our hospital

[18] *Borrill, C; West, M.A; Shapiro, D.; Rees, A. (2000) Team working and effectiveness in health care. British Journal of Health Care Management. August 2000, page 331-372 DOI 10.12968/bjhc.2000.6.8.19300.*

systems on Junior Medical Officers (JMOs), which can come at the cost of the well-being and career progression of many of these doctors.

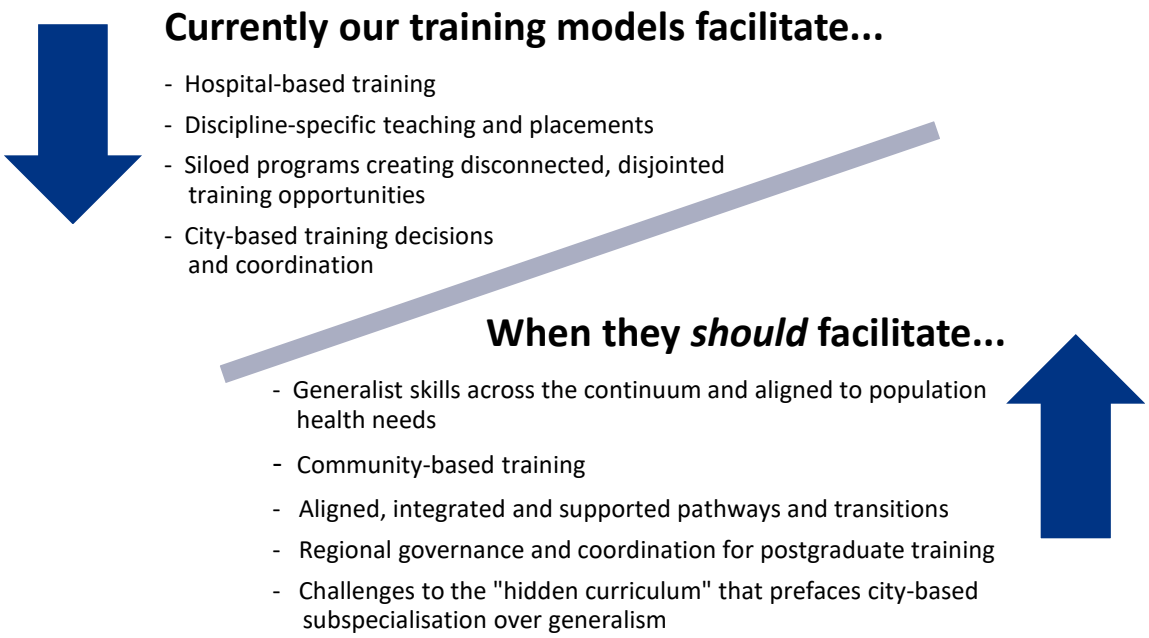
We know that "any transition requires an understanding of where the trainee is coming from and where they are going to"[19]. The question is, how can we leverage our partnerships to provide more a supportive bridging from one stage of training to the next?

We must also recognise the strength of closer partnerships between the learner and the educator. The COVID-19 pandemic brought the student experience to the forefront - students and educators worked together and adapted to maintain the student's health and wellbeing, and progression through the medical program in the face of adversity and uncertainty. This experience provided invaluable insights for both students and educators about the importance of two-way communication, co-designing curriculum, new and innovative practices, and incorporating meaningful student participation[20].

3.4 The right shape, size, and distribution of our medical workforce

A series of systemic issues is creating significant challenges for our healthcare system. The Australian National Medical Workforce Strategy Scoping Framework highlighted as critical challenges the geographic maldistribution of healthcare, the over- and under-supply of clinical specialties, and increasing preference for subspecialty over generalist careers. It reiterated the challenges faced when trying to address these. It also recognised our reliance on IMGs to fill workforce shortages as being unsustainable and vulnerable to the kind of disruption we saw during the COVID-19 pandemic.

In essence, the current training continuum is not delivering the doctors our communities need and is hindering our ability to prepare doctors for their roles in the future.



[19] *Tweed, M.J.; Bagg, W.; Child, S.; Wilkinson, T.J.; Weller, J.M. (2010) How the trainee intern (TI) year can ease the transition from undergraduate education to postgraduate practice. New Zealand Medical Journal. Vol. 123:1318, page 87.*

[20] *Pecora, J., Sen Gupta, T., Zou, D., Kwan, K., Matthews, H., Trumble, S. (2021) Twelve things we have learned from medical students during the Pandemic. MedEd Publish https://doi.org/10.15694/mep.2021.000077.1*

Successive policies aiming to address these broader issues by targeting single points in the training continuum have not delivered the outcomes we seek. For example, substantial investment in delivering high quality, regionally based medical education has fostered an interest in rural practice, with about one third of medical graduates in Australia expressing a preference for a career working outside a capital city[21]. Yet we continue to grapple with shortages in regional and rural areas, as this interest at the point of graduation does not generally translate into career choices. We will not be able to deliver on our workforce outcomes unless we re-design our approach to training so that it can facilitate, rather than impede, the delivery of a medical workforce that is the right size, shape and distribution for our communities.

Our health workforce will also benefit from broader representation of diverse populations. More Aboriginal and Torres Strait Islander and Māori doctors are essential to achieving more equitable health outcomes for Indigenous people and providing culturally safe care. We also need to remove the barriers to becoming a doctor to other groups historically disadvantaged or under-represented, such as people with a disability[22,23]. We can and should do more to create an inclusive medical education culture and system that supports doctors coming from the communities they serve.

3.5 Unhealthy work cultures are driving away good doctors

Staff health is the cornerstone of any sustainable and self-sufficient workforce, yet we have a current medical training model founded on difficult working structures and unhealthy work cultures. The high-stake transitions for graduates and JMOs along the training continuum are leading to high levels of reported distress among doctors. Seminal research has shown that doctors and medical students have substantially higher rates of psychological distress, burnout and suicidal ideation than the general population[24].

Medical students are also significantly impacted by the culture they are immersed in during clinical placements, which can influence where they choose to work in the future. The perceived stigma around seeking support for their individual health or caring needs may also discourage them from seeking help when they transition to practice. Struggling to cope with the stress may also impact the care they provide to patients and increase risks for the health system[25].

A culture of over-work and stress risks the loss of good doctors and has a negative impact on everyone – the profession, students, and patients.

[21] *Medical Deans Australia and New Zealand (2020) Medical Schools Outcomes Database Results 2019, table 23.*
[22] *Medical Deans Australia and New Zealand (2021) Inclusive Medical Education: guidance on medical program applicants and students with a disability. Sydney, Australia.*
[23] *Medical Deans Australia and New Zealand (2016) Selection Policy Statement.*
[24] *Beyond Blue (October 2013) National Mental Health Survey of Doctors and Medical Students.*
[25] *Hall, L.H., Johnson, J., Watt, I., Tsipa, A., O'Connor, D.B. (2018) Healthcare Staff Wellbeing, Burnout, and Patient Safety: A Systematic Review. Plos One. DOI: https://doi.org/10.1371/journal.pone.0159015.*

3.6 Disruption-led innovation and step-change

As we all grappled with the challenges of the COVID-19 pandemic in 2020, medical schools seized the opportunity for innovation. Stronger relationships with health service partners were forged; historical assumptions were challenged and changed if needed; technology once resisted was welcomed and, in many cases, delivered substantial benefits; student voices and experiences coalesced with those of educators to define and design new approaches to learning and student support.

The pandemic also provided insights into the type of disruption our future doctors are likely to encounter in the future.

There is now a window of opportunity to leverage this momentum, to work together and achieve real step-change in the training continuum so that our doctors are better prepared to navigate and lead in the face of future disruption.

4. The future vision: developing the medical workforce we need

4.1 Generalist skills at the forefront of being a doctor

Preparing our doctors for their future role

- **Generalist first and foremost**
- **Preventive and long-term care**
- **Working across many settings**
- **Role in the healthcare team**

Curricula and training experiences across all stages of the continuum should be aligned to the health needs of our populations and underpin effective models of care[26]. Clinical practice increasingly requires doctors to be prepared to:

- apply generalist knowledge and skills to patient needs,
- work within multidisciplinary teams across care settings,
- care for patients with multiple and long-term conditions, and
- provide prevention-focused advice and care.

Our vision is a medical education and training continuum that leads to an adaptable workforce with the required capabilities, in the right numbers, and in the right places to serve the needs of the people of Australia and New Zealand

Our medical training system also needs to develop doctors who are prepared for and ready to adapt to new and emerging needs, technologies and environments.

Generalist skills are essential to prepare doctors to tolerate high levels of uncertainty, care for patients with complex needs, and act appropriately to minimise risks with often limited available information[27]. Effectively, these skills equip doctors to coordinate, prioritise and organise care across the range of specialist services patients might require[28]. Generalist skills should not be considered as mutually exclusive from specialist skills; rather, they underpin the clinical knowledge and decision making of all doctors[29]. Increased generalist skills also better prepare our doctors for rapid redeployment during health crises, which the recent pandemic has demonstrated is crucial to supporting our health systems and communities.

The extensivist/generalist model[30] developed in the UK provides a framework that highlights the need for doctors to feel confident in their generalist skills before they specialise and develop "deep expertise" over the course of their career in different specialty areas.

---

[26] *Frenk, J, et al (2010) Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. The Lancet, Vol. 376(4).*

[27] *Gerada, C., Riley, B., Simon, C. (2012) Preparing the future GP: The case of enhanced GP training. The Royal College of General Practitioners.*

[28] *May, J. (6 April 2021) Aged care reform: slippery slope to generalist demise? Medical Journal of Australia: Insight.*

[29] *Royal College of General Practitioners and The Health Foundation (2011) Guiding patients through complexity: modern medical generalism. Report of an independent commission for the Royal College of General Practitioners and The Health Foundation.*

[30] *Health Education England (2020) The Future Doctor Program. A co-created vision for the future clinical team. London, England.*

This model recognises that doctors provide care as part of a broader, multidisciplinary health care team. To be effective, these teams need to support each member to work at the top of their scope of practice. Leveraging the new skills and technology available in the health care team provides more efficient and flexible options to deliver these types of new models of care. This means that roles typically discharged by doctors may be better undertaken by others. So too are we seeing new models of care involving telehealth and tele-supervision, and shared medical appointments where a group of patients attend a group consultation[31]. A team-based approach built on such models of care is able to provide holistic care that accounts for the social and personal impacts of comorbid conditions, and understanding the role of the doctor in multidisciplinary teams needs to drive how we design medical training.

The content of the curricula, the educational role models, and the range of teaching environments all play a critical role in influencing the way students and junior doctors perceive their role in both patient-practitioner relationships and in a multidisciplinary team. Curricula need to shift from focusing on content to specific clinical disciplines to a more competency-based approach which promotes situational-judgement, rapid decision making, and professionalism to prepare and equip our future doctors to deal with the patient care needs, complex settings and high levels of uncertainty they will face.

Medical education content, clinical exposure, and experiences during medical school need to strongly establish and positively reinforce generalist knowledge and skills, with this continuing through prevocational training and beyond.

4.2 Connected and aligned pathways, able to support key transition stages

Preparedness for practice

- **Stronger partnerships**
- **Clearer role in the healthcare team**
- **Required competencies and readiness**
- **Assistants in Medicine model**

COVID-19 demonstrated how important effective partnerships are to ensure graduates are well prepared for practice. Partnerships between medical schools and health services, and partnerships between educators and learners. In NSW, medical schools and jurisdictional health services worked together to develop a range of clear roles for students to support students being able to contribute to the COVID-19 medical surge workforce whilst also continuing their immersive clinical learning; from "buddying" to support junior doctors, to working in general practice respiratory clinics.

In NSW, a new workforce role was created, the Assistants in Medicine (AiM) role. The AiM evaluation reported that the new role was mutually beneficial for students and health services:[32]

[31] *Egger G., Binns A., Cole M.A., Ewald D., Davies L., Meldrum H., Stevens J., Noffsinger E. (2014) Shared medical appointments - an adjunct for chronic disease management in Australia? Aust Fam Physician. Mar;43(3):151-4. PMID: 24600680.*

[32] *New South Wales Health (2021) Assistant in Medicine Evaluation Report, Ministry for Health, St Leonards.*

The AiM role enabled:

- Students to effectively apply their skills and capabilities in a workforce setting as part of the team and demonstrating their competencies.
- Students and supervising JMOs to have greater clarity about their role in the team and the tasks and responsibilities they will be expected to deliver.
- Students to better integrate and add value to the health care team and manage the workload, particularly for those working more than 16 hours per week.
- Students to feel more prepared and confident for their next step in training.
- Supervising JMOs to work to the top of their scope of practice, focusing on clinical practice and patient care, by delegating tasks to AiMs.

Assistants in Medicine

In 2020, a partnership between the NSW Ministry of Health and NSW Medical Deans developed a workforce role for final year medical students. The Assistants in Medicine role allowed students to opt in and work part-time (up to 32 hours per week) as part of a health care team in participating hospitals.

Students were employed by the heath services and earned 75 per cent of a NSW Medical Intern Salary. Both medical schools and health services had shared responsibility for the students' learning.

Over 400 students participated across 41 facilities in the pilot, representing about 40 per cent of NSW final year students.

The AiM evaluation demonstrates there are clear benefits when health services play a more active role with students in their final years of the medical program – both for students' learning and the health service workload. It found that "*The AiM role was effective in achieving the intentions of the program and was also valued by the medical workforce and medical schools as an opportunity to further integrate students in the team and utilise their skills and capabilities in managing the workload*"[33]. The role was more transparent about the competencies expected of final year students, clearly articulated students' health service responsibilities, and supported the students' transition into clinical practice and their confidence to take on the greater responsibilities of internship. Recognising this success, the evaluation recommended further work be undertaken to use the learnings from the pilot to improve the transition to practice and explore how the AiM role could be used in non-pandemic scenarios.

Supported transitions

- **Supported in the early stages of clinical practice**
- **Developing the next level of competency; broadening the experiences and exposures**
- **Ensuring next stage of learning**
- **Trainee Intern model**

The transition from university to prevocational training is a crucially important event in the lives of medical graduates and needs to be better supported. We know a graduate's preparedness for practice is not solely about their competency and skills. The culture and systems of the workplace they join influence how prepared they feel for this next step.

A lack of oversight for the critical transition points along the continuum – into and out of prevocational training and then into post-graduate specialty training – leaves some trainees who may need extra support not seeking or receiving it. So too can differences in the level of expected competencies from

[33] *New South Wales Health (2021) Assistant in Medicine Evaluation Report, Ministry for Health, St Leonards. Pg22*

the perspectives of medical education and the health services when a graduate enters the workforce. This is reflected in the misalignment of some outcome statements in the regulatory standards for medical education and those for prevocational training[34].

System-level changes are needed to better support these transition points and the natural tensions of balancing the needs of junior doctors to be both care providers and continuing learners.

The New Zealand model of the final year of medical school being a Trainee Intern (TI) year is well-established with evidence that it helps students feel more prepared for clinical practice. Medical schools continue to support and have oversight over the TI's progression and wellbeing while they acclimatise to the workplace. In a 2007 study, 92 per cent of TIs reported feeling prepared to become a junior doctors at the end of the year, compared to only 53 per cent of students completing Year 5 (the penultimate year of the medical program)[35]. It has been shown to address "transition shock" and improve graduates' preparedness for practice – both real and perceived[36].

New Zealand Trainee Intern

The Trainee Intern (TI) year in New Zealand is a full year of training in a clinical workplace during the final year of the medical program. Students receive a Government-funded stipend during this time and are mostly under the jurisdiction of the university.

The primary purpose of the experience is to ease the transition into the workplace, applying their skills clinically whilst under supervision and working as part of several healthcare teams.

Both the AiM and TI models tell us that experiences based on shared accountability between medical schools and employers are effective in supporting graduates to prepare and transition for their next step in training. They allow students to develop and expand their competencies through broader exposure, experiences and responsibilities, while under supervision. These models provide more clarity and consistency about what "preparedness" means and feels like for a "pre-intern" in a workforce setting, and supports this level of preparedness as a clear developmental stage of a career which comprises lifelong learning.

Increased service demand stifling JMO career progression

- **Overreliance on JMOs to meet service needs**
- **Delays to specialty training**
- **Re-cast JMO role to focus on career progression**
- **Leverage skills from new roles**

There is a tension for health services between meeting increased demand for patient care and providing sufficient capacity for JMOs to progress through their training. It is recognised that hospitals are over-reliant on JMOs to deliver essential and out of hours hospital-based services, and that this has resulted in the need to recruit significant numbers of overseas-trained doctors and led to unnecessary delays in JMOs progressing into vocational training.

[34] *Ellis, P.M., Wilkinson, T.J., Hu, W.C-Y. (2020) Differences between medical school and PGY1 learning outcomes: An explanation for new graduates not being "work ready"? Medical Teacher, DOI: 10.1080/0142159X.2020.1782865.*

[35] *Tweed, M.J.; Bagg, W.; Child, S.; Wilkinson, T.J.; Weller, J.M. (2010) How the trainee intern (TI) year can ease the transition from undergraduate education to postgraduate practice. New Zealand Medical Journal. Vol. 123:1318, pp81-91.*

[36] *Ibid. 2010*

The wait time for entry into training programs for oversubscribed specialties leaves a high volume of JMOs delaying specialty training in the hope of gaining access to a highly competitive specialty. This can impact their health and add to the rates of burnout[37]. It unnecessarily increases the length of time required to becoming a consultant/GP; delaying progression into postgraduate training, and often encouraging graduates to seek additional qualifications to try and secure a training place. Simultaneously, undersubscribed specialties continue to struggle to fill vacant positions, leading to worsening medical workforce shortages.

This cycle needs to be disrupted. The role of the JMO needs to be re-cast to: provide a more sustainable job; value the consolidation of the clinical and patient care skills acquired thus far by the JMO; and better support the JMO's progression through to becoming fully qualified. Simultaneously, we need to consider how to enable vocational training to be opened up to encourage more JMOs to train in the specialties and places which serve the needs of our communities. We recognise this would have a significant impact on hospital staffing and the roles of consultants and trainees. It would also require promotion and a change in culture to encourage JMOs to actively pursue these careers rather than continue to wait to enter oversubscribed specialties. However, unless the opportunities to specialise in the areas of greatest need are more readily and easily available to JMOs, we will continue to see maldistribution of our doctors' workforce both geographically and across clinical disciplines.

The benefits of health care teams also need to be better leveraged. Allowing current roles to work to their full scope of practice and exploring the potential for new roles would open up greater capacity for JMOs to progress through training, allow hospitals to continue to meet service demand, provide opportunities for more efficient care provision, whilst supporting high-quality patient care.

Early eye on career aspirations

- **Fostering interest early**
- **Addressing the hidden curricula**
- **Preferential choices of training positions**
- **Career planning**

Medical schools have a strong record of fostering interest in a rural career, with data from annual surveys of final year medical students revealing over one third of respondents expressing a preference for a career working outside a capital city[38]. However, more work is needed to generate increased interest in other areas of workforce shortage, such as general practice, psychiatry and, more broadly, generalism within specialties[39].

Working together as a sector, we need a greater focus on providing advice and informative tools to support students and junior doctors to consider and plan a career that both meets their expectations and aligns with our populations' health needs. This advice and promotion should be reinforced by: role models, opportunities for longitudinal placements, mentoring, and supported programs provided at each stage of the continuum to prioritise early and positive exposure to regions and specialties in shortage.

[37] *Australian Department of Health (July 2019b) National Medical Workforce Strategy Scoping Framework.*
[38] *Medical Deans Australia and New Zealand (2020) Medical Schools Outcomes Database Results 2019, table 23.*
[39] *Ibid., 2020*

Other factors impacting the decision making of students which need to be addressed include:[40] the "hidden curricula"[41], the influence of home and family commitments, clinical and hospital-based supervisors and placements, and the perception of a hierarchy of medical specialties. It is important for leaders to challenge and call out negative stereotypes and often misguided criticisms about certain specialties where they see them.

Consistent career planning and advice are powerful tools in connecting the stages of training and making it easier for doctors to train in the areas of greatest need[42]. The Queensland Rural Generalist pathway provides one example of the power of consistent and aligned career planning, which begins in medical school and is sustained throughout the training continuum. In 2021, 172 FACRRM and/or FRACGP Fellows had completed the pathway, with 95 participants having held a fellowship for five years or more. Of this cohort, 89 per cent had practised in MMM4+ locations for five or more years post-fellowship[43].

The success of the program shows us that graduates' and trainees' decisions about specialty training can be positively influenced by career advice, meeting personal and professional needs, and prioritising internship positions and placements. Similarly in New Zealand, there is strong evidence to support the proposal that targeted rural vocational training pathways lead to rural careers[44].

Queensland Rural Generalist pathway

Established in 2007, this pathway aligns training across the continuum, promoting and instilling a sense of identity as a Rural Generalist to attract graduates, and support their progression by providing:

- mentoring opportunities and career advice through a dedicated support team,
- individual career planning and opportunity to fast-track training,
- accommodations for personal and professional needs,
- connections between different stages and environments to maximise recruitment and matching opportunities with interest,
- priority access to Queensland Health intern training experience in paediatrics, O&G and anaesthetics,
- rural-centric training in both hospital and community-based settings.

It is important to add that while medical education should promote career aspirations in the areas our populations need, medical schools should continue to deliver medical programs that cover a breadth of disciplines and concepts for all students. This enables our graduates to have an understanding of the broader population and health care context as it applies in a range of settings and locations, regardless of whether students know where, and in what specialty, they would like to practice.

---

[40] Nicholson, S., Hastings, A.M., McKinley, R.K (2016) British Journal of General Practice Vol. 66 (651): e768-e775. DOI: https://doi.org/10.3399/bjgp16X687049.

[41] The "hidden curricula" refers to the organisation's culture and structures that are external to the formal medical program that influence the perceptions and learning of medical students. Hafferty, F.W. (1998) Beyond Curricula Reform: Confronting Medicine's Hidden Curricula. Academic Medicine vol. 73:4 April, pages 403-7

[42] Australian Health Ministers' Advisory Council, Council of Australian Governments (2015) Review of Medical Intern Training: Final Report.

[43] Queensland Department of Health (March 2021) Queensland Rural Generalist Pathway: 2021 Snapshot. Retrieved from: https://ruralgeneralist.qld.gov.au/wp-content/uploads/2021/03/2021-Snapshot-QRGP.pdf

[44] Blattner, K., Lawrence-Lodge, R., Miller, R., Nixon, G., McHigh, P., Pirini, J. (2020) New Zealand's Rural Hospital Medicine training program at 10 years: Locality and career choice of the first graduate cohort. The Australian Journal of Rural Health, 23 Nov 2020.

Growing our vital clinician researcher and medical educator workforce

- **Increasing research and educator training capacity**
- **Opportunities to explore research and teaching**
- **High levels of interest but disjointed pathways**
- **Enabling flexibility throughout a career**

The quality of a health system depends on the quality of its workforce. Educational and research institutions are vital to healthcare and our capacity to drive innovation and maintain our global reputation as leaders in medical education. Doctors are core creators of new knowledge and systems-level intelligence, contributing thought leadership to the continuous improvement of medical knowledge and medical care.

Whilst graduates' interest in these two areas is high – with surveys showing over 60 per cent of final year students indicate an interest in research and 86 per cent an interest in teaching as part of their future medical careers[45] – there has been a decline in the number of clinician researchers; falling 3.9 per cent from 2013 to 2017[46]. This affects our ability to expand clinical research and translate advancements in health service technology, delivery and treatments into tangible solutions to improve health outcomes for our communities. The strength of our clinician researcher workforce is compromised by the pathways into clinical medical research being poorly defined, disjointed, often short-term and ad-hoc, and lacking funding support. The range of options within medical schools is sometimes unclear and, there is a particular lack of opportunities during pre-vocational training, with varying ability to conduct research during specialist training.

Similarly, opportunities to progress an academic career as a medical educator are limited, disconnected, and poorly promoted and supported; yet the quality of our future doctors is reliant on the availability and quality of these educators. The need for medical educators is growing. The diversification of medical training to regional and rural areas is vital to increasing medical programs' inclusivity and to developing the rural doctors we need; however, it is putting significant pressure on the capacity of the universities and of postgraduate training.

We need better coordinated and supported clinician researcher and medical educator career pathways, running from medical school through to post-vocational training research. to make sure students and early-career doctors can explore whether this is a future for them, without it causing a delay – real or perceived – to their clinical training. It is only through considered and deliberate opportunities to support clinicians with an interest in these areas will we be able to train the next generation of doctors. The focus should be on early, preferential selection into designated postgraduate clinician researcher and/or educator pathways that identifies, nurtures, and develops future clinician academic leaders[47]. This compliments ongoing work to ensure that all medical graduates are research literate, curious, use evidence and data to inform decision-making, and develop skills to contribute to research and quality improvement activities and would support the required scaling up of training regional and rural areas and within primary care.

Ensuring these pathways are accessible and promoted to rural students and trainees is vitally important to ensure that we are not losing some of our best researchers or rural doctors through them having to

[45] *Medical Deans Australia and New Zealand (2020) Medical Schools Outcomes Database National Data Report 2019.*
[46] *Group of Eight, Australia (2019) Strengthening Australian Clinical Research – Group of Eight Submission to the Medical Workforce Reform Advisory Committee.*
[47] *Ibid, 2019.*

make an unnecessary choice between the two. Technology is enabling and supporting a revolution in remote working for many industries, and healthcare must engage with this in earnest.

To this end, language about medical education and training should acknowledge the shift in roles over the duration of a career. The idea of "completion" is a misnomer. We propose that all partners in the continuum think more flexibly about opportunities to develop abilities and credentials in new areas over the life of a doctor's career, and question, "how can our training models lend themselves to more flexibility in the careers of future doctors?".

4.3 Learning in and for our communities

Training where care is provided

- **Community-based training is essential**
- **New Zealand move to 12-week community-based attachments**
- **Primary care funding requires reform**

Medical students and prevocational trainees should be learning in all the environments where health care is provided. Currently, there are limited opportunities for student clinical placements in general practice and other community-based settings such as aged care, disability, non-emergency psychiatry, Aboriginal and Torres Strait Islander community-controlled sector, Māori services, and hospice care. Similarly, prevocational training structures continue to overemphasise hospital-based care with far less time spent in community settings[48,49].

Longitudinal and well-supported clinical experiences in non-hospital environments allow students and prevocational trainees to apply and further develop their skills in a range of settings with a diverse patient mix, particularly as these are the settings where we need more doctors to be working.

To try and address the lack of such placements, New Zealand is phasing in the requirement for a 12-week community-based placement as part of their two-year prevocational program,[50] which provides first-hand experience of the interface between primary and secondary care. Implemented in 2014, the placements are intended to become mandatory for all interns by January 2022. This change recognised that clinical experiences in, and focused on, community medicine

12 week community-based attachment

In New Zealand, a 12-week community-based attachment (placement) is being phased in, with the intention of all interns completing these attachments by January 2022. The purpose is to provide interns with experience in community-focused and managed delivery of health care, outside a hospital setting.

Placements can be in a range of settings such as general practice, urgent care, community mental health, hospice and public health, and can be in rural and regional locations, and settings that provide experience in the provision of health care to Māori.

[48] *In 2019, 77 per cent of respondents to the Medical Training Survey in Australia reported they were training in a hospital compared to 23 per cent in a community setting. Medical Board of Australia and AHPRA (19 February 2020) Medical Training Survey 2019.*

[49] *We recognise and support the proposed changes by the Australian Medical Council in their consultation on the National Framework for Medical Prevocational Training to remove mandatory rotations and introduce greater flexibility for rotations in prevocational training including across different settings.*

[50] *Medical Council of New Zealand (2019b) Definition of a community-based attachment.*

are essential for the development of all future doctors. Ensuring that these attachments are high quality and not inhibited by infrastructure, capacity or remuneration constraints for supervisors is essential if the attachments are to be effective.

An early evaluation of the NZ prevocational program reforms was undertaken in 2018 and provides positive initial results. Interns who had undertaken a community-based attachment were "significantly more likely to agree they were prepared to provide healthcare in the community, understood about what community specialities do and had a better understanding about the primary and secondary interface especially when compared to those who did not do a CBA"[51]. The proposed reform and centralisation of the District Health Boards in New Zealand provides a timely opportunity to undertake an evaluation to analyse the program's progress since 2018 and look more closely at its workforce outcomes, and seek to understand the extent to which the exposure in community-based settings has impacted the specialty preference of doctors. It could also consider where the program has had more success, set a benchmark to measure future successes after the reform is implemented, and gain insights to inform continued improvements.

We recognise that achieving this shift in Australia will require system-level change. Principally, the funding model for primary care and other community-based care must provide access to funding to dedicate time, resources and infrastructure to incorporate and supervise students and prevocational trainees[52]. Inadequate infrastructure and remuneration for supervisors in primary care embed the historical models of training and undermine efforts made elsewhere in the continuum to foster and sustain interest and motivation to work in areas of workforce need. If we expect more graduates to work in primary care and gain meaningful experiences in community-based settings, then funding for adequate supervision in these areas must be provided by government.

While general practice is likely to be the setting where many of these experiences occur, it is important to ensure system-level changes also create opportunities for students and graduates to gain experiences in Aboriginal and Torres Strait Islander community-controlled organisations, Māori health providers, aged care, mental health, and disability settings. This is essential to understanding health and professional competencies related to these communities and providing integrated, holistic care outside a hospital. Currently, there is insufficient capacity and funding to support these experiences at scale. We need to invest in building training capacity in these settings, especially partnering with Aboriginal and Torres Strait Islander community-controlled organisations and Māori health providers for increased resources so that medical and health professional education can be a core part of their service model where this is desired.

There are programs in Australia, such as the Practice Incentives Program and the new John Flynn Prevocational Doctor Program (which consolidated the Rural Junior Doctor Training Innovation Fund), designed to support teaching and training in rural areas. However, these tend to be disparate initiatives with differing eligibility criteria. From the perspective of primary care providers, this bundle of disconnected programs adds unnecessary complexity and administrative burden to teaching and supervising the next generation of doctors and risks inconsistent access to, and quality of, these experiences.

The AMC's intent to introduce mandatory prevocational community terms in the future is a welcome step in the right direction[53], and an important lever to help progress towards this goal. However, large-

[51] *Medical Council of New Zealand (2018) Evaluation of changes to prevocational medical training, page 22.*
[52] *Australian Health Ministers' Advisory Council, Council of Australian Governments (2015) Review of Medical Intern Training: Final Report.*
[53] *Australian Medical Council (2021) Review of the National Framework for Medical Internship – Consultation Paper.*

scale investment to expand quality clinical supervision in community settings is urgently needed. Without fundamental reform, we will continue to push doctors through a hospital-centric training system with the "hidden curriculum" promoting hospital-based subspecialisation[54] - and continue to create a medical workforce misaligned to the health needs of our populations.

Despite differences in the training, remuneration and recognition of supervisors, the core responsibilities of a supervisor are similar across all stages of the training continuum. Exploring how efficiencies may be gained by leveraging partnerships between medical schools, post-graduate councils, health services, primary care providers and colleges across the training continuum would be worthwhile, and could increase supervisory capacity in primary care across the continuum as well.

Training for the specialties we need

- **High quality, longitudinal experiences**
- **Targeted program structures that promote specialties in need**
- **Focus on competencies**
- **Potential of "flipped" training models**

Enabling more postgraduate training within community-based settings is also critical if we are to foster a preference among some trainees to work in underserved specialties and regions. This is a key mechanism to expose students and junior doctors to influential role models, future mentors and a broader professional and personal network.

Our current system of early clinical training focuses on clinical rotation across a few "core" disciplines, thereby discouraging exposure to specialties outside this core group and adding to competition to access certain vocational pathways. This in turn contributes to more delays to vocational training and can encourage some graduates to move to metropolitan areas to develop their CVs and networks in the hope that this will increase their chances of securing a training place – further impeding the effectiveness of workforce policy.

Focusing on the competencies, rather than the disciplines, required to progress through the training continuum encourages consideration of opportunities for training in those competencies that could be available in non-hospital settings. It also promotes generalist careers, as learning is no longer confined to the siloed medical disciplines and helps ameliorate the message that doctors primarily work in hospitals.

Prevocational General Practice Placements Program

The Prevocational General Practice Placements Program (PGPPP) was a 10-year Australian Government program that provided funding for PGY1 or PGY2 trainees to undertake a supervised 12-week rotation in a GP setting in outer metropolitan, regional, rural and remote areas.

The aims of the program were to enhance trainees' understanding of generalist medicine and integrated care, and to encourage junior doctors to take up a career in general practice to address declining interest in the specialty. When the program was closed in 2014, GP training programs were oversubscribed by approximately 800 places. In the same year, approximately 65 per cent of PGPPP places were in RA2-5 areas.

[54] *We recognise the AMC's intent to introduce mandatory prevocational community terms in the future, however without these changes, it will be extremely difficult to implement in the longer term.*

The PGPPP was a 10-year program designed to address the declining interest in general practice[55]. The program's outcomes demonstrated the positive impact of community-based experiences on the career choices of new doctors. Whilst the program was considered financially unsustainable, it did provide valuable lessons about what works – a structured and managed program with sufficient investment in infrastructure, supervision and renumeration, enabling high quality, clinical training experiences in general practice during internship.

Given the sector's support for the program[56] and its outcomes, it provides a useful model to use in co-developing a new program that is financially sustainable and targeted to provide high-quality experiences in primary care, with the appropriate support for learning while working.

It is equally important to promote generalism within specialties other than general practice. Mental health and aged care, in particular, are areas where our populations will demand greater levels of care and require integrated, coordinated, team-based care. As a sector, we should be asking ourselves, "What should the future mental health and aged care health workforce look like, and what should be the role of the doctor?'".

By investing in the supervision and infrastructure needed to enable community-based training, government can help to relieve the workload of primary care providers. Similar to the AiMs and TIs, this would help to establish a clearer role for the student and intern in the primary care team.

It could also lay the groundwork for a more ambitious "flipped" model of prevocational training, enabling some internships to be substantially based in primary care, with trainees rotating into hospitals for required aspects only. For example, data shows that over half of general practice consultations are for mental health matters[57]. We need to seriously question whether the current model of training doctors in mental health, which remains hospital-focused and working with the most severe admitted cases, is training doctors for the most prevalent cases and greatest area of patient need. If the answer is no, then we need to change this.

As we emphasise the importance of comprehensive, integrated primary care in our health systems, we need to strengthen the role of the primary care sector in scholarship and education and training. General Practitioner training pathways and roles should enable graduates to explore a career as a clinician researcher or educator. This is essential to providing career satisfaction among General Practitioners, attracting those with an interest in research and education, sustaining and improving our training programs, and improving our health systems overall. These opportunities and aspirations are absent from our current thinking about primary care.

[55] *Commonwealth of Australia, Senate Community Affairs Legislation Committee (22 October 2014) Pages 169-170.*

[56] *Both the Australian Medical Association and the Royal Australian College of General Practitioners proposed similar, adapted models of the PGPPP after its closure in 2014.*

[57] *In 2020, 64 per cent of GP presentations were for psychological issues, including depression, anxiety and sleep disturbance. Royal Australian College of General Practitioners (2020) General Practice: Health of the Nation 2020, East Melbourne, Vic: RACGP Page 3.*

4.4 Doctors in the right places, and the right disciplines

Rural training at every step

- **Sustaining early interest in a rural career**
- **Building on the flipped model in prevocational and specialty training**
- **Consolidating programs and creating a connected, coherent and aligned pathway**

There continues to be a shortage in both GP and non-GP specialists in rural and remote areas, with less than five per cent of most non-GP specialists working in rural and remote areas[58,59,60]. Subsequently, these areas disproportionately rely on IMGs to address the shortages. New Zealand grapples with similar challenges with just under 12 per cent of doctors practising in rural areas, despite a quarter of the population living in these areas in 2018[61]. As a result, at least twice as many IMGs register to practice in any given year compared to NZ trained doctors.

Medical schools have achieved significant gains in delivering high quality, regionally based medical education, even in some instances the provision of a full medical program in a regional location. This "flipped" model of training – where students are based in a regional or rural area and rotate into the city where required, has provided opportunities for students to be immersed in rural communities.

This investment has greatly contributed to medical schools' work to foster a desire and preparedness in their graduates to practice rurally. This is strongest among students who have this "rural intent" when they join medical school, with data showing they are almost seven times more likely to be working in a rural area compared with those of urban intent[62].

Data also shows that the work of Rural Clinical Schools and University Departments of Rural Health significantly impact the intention of urban origin students. One study demonstrated that students of urban origin who participated a rural clinical school experience were four times more

Australia

- The rate of Full-Time Equivalent (FTE) medical practitioners per 100,000 population in metro areas (MM1) is approximately double that of medium rural towns (MM4) and more than triple the FTE rate in small rural towns (MM3).
- Less than 5 per cent of most medical specialists (excluding GP) work in rural and remote areas despite about 29 per cent of the population living in these areas.

New Zealand

- Only 11.9 per cent of doctors practise in rural areas, despite a quarter of the population living in these areas in 2018.

[58] *Medical Board of Australia, AHPRA (19 February 2020) Medical Training Survey 2019 page 26.*
[59] *Australian Institute for Health and Welfare (2018) Australia's Health 2018.*
[60] *The rate of Full-Time Equivalent (FTE) medical practitioners per 100,000 population in metro areas (MM1) is approximately double that of medium rural towns (MM4) and more than triple the FTE rate in small rural towns (MM3). Australian Department of Health (2018) 2018 Doctors in Focus. Commonwealth of Australia.*
[61] *Medical Council of New Zealand (2018b) The New Zealand Medical Workforce in 2018, page 31.*
[62] *Playford D, Ngo H, Puddey I. (2020) Intention mutability and translation of rural intention into actual rural medical practice. Med Educ. 2020;00:1–9. https://doi.org/10.1111/medu.14404.*

likely to work rurally after graduation compared to urban students who did not participate in a rural clinical school[63]. High quality, early experiences matter.

Whilst medical schools want to further grow this interest, and especially the interest in rural and remote practice, there are indications that those who would like to pursue a rural career face barriers once they move into prevocational and specialist training. Often there are insufficient or mismatched trainee or JMO positions in rural areas, driving many rurally inclined graduates to the city. Given the success of the flipped training model in medical school, this needs to be extended across the training pipeline. We seek to work with colleges and prevocational training providers to co-design and co-develop clear, targeted and supported rural training pathways that enable graduates to stay in regional and rural areas throughout their training to full fellowship, and that also facilitates their entry into a rurally based career. This could include a flipped model to postgraduate training with preferential selection for rurally inclined medical graduates. Achieving this will take collaboration and support by all stakeholders in the continuum. The Queensland Rural Generalist Pathway and Victorian Rural Paediatrics Basic Training Pathway[64] are examples of how vocational training can be delivered rurally.

Currently, the funded programs to support and facilitate rural postgraduate training are piecemeal, and siloed to a single stage of training or discipline. For example, the 2021-22 Budget[65] measures that increases funding to the John Flynn Prevocational Doctor Program, establishes a funding pool for non-GP rural medical specialist training, and expands the psychiatrist workforce in rural and remote areas, only impact separate, disconnected stages of the training pipeline. The Australian Government's Specialist Training Program (STP) is another significant lever that has and should continue to be used to encourage new models of postgraduate training in rural areas. Again, it is only focused on affecting change to one part of a complex pipeline.

These programs would be more effective in achieving tangible outcomes if they were designed to consider their impact on the entire training pathway – from medical school to fellowship. They should be consolidated to create clear and connected pathways across the different stages of the medical training continuum, and overseen by a locally based organisation able to facilitate the timely progression of graduates and trainees. The Regional Training Hubs have the expertise, experience and local intelligence to manage such a task.

Whilst geographic maldistribution is the most long-standing issue, population growth in urban corridors and outer metropolitan areas is also putting stress on distribution of the workforce. Growth areas in western Sydney and west of Melbourne are two areas where shortages of doctors are a current and growing issue.

---

[63] Playford D, Ngo H, Puddey I. (2020) Intention mutability and translation of rural intention into actual rural medical practice. Med Educ. 2020;00:1–9. https://doi.org/10.1111/medu.14404.

[64] Nowotny, M. (2020) Developing a rural paediatric basic training pathway for Victoria: encouraging doctors to live, train and work locally. FRAME Conference presentation.

[65] Australian Government (2021) Budget 2021-22: Budget Measures, Budget Paper No. 2, 2021–22, page 112.

Local coordination and management of regional training

- **Deliberate career support and management to connect each step**
- **Build on successes of Regional Training Hubs**
- **Locally coordinated and managed regional training**
- **New Zealand hubs leading place-based training and coordination**

Achieving the workforce outcomes needed requires deliberate management to connect training across the continuum. We cannot leave it to graduates to seek ad hoc opportunities to work where our communities need them – they need support.

This paper has highlighted some tangible examples of how outcomes-focused policies that are connected and managed across the training pipeline have delivered desired outcomes. Common to these programs are important elements, including: active promotion of rural careers and underserved specialties, with informed career advice and role models; connections into local knowledge, relationships and insights; for those interested in a rural career, facilitation into high quality rural training opportunities, from early medical school placements through to specialty training positions; and supported connections with other regional training sites and health services facilitating a broader perspective and outcome.

Fundamental to success in rural medical workforce outcomes is sustained investment in local infrastructure and people. Facilitation and management of rural training needs to be informed and supported by those with local knowledge, relationships and connections. Increased local governance is required, enabling the appropriate authority and responsibility at the local level to be able to make the necessary decisions, run the necessary programs, and provide the necessary support. This is also fundamental to facilitating doctors staying on a rural path when they transition to their next stage of training.

Regional Training Hubs (RTHs) were established in Australia with this remit: to improve the coordination of the stages of medical training, identify students with an interest in rural practice, and coordinate opportunities across the stages of medical training[66]. They have made significant strides in mentoring and supporting students interested in a rural career and connecting them with postgraduate training opportunities, strengthening local partnerships to develop new and novel training pathways, leveraging networks to expand supervisory capacity and promoting clinical leaders[67]. They have demonstrated how medical school staff – the educators, clinical leaders and often supervisors in these local communities – are well placed to leverage their connections to support a more joined up experience for graduates and trainees. They have an understanding of the entire medical training pipeline, coupled with their local understanding of the social, economic and health needs of their communities. In some instances, government is approaching RTHs for advice and access to rural JMOs, recognising their insights, influence and reach.

[66] *Australian Department of Health (2019c) Regional Training Hubs. Retrieved from: https://www1.health.gov.au/internet/main/publishing.nsf/Content/regional-training-hubs.*

[67] *Greenhill, J. and advisory group: Atkinson, D., Russell, D., McGrail, M., Playford, D., Hall, S. (2021) Regional Training Hub (RTH) Evaluation Report: the first 3 years. [Unpublished manuscript].*

RTHs have demonstrated their ability to provide some of these services, albeit constrained due to their small budget. The Southern Regional Training Hub Alliance is one example of the benefit of partnering as a network of RTHs to develop bespoke, regional-based training opportunities. They are able to promote rural training and careers across the region to ensure those interested in rural careers can find training and employment in rural areas, even if those opportunities are not directly within the RTH region they were initially part of.

Southern Regional Training Hub Alliance

Established in 2018, the Southern Regional Training Hub Alliance comprises seven RTHs covering regional Victoria, South-Eastern South Australia, the Border Region of NSW, and Tasmania. The Alliance collaborates to address local medical specialist shortages by building and strengthening rural training pathways to create opportunities for medical students, pre- or vocational trainees as a network of hubs as well as individual hubs.

However, their limited resources, constrained access to workforce data, and lack of authority over postgraduate training places has impeded their potential. Whilst RTHs are intended to encourage collaboration, they cannot currently influence those key levers that impact rural outcomes, such as funding for training positions based on local needs, and providing input to adapt specialty training programs so they can be provided in a rural area. Now that RTHs have established their relationships and infrastructure in their communities and demonstrated their potential, it is time to clearly define their role and further invest to enable them to contribute more directly and impactfully.

In 2019, the New Zealand Government announced their intention to explore a rural training hub model for medical and allied health students, recognising the need for greater investment in rural learning among these professions[68]. The intent is for these hubs to facilitate longer rural placement opportunities for students. The Government expressed the view that the lack of oversight and coordination in rural health planning and training was a barrier to creating systems-level solutions.

We propose the Australian Government build on the success of the RTHs by re-designing their role and providing what is sorely needed – actively progressed, locally managed and accountable, rurally-based training pathways from medical school through to fellowship. We strongly recommend that the UK model of Deaneries (now Local Education and Training Boards) be reviewed to explore their approach and its benefits, and the elements that could be effectively transposed to the Australian and New Zealand context.

The aims of RTHs need to ensure:

- a stronger regional governance model which provides sufficient flexibility to respond to local needs and develop targeted positions, pathways and opportunities for people with a genuine interest in those areas;
- a network of RTHs with capacity to connect with other RTHs to support trainees finding alternative rural training or employment should there be no opportunity to stay in their current region, and prepare them for those roles in advance;
- a concentration of employment, research and training prospects for clinician researchers and educators to expand their capacity to deliver training in these areas;
- greater access and engagement of rural populations to do rural-based research for example on rural issues or clinical trial hubs; and
- greater access to workforce data and influence over training positions required for their areas to meet workforce need by providing targeted training opportunities.

[68] *Health Workforce Advisory Board (November 2020) Annual Report to the Minister for Health.*

Specialties in short supply

- **Workforce shortages in generalism, general practice, psychiatry**
- **Declining interest in generalism, continuing focus on sub-specialism**
- **Clear pathways, experiences, connections**
- **Clarity on the numbers**

General practice and general specialists play a critical role in providing community-based care whether it is in urban, regional or rural areas. Our health system relies on patients being able to access these services. However, given the forecast shortage of GPs and psychiatrists[69] and the significant trends towards subspecialisation over generalism[70], demand for effective and financially sustainable primary and preventative care is at odds with this continuing trend towards subspecialisation[71].

Australia

- By 2030, there is estimated to be a shortage of over 9,000 GPs and 350 psychiatrists.
- Since 2013, the number of subspecialists has increased at three times the annual rate of general physicians and surgeons.

New Zealand

- In 2019, specialists made up 39 percent of the workforce, increasing from with 31 percent in 2000. In the same period, the proportion of GPs in the workforce decreased from 37 per cent to 27 percent.
- Over a third of the GP workforce intends to retire in the next 5 years and about half intend to retire in the next 10 years.

New Zealand faces similar challenges with two thirds of newly registered doctors each year being an IMG[72]. There are also forecast shortages in psychiatry and general practice and reduced interest in these careers among graduates[73]. As in Australia, New Zealand has relied on IMGs to fill these gaps, with 2018 data revealing that IMGs comprise 60 per cent of the number of psychiatrists practicing in New Zealand and just under 44 per cent of GPs[74], as well as being overrepresented in regional and rural areas[75,76]. However, about 60 per cent of IMGs leave in the first two years after they register in NZ[77]. In addition, the ageing GP workforce adds pressure on the primary care system with almost 50 percent of registered GPs indicating they intend to retire within the next 10 years[78].

Considering New Zealand's reliance on IMGs, especially in areas of shortage such as rural areas and the psychiatry workforce, it begs the question, how sustainable is it to continue to rely on IMGs to fill

[69] *Australian Department of Health (July 2019b) National Medical Workforce Strategy Scoping Framework.*
[70] *Ibid., 2019b.*
[71] *Ibid., 2019b.*
[72] *Analysis from three years annual report from the Medical Council of New Zealand: 2020 Annual Report, 2019 Annual Report and 2018 Annual Report.*
[73] *Poole, P., Wilkinson, T.J., Bagg, W., Freegard, J., Hyland, F., Jo. E. et al (2019) Developing New Zealand's medical workforce: realising the potential of longitudinal career tracking. New Zealand Medical Journal. Vol. 132:1495, pp 65-73.*
[74] *Medical Council of New Zealand (2018b) The New Zealand Medical Workforce in 2018, page 36.*
[75] *Ibid., 2018b.*
[76] *MartinJenkins & Associates Limited commissioned by New Zealand Ministry of Health (2020) Health Workforce Funding Review.*
[77] *Medical Council of New Zealand (2019c) The New Zealand Medical Workforce in 2019, page 40.*
[78] *Royal New Zealand College of General Practitioners (2020) 2020 General Practice Workforce Survey. Summary Report, page. 14.*

workforce gaps? In recent years, increasing numbers of NZ medical graduates are choosing to stay in New Zealand. In 2007, NZ was only retaining 78 per cent of graduates three years after graduation, whereas in 2015 this proportion had increased to 99%[79]. Given this shift, it is worthwhile considering how investing in clear, connected and funded training pathways for NZ graduates to work in areas of shortage can provide a longer-term social investment alongside IMGs.

There is increasing urgency to stem this declining interest in specialties where services are most in demand. Reasons for graduates choosing other specialties over general practice are well known: access to positive and meaningful exposure to general practice early in their medical training, positive and visible role models, differences in renumeration, and the perception that general practice is less prestigious a career compared to other specialties[80]. Evidence demonstrates that interest in primary care also tends to decrease after graduation and is vulnerable to personal, professional and environmental factors[81].

As discussed above, there needs to be clear pathways and incentives for medical graduates to pursue clinical specialties in the areas our populations need. This includes early and positive experiences, career advice, mentoring and planning, and most importantly, visible and highly valued employment opportunities at the end of the training continuum. These pathways should continue to reaffirm the importance of generalism within specialties, provide opportunities to pursue specialty training or experiences outside of metro locations wherever possible and proactively address the perverse outcomes resulting from hypercompetitive specialty training programs and the focus on subspecialty training – much of which is driven by the culture and processes that preference city-based, sub-specialty careers. Clear and consistent data about the size and distribution of these clinical specialties must underpin these this investment.

Better data

- **Foresight as well as forecast**
- **Understanding outcomes – what works, what doesn't**
- **Strategies that are collectively designed**
- **Data is not the sole catalyst for change**

Data is a critical factor in enabling foresight about the size and shape of the workforce our future population needs, and effectively tracking career pathways to understand the effectiveness of workforce policies. Data used to inform workforce policies needs to be longitudinal, connected throughout the continuum, and broad in scope to account for different specialty groups, locations and characteristics[82]. It should provide a useful, holistic snapshot of the workforce, whilst enabling modelling that takes into account more than just historically assumed supply and demand, but aspects such as the impacts of new models of care, role scope, and emerging technologies. That is, it must contribute to a

[79] *Medical Council of New Zealand (2019c) The New Zealand Medical Workforce Survey, table 23.*

[80] *Thistlethwaite, J., Kidd, M.R., Leader, S. (2008) Enhancing the choice of general practice as a career, Australian Family Physician. Vol.37, pages 964-968.*

[81] *Scherz, N., Markun, S., Aemissegger, V., Rosemann, T., Tandjung, R. (2017) Internists' career choice towards primary care: a cross-sectional survey. BMC Family Practice 18:52. DOI 10.1186/s12875-017-0624-2.*

[82] *Russell, G.R., McGrail, M.R., O'Sullivan, B., Scott, A. (7 March 2021) Improving knowledge and data about the medical workforce underpins healthy communities and doctors. Medical Journal of Australia. DOI:10.5694/mja2.50962.*

better understanding of what drives behaviours and decisions – for practitioners and patients – and the implications of this for the workforce and patient outcomes[83].

As vital as its role in supporting improved foresight, is data's role in improving our knowledge of outcomes and implications. We need a much better approach to collecting useful data so we can understand the extent to which policies and programs are delivering on their desired outcomes, the reasons for their success, or the reasons for their not delivering. It is vital that data strategies are co-designed with, and accessible to, training institutions, researchers and other stakeholders contributing to policy discussions.

The Australian Government's commitment to better collect data and harness insights is reflected in the work on the National Medical Workforce Strategy currently under development. However, we need to be conscious that data cannot provide all the answers we seek and of the pitfalls of false precision. There is much that is already shown by the evidence and already known in the sector. For this reason, at the same time as progressing better data collection, we must also be taking action to start defining our new models of training. These two processes must occur in parallel.

Increasing self-sufficiency of our medical workforce

- **Unsustainable reliance on overseas trained doctors**
- **Contribution of the domestic-trained medical workforce**

Australia and New Zealand's medical workforces have historically relied on IMGs to address long-standing gaps in service delivery. The primary intent behind the recruitment of IMGs is to supplement medical labour in areas of workforce need, primarily in regional and remote areas and in general practice. Each year, around 2,000-3,000 IMGs enter Australia and obtain registration to work as medical practitioners. In Zealand, around 1,000 IMGs enter the workforce each year, almost double the number of newly registered domestically trained graduates[84]. They make an important and valuable contribution to health care, notably in rural towns and regional centres.

However, COVID-19 has exposed the vulnerability of this model to global and local disruption[85]. In addition, analysis of national health workforce data in Australia[86] indicates that there is substantial and ongoing movement of Australia's IMG workforce from regional locations into metropolitan practise. Data shows that IMGs are a major contributor to the rapid growth of medical labour in major cities, comprising 31 per cent of the medical clinical workforce overall in 2019 with 74 per cent of IMGs being based in metropolitan areas. It is understood that there has been substantially fewer than the usual number of IMGs recruited to Australia since the COVID-19 pandemic, due to the international travel bans and migration challenges. In short, this approach to addressing doctor shortages is not working, nor is it sustainable.

---

[83] Russell, G.R., McGrail, M.R., O'Sullivan, B., Scott, A. (7 March 2021) Improving knowledge and data about the medical workforce underpins healthy communities and doctors. Medical Journal of Australia. DOI:10.5694/mja2.50962.

[84] Medical Council of New Zealand (2020) 2020 Annual Report. Page 6.

[85] O'Sullivan, B., Russell, D.J., McGrail, M.R., Scott, A. (2019) Reviewing reliance on overseas-trained doctors in rural Australia and planning for self-sufficiency: applying 10 years' MABEL evidence. Human Resources for Health, Vol.17:8. https://doi.org/10.1186/s12960-018-0339-z.

[86] Data following is extracted from the National Health Workforce Dataset. Retrieved from: https/hwd.health.gov.au.

The need for a sustainable and self-sufficient medical workforce, as stated in the Australian Government's National Medical Workforce Strategy Scoping Framework[87], is clear. To achieve this, we need to consider the contribution our domestic-trained medical workforce can make, and how we can more confident that any approach will address the medical workforce issues we have. Australia and New Zealand have no shortage of extremely bright, competent, and very suitable candidates – each year we have to turn away many who could make excellent doctors. Providing more opportunities for our young people to train and progress into a medical career would be an important economic and social investment.

4.5 A healthy workplace culture and environment

Creating a supportive culture

- **High stakes and stressful transitions and work life**
- **Co-designing better systems to support students and doctors**
- **Need culture change to better support all doctors to stay well and healthy**
- **Influences the entire continuum and workforce**

Our medical students and doctors need to be working in a positive, supportive culture. This is particularly important during the crucial transition stages of commencing clinical placements, starting internship, moving between rotations, and entering specialty training. The first transition to clinician practice as an intern is recognised as a period of potentially high stress with junior doctors being vulnerable to burnout, often caused by the increased responsibility of making decisions and fear of making mistakes[88]. The lack of oversight during these transition times, and the time-bound and rotation-based nature of prevocational training, can also provide a disincentive for employers and supervisors to invest in the longer-term needs of trainees, as they are only with their health service for a short period of time.

It is our responsibility as a sector to better support students and junior doctors during these times. We can do this by building a healthy workplace culture and environment that expects rather than stigmatises people to seek help, sets realistic work hours and conditions, values and supports mentoring, and ensures positive role models and behaviours. Medical students and prevocational trainees seeking support need to feel safe and confident to do so in the knowledge that they will not suffer negative consequences, with those providing support recognising the institutional, individual and community benefits of a healthy workplace environment and healthy workforce.

A Medical Deans' cross-sectoral working group has developed a report, *Creating a Culture of Support for medical students and graduates transitioning to practice*[89], which sets out a series of principles and proposals for us to achieve the required cultural change in Australia and New Zealand. This particularly considers the long-standing issue of supporting medical students and graduates to feel safe to share information and seek the help or adjustments they need to support them to complete their internship and continue their practice and training. While the detail of such systems of information sharing is best left to individual jurisdictions, there are some fundamental principles, roles and responsibilities that should underpin all systems, regardless of jurisdiction.

[87] *Australian Department of Health (2019b) National Medical Workforce Strategy Scoping Framework.*
[88] *Beyond Blue (2013) National Mental Health Survey of Doctors and Medical Students, Table 88: Comparison of mental health status of students and doctors across stages of training and work.*
[89] *Medical Deans Australia and New Zealand (2021) Creating a Culture of Support for medical students and graduates transitioning to practice. Sydney, Australia.*

5. What's needed

We, as a sector, are accountable to the populations we serve. We must re-examine how we train our future doctors to ensure we are meeting our responsibilities. This means re-imagining training programs that: reinforce the importance of generalism, teamwork, prevention, care for people with chronic conditions, and care across traditional care boundaries. The recommendations below reflect a proposed starting point for these discussions and how Medical Deans would like to progress these ideas with our partners.

Achieving these changes will require leadership, courage and a systems-based approach that effectively leverages networks and partnerships across university, hospital and community-based settings, prevocational training and medical colleges. We seek the input of our partners: Government, employers, representative bodies and so that as a sector we can collaborate to co-design a medical education and training continuum that can better serve our population's needs and support the wellbeing of our healthcare workforce.

Recommendations

Generalist skills at the forefront of medical training	**To ensure our graduates are prepared for practice, we recommend**	
	1.	Medical education providers ensure the curricula and placements have a stronger focus on generalist skills and the provision of care for people with long-term conditions as part of a multidisciplinary teams and across different care settings.
	2.	The AMC and, where relevant, the Medical Council of New Zealand ensure sufficient emphasis on generalist skills and care across traditional care boundaries is reflected in the standards for accreditation across the training continuum.

Connected and aligned training pathways, able to effectively support key transition	**To ease graduates' transition to prevocational training, we recommend**	
	3.	Regulators, medical schools and jurisdictional health service providers build on the insights from the evaluation of the Assistants in Medicine pilot and the New Zealand Trainee Intern model to: • develop a shared and explicit understanding of what is needed to be prepared for practice; and • strengthen arrangements for students' transition from medical school to employment.
	4.	Explore what role medical schools should play in the early prevocational years to support their graduates and prevocational training providers.
	To support junior doctors' progression into training, we recommend	
	5.	The Australian and New Zealand governments, jurisdictions and health services explore how health care roles can work to their full scope of practice to better serve the need of patients and alleviate the service provision pressures on junior doctors.
	To grow our clinician researcher and medical educator workforce, we recommend	
	6.	The development of a managed pathway to identify, nurture and train future clinician researchers and clinician educators, which includes opportunities for graduates in PGY2 to participate in research, education and healthcare leadership/management to further develop their capabilities and test whether a career as a future clinician researcher or clinician educator is for them.

	To collaboratively re-shape the medical education and training continuum, we recommend:	
	7.	Australian and New Zealand governments establish a taskforce comprising the key stakeholders responsible for designing and delivering medical education and training across all stages of the continuum to: • co-develop future training models that target the priority areas of workforce need; and • explore the possibility of a "flipped" model for community-based PGY1 and PGY2 doctors where the majority of their experience occurs in a community-based setting, rotating into hospitals for training as required.

Students learning in and for our communities	**To enable students and doctors in training to build expertise and experience in community-based care, we recommend**	
	8.	Australian and New Zealand Governments invest in building substantial capacity for quality clinical training and supervision within general practice, aged care, community-based mental health services, the disability sector and other community-based care settings such as hospice care.
	9.	In partnership with the Aboriginal and Torres Strait Islander community-controlled health sector and Māori health providers, Australian and New Zealand Governments invest in building capacity and resourcing within their services so that, where desired, medical and health professional education can be a core part of their service model.
	10.	Medical schools increase students' clinical placements in community-based settings where there is sufficient capacity and resourcing to ensure a quality learning experience.
	11.	In Australia, a community-based training term(s) for all prevocational trainees is introduced, co-designed as a partnership between the health services and employers, post-graduate training councils, medical colleges, Australian Medical Council, Australian Commonwealth Government, and Medical Deans.
	12.	In New Zealand, an additional evaluation of the community-based attachment to understand its impact on preparing interns for practice and increasing preference for general practice as a career.
	13.	Medical schools, specialist colleges and health services explore opportunities to train supervisors across learning and training environments.
	14.	Australian and New Zealand Governments review primary and other community-based care funding arrangements to ensure the provision of sustainable, high-quality training and supervision of medical students and prevocational trainees.

Doctors in the right places and the right disciplines	**To attract, develop and retain the right numbers in the right places, we recommend:**	
	15.	Medical schools take an active role in helping students plan their careers and find career pathways in areas of greatest need.
	16.	Government, relevant specialty colleges and medical schools partner to • develop new selection and training initiatives that support more doctors choosing careers in general practice, rural generalist, psychiatry and generalism within specialties. • develop and maintain resources to support career planning including details on historic and future available training positions and competition ratios for positions in the above specialties.

	17.	The Australian Commonwealth Government require that a greater proportion of new Specialist Training Program places are allocated to regional and rural areas, and work with specialty colleges, RTHs and regulators to facilitate an increase in the number of accredited regionally based training positions.
	18.	In Australia, the Australian Government re-design the RTHs remit to: • Form the necessary governance structure to oversee and coordinate regional postgraduate training pathways and employment opportunities. • Facilitate partnerships between university and hospital and community-based organisations to leverage the expertise across training settings and sectors. • Work with local health services to establish embedded and long-term clinician researcher and educator roles in regional and rural areas. • Drive a stronger role in career management, support and mentoring to promote rural careers, both locally and with other RTHs to facilitate a nationally coordinated approach to rural doctor shortages. • Facilitate the provision of long-term roles to support employment and stability for rurally based medical educators and clinician researchers.
	19.	In New Zealand, the establishment of a "hub" model to provide a managed structure that leads and coordinates both training pathways across the training continuum, and medical educator and researcher employment opportunities in regional and rural areas. The hub should have shared governance across health providers (hospital and community-based) and universities.
	20.	Post-graduate training councils and colleges review entry requirements that may disadvantage rural training or disproportionately delay progression into specialty training.
	21.	The Australian Government engage with all major stakeholder groups involved in medical workforce planning to develop a new data strategy to identify the size, shape and distribution of the medical workforce we need. Data collected should be made available to all stakeholder groups to support medical education and training across the continuum.

A healthy workplace culture	**To actively build a healthy and supportive workplace, we recommend:**	
	22.	Medical schools, students and jurisdictional health service providers co-design and develop processes to enable students to share relevant information to support the transition from medical graduate to prevocational trainee, based on the recommendations in Medical Deans' report, *Creating a Culture of Support for medical students and graduates transitioning to practice*[90].
	23.	Medical schools, students and jurisdictional health service providers work together to identify and progress other initiatives to create a healthy workplace and supportive culture.

[90] *Medical Deans Australia and New Zealand (2021) Creating a Culture of Support for medical students and graduates transitioning to practice. Sydney, Australia.*

6. Acknowledgements

This document was developed by a working group under the auspices of Medical Deans Australia and New Zealand. We acknowledge and thank the group members for their contribution and commitment to this work.

Working Group members

- Professor Stuart Carney, University of Queensland (Chair)
- Professor Gervase Chaney, University of Notre Dame Australia
- Professor Paul de Souza, University of Wollongong
- Professor Karen Dwyer, Deakin University
- Professor John Fraser, University of Auckland
- Professor Cheryl Jones, University of Sydney
- Professor Brian Kelly, University of Newcastle
- Professor Rathan Subramaniam, University of Otago
- Dabrina Issakhany, Medical Deans' Senior Policy Officer
- Helen Craig, Medical Deans' Chief Executive Officer

Suggested citation:

Medical Deans Australia and New Zealand (2021) *Discussion paper: Training tomorrow's doctors – all pulling in the right direction.* Sydney, Australia.

7. References

- *Australian Department of Health (2019a) Australia's Long Term Health Plan, Commonwealth of Australia.*
- *Australian Department of Health (2018) 2018 Doctors in Focus, Commonwealth of Australia.*
- *Australian Department of Health (2019b) National Medical Workforce Strategy Scoping Framework. Retrieved from https://www1.health.gov.au/internet/main/publishing.nsf/Content/Health%20Workforce-nat-med-strategy.*
- *Australian Department of Health (2019c) Regional Training Hubs. Retrieved from: https://www1.health.gov.au/internet/main/publishing.nsf/Content/regional-training-hubs.*
- *Australian Health Ministers' Advisory Council, Council of Australian Governments (2015) Review of Medical Intern Training: Final Report.*
- *Australian Institute for Health and Welfare (2020a) Health across socioeconomic groups. Retrieved from https://www.aihw.gov.au/reports/australias-health/health-across-socioeconomic-groups.*
- *Australian Institute for Health and Welfare (2018) Australia's Health 2018.*
- *Australian Institute for Health and Welfare (2020b) Rural and remote health. Retrieved from https://www.aihw.gov.au/reports/australias-health/rural-and-remote-health.*
- *Australian Medical Council (2021) Review of the National Framework for Medical Internship – Consultation Paper.*
- *Beyond Blue (2013) National Mental Health Survey of Doctors and Medical Students.*
- *Blattner, K., Lawrence-Lodge, R., Miller, R., Nixon, G., McHigh, P., Pirini, J. (2020) New Zealand's Rural Hospital Medicine training program at 10 years: Locality and career choice of the first graduate cohort. The Australian Journal of Rural Health, 23 Nov 2020.*
- *Borrill, C., West, M.A., Shapiro, D., Rees, A. (2000) Team working and effectiveness in health care. British Journal of Health Care Management. August 2000, page 331-372 DOI 10.12968/bjhc.2000.6.8.19300.*
- *Commonwealth of Australia, Senate Community Affairs Legislation Committee (22 October 2014)*
- *Egger G., Binns A., Cole M.A., Ewald D., Davies L., Meldrum H., Stevens J., Noffsinger E. (2014) Shared medical appointments - an adjunct for chronic disease management in Australia? Aust Fam Physician. Mar;43(3):151-4. PMID: 24600680.*
- *Ellis, P.M., Wilkinson, T.J., Hu, W.C-Y. (2020) Differences between medical school and PGY1 learning outcomes: An explanation for new graduates not being "work ready"? Medical Teacher, DOI: 10.1080/0142159X.2020.1782865.*
- *Frenk, J, et al. (2010) Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. The Lancet, Vol. 376(4).*
- *Gerada, C., Riley, B., Simon, C. (2012) Preparing the future GP: The case of enhanced GP training. The Royal College of General Practitioners. https://www.rcgp.org.uk/-/media/Files/Policy/A-Z-policy/Case_for_enhanced_GP_training.ashx?la=en.*
- *Greenhill, J. and advisory group: Atkinson, D., Russell, D., McGrail, M., Playford, D., Hall, S. (2021) Regional Training Hub (RTH) Evaluation Report: the first 3 years. [Unpublished manuscript].*
- *Group of Eight, Australia (2019) Strengthening Australian Clinical Research – Group of Eight Submission to the Medical Workforce Reform Advisory Committee.*
- *Hafferty, F.W. (1998) Beyond Curricula Reform: Confronting Medicine's Hidden Curricula. Academic Medicine vol. 73:4 April, pages 403-7.*
- *Hall, L.H., Johnson, J., Watt, I., Tsipa, A., O'Connor, D.B. (2018) Healthcare Staff Wellbeing, Burnout, and Patient Safety: A Systematic Review. Plos One. https://doi.org/10.1371/journal.pone.0159015*
- *Health Education England (2020) The Future Doctor Program. A co-created vision for the future clinical team. London, England.*
- *KBC Australia commissioned by the Australian Department of Health (2020) Independent Evaluation of the Rural Health Multidisciplinary Training Program: Final Report to the Commonwealth Department of Health.*
- *MartinJenkins & Associates Limited commissioned by New Zealand Ministry of Health (2020) Health Workforce Funding Review.*
- *Mason, J. (2013) Review of Australian Government Health Workforce Programs.*

- *May, J. (6 April 2021) Aged care reform: slippery slope to generalist demise? Medical Journal of Australia: Insight.*
- *Medical Board of Australia (2020) Medical Training Survey 2019.*
- *Medical Council of New Zealand (2020) 2020 Annual Report.*
- *Medical Council of New Zealand (2019a) 2019 Annual Report.*
- *Medical Council of New Zealand (2019b) Definition of a community-based attachment.*
- *Medical Council of New Zealand (2019c) The New Zealand Medical Workforce in 2019.*
- *Medical Council of New Zealand (2018a) 2018 Annual Report.*
- *Medical Council of New Zealand (2018b) The New Zealand Medical Workforce in 2018.*
- *Medical Deans Australia and New Zealand (2021) Creating a Culture of Support for medical students and graduates transitioning to practice. Sydney, Australia*
- *Medical Deans Australia and New Zealand (2020) Medical Schools Outcomes Database Results 2019.*
- *Ministry of Health, Health Workforce Advisory Board (November 2020) Annual Report to the Minister for Health, NZ Ministry of Health.*
- *National Health Service (February, 2019) The Topol Review: Preparing the healthcare workforce to deliver the digital future.*
- *New South Wales Health (2021) Assistant in Medicine Evaluation Report, Ministry for Health, St Leonards.*
- *Nicholson, S., Hastings, A.M., McKinley, R.K (2016) British Journal of General Practice Vol. 66 (651): e768-e775. DOI: https://doi.org/10.3399/bjgp16X687049.*
- *O'Sullivan, B., Russell, D.J., McGrail, M.R., Scott, A. (2019) Reviewing reliance on overseas-trained doctors in rural Australia and planning for self-sufficiency: applying 10 years' MABEL evidence. Human Resources for Health, Vol.17:8. https://doi.org/10.1186/s12960-018-0339-z.*
- *Pecora, J., Sen Gupta, T., Zou, D., Kwan, K., Matthews, H., Trumble, S. (2021) Twelve things we have learned from medical students during the Pandemic. MedEd Publish https://doi.org/10.15694/mep.2021.000077.1.*
- *Playford D; Ngo H; Puddey I. (2020) Intention mutability and translation of rural intention into actual rural medical practice. Medical Education. 2020;00:1–9. https://doi.org/10.1111/medu.14404*
- *Poole, P., Wilkinson, T.J., Bagg, W., Freegard, J., Hyland, F., Jo. E. et al (2019) Developing New Zealand's medical workforce: realising the potential of longitudinal career tracking. New Zealand Medical Journal. Vol. 132:1495, pp 65-73.*
- *Queensland Department of Health (March 2021) Queensland Rural Generalist Pathway: 2021 Snapshot. Retrieved from: https://ruralgeneralist.qld.gov.au/wp-content/uploads/2021/03/2021-Snapshot-QRGP.pdf.*
- *Royal Australian College of General Practitioners (2020) General Practice: Health of the Nation 2020, East Melbourne, Vic: RACGP.*
- *Royal College of General Practitioners and The Health Foundation (2011) Guiding patients through complexity: modern medical generalism. Report of an independent commission for the Royal College of General Practitioners and The Health Foundation.*
- *Royal New Zealand College of General Practitioners (2020) 2020 General Practice Workforce Survey. Summary Report.*
- *Russell, G.R., McGrail, M.R., O'Sullivan, B., Scott, A. (7 March 2021) Improving knowledge and data about the medical workforce underpins healthy communities and doctors. Medical Journal of Australia. DOI:10.5694/mja2.50962.*
- *Scherz, N., Markun, S., Aemissegger, V., Rosemann, T., Tandjung, R. (2017) Internists' career choice towards primary care: a cross-sectional survey. BMC Family Practice 18:52. DOI 10.1186/ s12875-017-0624-2.*
- *Starfield, B., Shi, L., Macinko, J. (2005) Contribution of primary care to health systems and health. Milbank Q. 2005;83(3):457-502. doi: 10.1111/j.1468-0009.2005.00409.x. PMID: 16202000; PMCID: PMC2690145.*
- *Thistlethwaite, J., Kidd, M.R., Leader, S. (2008) Enhancing the choice of general practice as a career, Australian Family Physician. Vol.37, pages 964-968.*
- *Tweed, M.J., Bagg, W., Child, S., Wilkinson, T.J., Weller, J.M. (2010) How the trainee intern (TI) year can ease the transition from undergraduate education to postgraduate practice. New Zealand Medical Journal. Vol. 123:1318.*

Medical Deans
AUSTRALIA AND NEW ZEALAND

www.medicaldeans.org.au
consult@medicaldeans.org.au