

FEATURE ARTICLE

The 48-hour work week for medical trainees in Aotearoa New Zealand

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Doctors have long worked extreme hours, especially throughout their training. Historically, it was not uncommon for medical trainees in Aotearoa New Zealand, as well as internationally, to work 80-hour weeks or continuous shifts exceeding 24 hours. Efforts have been made in recent decades to implement safer rosters for trainees both locally and around the globe to mitigate risks of excessive working hours to patients and doctors, though to varying levels of success.

When these restrictions are sufficient and accompanied by structural changes within the healthcare system, they have largely been beneficial for trainees and patients alike. This evidence can inform the situation in Aotearoa New Zealand, where resident medical officers routinely work up to 60 hours per week, which is greater than required for adequate training and additionally undermines patient safety. There must be a paradigm shift away from the primary role of resident medical officers as service providers and towards their role as trainees. This shift ensures adequate training can be delivered in fewer hours without exposing trainees to occupational risk, burn-out, and adverse patient outcomes. A 48-hour working week would provide the optimal balance between these risks and the demands of training and service provision.

The changing landscape

Aotearoa New Zealand (AoNZ) was one of the first countries to introduce limitations on working hours for resident medical officers (RMOs), medical doctors who have not completed specialty training, in 1985 by introducing penalty payments to disincentivise employers from rostering RMOs to extended or frequent shifts, reducing the average working week to 57 hours.¹ The implementation of the European Working Time Directive (EWTD) limited weekly working hours for most employees across the European Union to 48 hours, which was extended to include doctors in 2004.² The United States (US) followed suit in 2010, where the Accreditation Council for Graduate Medical Education (ACGME) limited doctors to a maximum of 80 hours of work per week, alongside a range of minimum requirements for break periods and days without work.³ Currently, RMOs in AoNZ are restricted to a maximum rostered week of 72 hours (or 140 hours over a fortnight) but this can be exceeded with penalty payments to RMOs.^{4,5}

These changes were borne out of both concern for employee well-being and patient safety, some of which were prompted by the case of Libby Zion in 1984: a patient's death resulting from prescription oversight, reflecting the dangers to patients of RMOs working long hours.⁶ The effects on safety, doctor wellbeing, and training quality were not objectively described until years after restrictions were implemented and comparisons could be made between training cohorts.

Safer doctors, safer patients

Many doctors, especially surgeons and senior doctors, oppose limita-

tions on RMO working hours, arguing that the quality and continuity of care suffer as a result.^{1,7-10} Criticisms emerged in the United Kingdom (UK) after the introduction of the EWTD and in AoNZ after the 1985 reforms, where the perceived quality and safety of care were thought to have declined. While there is a scarcity of objective evidence to support these statements in AoNZ, evidence collected in the US and UK after their respective reforms offers a convincing rebuttal.

Restrictions in working hours can be broadly separated into two categories as defined by this review: 'first-tier' restrictions limit working hours to less than 80 hours per week and include the 2010 US restrictions and current AoNZ restrictions. 'Second-tier' restrictions are more severe, limiting working hours to less than 48 hours per week, which includes the EWTD.

The restrictions introduced by ACGME in the US have reduced self-reported medical errors and adverse events for first-year post-graduate doctors (PGY1), including those resulting in patient death.¹¹ On average, the restricted group worked 62 hours per week and had fewer than one shift per month lasting more than 24 hours, compared to the control group, who had 72 working hours per week and had four shifts lasting beyond 24 hours. This finding might raise the question of whether the higher number of weekly working hours or extended shifts had correlated with adverse outcomes. A further paper published by the same authors in the *BMJ* in 2023 describing US PGY2s clarified that both are independently associated with adverse events. For patients, this included medical errors and preventable adverse events and for doctors, this measured the number of needle-stick injuries, attentional failures, and motor vehicle accidents.¹²

It has been well established that, compared to no restrictions, a first-tier restriction in working hours to less than 80 hours per week has either a beneficial or neutral effect on patient outcome measures. This finding was described in a large 2011 systematic review of US and UK studies, although the overall body evidence leans heavily towards a benefit, as demonstrated in the two more recent cohort studies explained above.¹³ Additionally, a retrospective analysis of almost half a million patients in the US described no difference in mortality, readmission, or cost of care for patients admitted under physicians who were trained after the ACGME working hour restrictions were introduced compared with before.¹⁴

The evidence for a second-tier restriction to below 48 hours per week again leans towards a benefit for both RMO and patient safety, despite objections from groups of both trainee and senior doctors that these restrictions are detrimental to quality and continuity of care. Observational evidence from the UK comparing outcomes before and after the EWTD was implemented suggests that patient mortality, length of stay and readmission rate were no different.^{15,16} A small randomised controlled trial of EWTD compliant rosters, with the intervention group having an average of 43 hours worked per week compared to 52 hours in the control group, demonstrated a sig-

nificant reduction in medical errors and adverse events among those working fewer hours.¹⁷ Perhaps most convincingly, a large 2023 *BMJ* study found an increase in both adverse patient and doctor outcomes even for RMOs working beyond 48 hours per week, and the strength of this association increased with increasing hours.¹² With robust data collected prospectively from almost 5000 participants pooled from two comparable cohorts, this provides compelling evidence that first-tier restrictions may be inadequate to protect the medical workforce and patients alike from preventable adverse events. Alongside these objective outcomes, RMO wellbeing is also likely to benefit from a reduction in working hours.^{9,18}

Little has changed regarding working hours in AoNZ since the initial first-tier restrictions were introduced in 1985. In 2022, self-reported working hours for house officers (PGY1 and PGY2 RMOs) averaged 65 hours per week, while registrars (typically PGY3 and above RMOs) worked an average of 52 hours per week.¹¹⁹ Importantly, this means that approximately half of the time, RMOs will be working hours exceeding these figures, thereby increasing their risk of adverse occupational or patient outcomes. Given the absence of reasons to suspect improvements in working hours since 2022, the hours that RMOs are working in AoNZ, let alone the maximum 72-hour work week, exposes patients and doctors to elevated risk based on extrapolation from the above studies. At least concerning the principles of safe care and safe outcomes, a second-tier reduction in working hours to 48 hours per week in AoNZ is supported by the available evidence from overseas.

No time to train the surgeons

A key argument against reducing working hours is the potentially negative impact on training opportunities and, consequently, the quality of postgraduate medical education. It logically follows that without increasing the duration of a training program, a trainee's clinical opportunities would decrease.²⁰ This concern is particularly relevant for procedural specialties. Surgeons and surgical trainees in the UK generally believe that with the introduction of the EWTD, the skills of trainees have declined.^{7,21} A significant proportion of UK doctors also believe that general RMO training opportunities have been negatively impacted.⁹ Similar concerns are shared in AoNZ, especially among the surgical community, highlighted by a survey indicating that a majority of surgical trainees in Australasia feel that 55 to 60 hours per week is optimal for training needs, which exceeds a second-tier restriction.^{10,22,23}

The objective evidence does not readily agree that a reduction in hours unilaterally leads to a reduction in training quality. Revisiting the 2011 systematic review in the *BMJ*, the authors conclude that first-tier restricted working hours did not reduce the quality of postgraduate training in the US with either a neutral or beneficial effect on examination pass rates, but they could not make a conclusion about the impact of a further reduction such as the EWTD.¹³ Interestingly, a majority of included studies found no change in caseload for surgical and anaesthetic specialties for both the US and UK after their respective restrictions were introduced. The evidence was less convincing for the UK, perhaps given the more restrictive hours of the EWTD.

It may seem counterintuitive that a decrease in hours worked could have minimal impact on the clinical opportunities of RMOs. This finding can be explained by how RMOs balance their time between training opportunities and healthcare service provision: "High quality training can be delivered in 48 hours... this is precluded when trainees have a major role in out-of-hours service, are poorly supervised and access to learning is limited".²⁴ Particularly for house officers and junior registrars, the role of an RMO in AoNZ is predominantly that of service provision, similarly to the UK where the quoted report was prepared. The major challenge of a second-tier restriction is balancing the role of an RMO as a service provider and as a learner, as time spent in one of these roles is not always interchangeable with the other. Administrative and simple procedural tasks such as preparing discharge summaries, taking blood tests and scribing are examples of service-providing tasks that offer little educational value after the skill

has been acquired, but comprise a large portion of an RMO's workload. The criticism that decreased working hours lead to reduced training opportunities arises only when working hour restrictions disproportionately reduce training time compared to service time.²⁴

To restrict working hours to a second-tier level and avoid a negative effect on postgraduate training or patient outcomes, structural change within the way that healthcare is delivered in AoNZ would be necessary. These changes should prioritise training opportunities within normal working hours. A shift towards more efficient training could include greater involvement from senior staff in the repetitive clinical or administrative tasks that RMOs are generally responsible for, an emphasis on service tasks that provide learning opportunities, and a transition towards more in-hours training. The latter would require consultants to take on a relatively higher responsibility for out-of-hours care, to allow trainees to prioritise shifts with readily available educational supervision. This poses a challenge in an already resource-limited environment.²⁴ These changes promote a consultant-led service as opposed to one which is RMO-led, aligning with Sir John Temple's report on the UK's adaptation to meet EWTD requirements by reducing RMO's service provision time. While increasing the number of RMO positions would undoubtedly assist with minimising individual service workloads, the report additionally advocated for increased consultant oversight. Increasing the number of RMO positions alone would "dilute the quality and quantity of training opportunities," given that the UK had already considerably increased the number of RMO jobs at the time of the report.²⁴

AoNZ, unlike the UK, has failed to increase the number of RMO positions adequately to the extent that not all medical graduates of AoNZ universities are offered jobs.²⁵ A vast increase in RMO numbers occurred in the years following the 1985 reforms, but importantly this was not accompanied by purposeful changes to how training was delivered, despite the 1987 Ashburton Workshop making recommendations similar to what Sir John Temple would make for the UK years later.¹⁰ The increase in RMOs has also not been sustained to match workforce needs, leaving the nation with a relative deficit in trainees. Without sufficient RMOs, the quality and quantity of training opportunities are reduced, as trainees must sacrifice training to cover service shortages. Time spent cross-covering other services, out-of-hours shifts, and extra administrative tasks is time that does not contribute effectively to trainee learning. With more patients to cover for each RMO, the total workload increases, exacerbating the disproportionate amount of time spent on tasks with lower educational value. If these service obligations are balanced appropriately with training, it is undoubtedly possible to deliver both effective healthcare and postgraduate training with restricted working hours. A handful of Northern European nations, such as Norway, report high-quality training without detriment to patient outcomes while largely following the second-tier EWTD restrictions, and there is no reason to believe that these nations train less competent or skilled doctors than those with longer working weeks.^{3,24,26} To achieve similar outcomes in AoNZ, there would not only need to be a focus on consultant-led services to prioritise training time within the fewer working hours available, but also the shortage of both RMOs and consultants would need to be addressed to reduce the service workload for each RMO. Both require substantial systemic changes at a governance level.

Lessons from Australia

The Australian healthcare system is not directly comparable to AoNZ, given Australia generally outperforms AoNZ in a range of healthcare domains and private healthcare networks have a more prominent role in delivering healthcare.²⁷ It is important, however, to make this comparison, given the ease with which trainees can leave AoNZ to train and work in Australia due to the transferability of medical registration and the many shared specialty training programs.

A shift towards second-tier restrictions would have a beneficial effect on retaining trainees in AoNZ. Australian RMOs generally work fewer hours, averaging 50 hours per week for house officers, while

earning higher salaries than their AoNZ counterparts.¹⁸ While these hours are comparable to second-tier restrictions, Australia does not have a specified maximum working week for RMOs. Long hours increase RMO dissatisfaction and burnout, which likely contributes to the exodus of trainees to Australia or out of the workforce completely.⁸ An Australian study found a significant increase in mental health problems amongst RMOs working over 55 hours per week compared with those working less than 44 hours, highlighting the significant benefit of even a small reduction in working hours such as that between Australian and AoNZ RMOs.¹⁸

Penal rates disincentivise Australian employers from rostering RMOs on weekends and for shifts totalling more than 38 hours per week.²⁸ In-hours shifts have more readily available consultant supervision to enhance the efficiency of training opportunities, an essential aspect of adapting to a second-tier working hour restriction. RMOs in AoNZ are only paid penal rates when rostered shifts go beyond 72 hours in a week or 140 hours in a fortnight, in keeping with a first-tier restriction, and unsociable hours are not directly acknowledged through penal rates. Adopting an approach similar to Australia would discourage employers in AoNZ from rostering RMOs in a manner that prioritises service provision over training, by disincentivising out-of-hours shifts and high patient loads requiring extended hours.

Additionally, an improvement in RMO satisfaction and working conditions would act to retain trainees in the local workforce. This is a cost-effective solution in the long term even though it would require an increase in RMO remuneration, as it would increase the number of consultants working in AoNZ downstream. This minimises the use of locum consultants (who require higher wages) and RMOs (who provide less cost-effective care than consultants) in service provision, again shifting towards a more consultant-led service that can prioritise the role of RMOs as trainees.²⁹ Importantly, in for this action to have a beneficial long term impact on the workforce crisis, addressing the bottleneck for consultant positions and training positions for registrars would also be required.

Where to from here

The evidence for a second-tier restriction in working hours for RMOs in AoNZ highlights convincing benefits to patient and doctor safety and is reassuring in terms of the quality of training. The key barrier to mandating such changes is whether our healthcare system can adapt adequately to mitigate any perceived risks to training and healthcare provision. Even if one accepts that such restrictions are beneficial for patient and doctor outcomes, a pragmatic argument against implementing these changes is still valid. Many countries under the EWTD are still not compliant with the second-tier restrictions for medical trainees despite its implementation years ago, and this appears to particularly hold true for surgical trainees.^{30,31} The less restrictive first-tier ACGME restrictions are also still often breached by trainees in the US.³² The reasons for non-compliance are variable, but can likely be linked back to one of two barriers: the shortage of RMOs and consultants, and the role of RMOs as service providers which may be perpetuated by seniors' expectations of working hours.

There is an abundance of potential solutions to addressing the workforce shortage. A second-tier restriction is likely to improve working conditions and help retain RMOs throughout their training and eventually as consultants. A limiting factor is that inexplicably, not all medical graduates of AoNZ universities are offered RMO jobs due to a lack of funded positions despite a workforce shortage crisis.²⁵ Before an increase in the number of medical student positions can be a viable option, there needs to be adequate employment opportunities for existing graduates. However, increasing the number of locally trained RMOs will still be a crucial aspect of addressing the current workforce shortage and restrictions imposed by second-tier restrictions. Of particular importance is ensuring that the demographics and backgrounds of this future workforce equitably reflect the needs of the AoNZ population.

Addressing the role of RMOs as predominantly service providers

has largely been covered and is a major barrier to efficient postgraduate education within second-tier restrictions. Addressing this would mandate a shift away from RMOs as service providers and an increase in both RMOs and consultants to reduce RMO service time in favour of training time.^{10,33} Greater funding of the healthcare system is required to achieve these changes. Not only would this increase the number of doctors, but it could be used to offer a more competitive salary to alleviate the challenges of retaining doctors due to the appealing wages and penal rates offered in Australia.

Conclusions

Implementing second-tier restrictions for RMO working hours in AoNZ has important implications for both clinician and patient safety. Logically, doctors working reasonable hours are less prone to making mistakes and becoming burnt out. The evidence strongly suggests that the number of adverse events increases as doctors have a working week beyond a 48-hour working week, implying the average working weeks of 50 to 60 hours and a maximum of 72 hours exposes RMOs to excessive risk. Observations from other countries reinforce that effective postgraduate training can be achieved with second-tier restrictions without a reduction in training quality or postgraduate achievement. However, the pragmatic barriers regarding doctor shortages and RMOs as service providers require both an increase in funding and a paradigm shift in the way that healthcare is delivered to prioritise and optimise RMO training time. Restrictions are likely to aid this goal by having downstream effects on the retention of doctors in AoNZ, reducing the extent to which the RMO working environment is more appealing in Australia.

We must be cautious in extrapolating this evidence from overseas to our healthcare system. Adaptations must be individualised to each healthcare system and specialty, which is challenging given the scarcity of local objective research. Most of the discussed evidence was gathered in the UK and US, where the healthcare systems differ from AoNZ in terms of funding, staffing, training, organisational structure, and the role of an RMO. However, evidence from the UK is likely to apply to AoNZ given the similarities in postgraduate training structure and the similarly publicly funded healthcare system. Even though "the balance of evidence appears to be that while working time restriction is neutral or beneficial in terms of its effects on medical education, patient care and patient safety, attitudes towards it still tend to be negative".⁸ Given that these negative attitudes are more strongly held by senior doctors than juniors, this may pose a challenge from a governance point of view in gaining the support of more experienced clinicians.⁷⁸ However, RMOs maintain strong negotiating power with employers in AoNZ through two different unions to advocate for safer hours and, therefore, safer care for patients.

The current first-tier approach to working hours for RMOs in AoNZ is suboptimal for patients and doctors. Other nations have been either partly or completely successful at implementing second-tier restrictions despite criticism. Perhaps driving reform through restrictions, rather than waiting indefinitely for the healthcare system to become amenable to these changes, could be more effective.

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