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'TRAINING IN PLACE': THE EVIDENCE FOR EFFECTIVE REMOTE CLINICAL SUPERVISION

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Introduction

Australia has some of the most distributed and remote communities in the world, creating significant challenges to the provision of high quality medical care. As a result, equitable access to care consistent with modern expectations can be challenging, with poorer health outcomes being well recognised, especially in Indigenous communities and remote areas.

'Training in place' is a concept that describes placing learners in regional, rural and remote locations to gain experience of the unique opportunities and challenges of isolated health service delivery. There is strong evidence that supported placements of learners at all levels improves their commitment to a career serving rural or remote communities.

Australian General Practice Training (AGPT) has led the way in demonstrating how well-structured remote supervision and training can lead to long-term retention in these areas, and the Australian College of Rural and Remote Medicine (ACRRM) has a singular focus on providing excellent training for rural generalist clinicians.

While medical training in Australia was initially completely centralised in England, over time there has been a shift to a partially decentralised model – with Melbourne, Sydney and then Brisbane becoming "acceptable" to produce high quality medical practitioners. In the 1990s, there was further decentralisation to major regional centres, but this was still mostly dependent on rotations from major to regional centres. Every step in this historical decentralisation model has been challenged by governing bodies resistant to change.

The purpose of this chapter is to explore remote education of regional clinicians (at various levels of their training) including educational content delivery, clinical supervision on site, and the development of professionalism in the trainees' chosen disciplines.

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Clinical supervision

Kilminster and Jolly[2] define clinical supervision as

> *"the provision of monitoring, guidance and feedback of matters of personal, professional and educational development in the context of the doctor's care of patients. This would include the ability to anticipate a doctor's strengths and weaknesses in certain clinical situations in order to maximize patient safety".*

They further suggest that supervision of medical trainees should "have ground rules, be uninterrupted, be flexible, have learning objectives, include record keeping and liaison with the program director".[2] The supervisor's role extends beyond just clinical management, teaching and research to include the personal and professional development of the learner as a competent professional in their discipline.

The quality of the supervisory relationship is also highlighted by Kilminster and Jolly[2] who write that it is "probably the single most important factor in the effectiveness of supervision, more important than the supervisory method used". Insufficient access to clinical supervision, training and professional support often limits opportunities for enhancing professional practice which might enable the pursuit of careers in regional medical practice. In addition, while clinical supervisors may have protected time to provide high quality, comprehensive and safe support for trainees, they may also be limited by their own clinical service obligations and the needs of the Regional Health Service.

Wearne[1] describes the risk that increasing expectations of clinicians to train learners may reduce patient care and training quality. Further she describes the risk of poor health outcomes which might arise from there being insufficient infrastructure and funding to support the training and availability of local regional supervisors. She also suggests that trainees may limit their questions and instances of seeking advice, in the face of time-limited clinical supervisors. Cameron, Ray and Sabesan[3] add that the lack of supervision on site, higher levels of responsibility for decision making, and greater workloads create emotional stress for trainees.

Other negative aspects of regional clinical training include the impacts of isolation from peers, limited access to contextually specific education (college training programmes and curriculum specific training), and governance issues such as orientation to clinical practice and community. These issues often leave the trainee unprepared for professional and personal practice in regional centres.

Technological and geographical challenges to supervision

'Training in place' requires consideration of technology in enabling quality connectivity – be it through email, telephone or video – as the trainees must be able to access their supervisor as needed. Although systematic reviews by Chipps, Brysiewicz and Mars[4] and Tomlinson et al[5] provide support for the contention that tele-learning is comparable to face-to-face learning methods, the evidence is not rigorous given the paucity of robust studies. Martin, Kumar and Lizarondo[6] describe tele-supervision as a useful tool in any context, but none more than the regional and remote context where local supervision may be limited.

The health care sector has been slow in taking up the offerings of the digital revolution, however. As a result, the major players in global health care (Alphabet/ Apple/ Walmart/ Amazon) have recently started to supply devices and/or software related to the delivery of health care. The knowledge that can be provided in this way can be of benefit to patients, as well as provide evidence-based instant data to support regional, rural and remote training of clinicians.

Through providing virtual connectivity between metropolitan and regional/rural centres, the various digital platforms can further enhance clinical training by providing an opportunity for medical colleges and medical training governance organisations to consider innovative ways to maximise the delivery of training in regional, rural and remote communities.

In Australia, the technology underpinning available options for clinical education are extensive and largely web-based in real time – and are limited only by specific network security issues across health services and by bandwidth quality. The methods used for training clinicians range from didactic PowerPoint-based lectures with minimal end user interaction, to distributed networks of learners discussing contextually relevant cases with a remote medical educator.

The quality of content and its contextual relevance can vary, especially where the frame of reference of the content author differs from that of a remote audience. As most professional colleges are based in metropolitan areas and serve the needs of tertiary hospitals, educators are more likely to be familiar with high population areas, which means there is a risk that their curriculum and content is framed in that context. Ducat, Martin, Kumar, Burge and Abernathy[7] and Young, Peel, O'Sullivan and Reeve[8] underscore the importance of focusing explicitly on context in building capacity for rural and regional practice.

In Australia, there is a plethora of opportunities for education and knowledge acquisition which exert pressure on the trainee's available time outside of their clinical responsibilities. There are perhaps too many providers delivering education opportunities that are poorly co-ordinated with learners' needs, and with the curriculum requirements of the respective colleges to which the learners are linked.

The character of supervisors and their learners

Kilminster and Jolly[2], Wearne[1] and Cameron et al[3] refer to the importance of the relationship that is developed between supervisor and learner – with Wearne underscoring the importance of choosing both supervisors and learners who are suited to remote supervision.

The twelve tips on how to set up postgraduate training via remote clinical supervision outlined by Wearne, Dornan, Teunissen, & Skinner[9] are summarised in Table 1.

Table 1:
Twelve tips on how to set up postgraduate training via remote clinical supervision

	Tip	Comments
1	Educational organisations oversee remote placements.	Trainees, supervisors and locations are well matched.
2	Choose registrars [trainees] suited to remote supervision.	Trainees have foundational clinical skills and competencies and are self-motivated.
3	Choose supervisors suited to remote supervision.	Supervisors are familiar with the clinical aspects of the trainees' work and are approachable.
4	Choose volunteers.	Remote supervision is not compulsory.
5	Promote good working relationships and establish roles early and clearly.	Roles are clearly outlined and face-to-face contact is promoted where possible.
6	Clinicians should inform their medical indemnity organisations and patients.	In some countries, supervisors are liable for the actions of their remote trainees, and need to be made aware of this. Patients to be informed of the trainee's status.
7	Encourage registrars [trainees] to establish personal, professional and information support networks.	Trainees to be orientated re referral pathways and to have access to online information and support. Trainees are encouraged to develop personal support networks, both locally and online.
8	Establish how information will be shared.	Ways to share information ethically regarding clinical oversight and trainee performance are developed.

	Tip	Comments
9	Host clinical placement responsibilities extend beyond having a fully qualified clinician.	Practices and health services with remotely supervised trainees need dedicated mechanisms for clinical oversight and support. Provision is made for trainees' attendance at educational events.
10	Promote monitoring and feedback to registrars [trainees].	Pastoral care, feedback and progress assessment remain critical to trainees' development and require alternative methods to traditional teaching.
11	Use and maintain appropriate information technology and resources.	Various forms of suitable information technology are available and maintained.
12	Have contingency and exit plans.	Safe exit of trainees due to unforeseen issues or events needs to be planned.

(Developed from Wearne, Dornan, Teunissen, & Skinner[9])

If regional medical training is to be successful, it is critical that trainees who agree to receive remote supervision have some experience of this role and are comfortable with autonomous clinical decision making. They must also have insights into their own abilities, strengths and weakness and be able to function as self-directed learners, including the capacity to "self-correct".

Supervisors undertaking remote clinical supervision must be able to develop rapport and have good communication skills;[3] they must be able to provide holistic support for trainees, including aspects of pastoral care, and should also monitor their wellbeing.[9]

Assessment

Assessment of trainees is a key aspect of the clinical responsibilities of a supervisor. Poorly performing trainees with limited insight and impaired ability to self-assess require periods of direct observation which can present a significant challenge for remote supervisors;[1] this needs to be anticipated and planned for.

Clinical supervision case studies

Some specialist colleges in Australia have used communications technology to support clinical supervision; for instance, the ACRRM – through its Independent Pathway to Fellowship – and the Rural College of Physicians. In Australia, expertise in the use of telemedicine for providing training and supervision has evolved alongside the evolution of 'training in place'.

Queensland Health

Queensland Health has invested in the expansion of telemedicine and supported innovation in the delivery of remote clinical services; it has one of the largest distributed telehealth backbones in the world. This has led to greater utilisation of remote specialists to enhance the scope of practice of local clinicians and reduce the challenges of travel for rural patients. Recent innovations are reaching into the homes of patients with complex and chronic diseases, using high fidelity home monitoring tools.

The backbone provides extended virtual care networks, enabling clinical consultation, after hours and emergency support, as well as store and forward consultation (off-line use of email and clinical photographs) for dermatology, medical imaging and burns cases. The Telemedicine Emergency Support Unit (TEMSU) provides 24-hour access to a nurse with the opportunity to escalate case management to an appropriate regional supervisor, driving contextually appropriate clinical support from known providers.

Remote supervision by centrally located supervisors can support empowering local trainees and qualified clinicians to practice at the top of their skill set. Case examples across the state include remote antenatal ultrasound skills training and a tele-stress testing model for rural nurses.

The Remote Vocation Training Scheme

There are not enough clinicians in rural Australia. By working in rural areas, medical practitioners from other countries can enter clinical practice, bypassing the usual supports and standards required of Australian General Practice Training Program candidates. While recent Department of Health policy changes will deliver greater alignment with college-led programmes, there remains the risk that isolation brings for clinicians, their communities and their supervisors, in the delivery of appropriate high-quality care.

The Remote Vocational Training Scheme (RVTS) has effectively trained and supervised geographically isolated clinicians through Fellowships of the ACRRM or Royal Australian College of General Practitioners (RACGP) using a model of remote supervision, video-conference learning, peer support and block learning releases. Discussing the consolidation of the principles of distance supervision within the RVTS program, Wearne[1] describes a model in which a consultant on-call GP (general practitioner) supervisor who is supervising GP registrars at a distance, is responsible for the co-ordination of the education and training within a practice team. Key to this model is freeing up the remote supervisor from their own clinical load.

In their analysis of the RVTS programme, Wearne, Giddings, McLaren and Gargan[12] found that it delivered high levels of rural retention of graduated Fellows. In their feedback, graduates valued the support and social networking provided by the scheme, coupled with a focus on extended skills relevant to emergency and remote medicine.

The Australian Antarctic Division

The Chief Medical Officer of the Australian Antarctic Division, Dr Jeff Ayton, describes a process of deliberate design in the development of austere environment supervision of learners. This includes an intensive process of evaluation and training being undertaken prior to deployment, as learner failure in this environment is often irretrievable.

Three to four months are spent providing the learner with the knowledge and skills required by a polar medicine doctor, such as wilderness survival, intensive care and retrieval medicine. While knowledge is important, Dr Ayton believes that the development of rapport and a complete understanding of the learner's skill set and competencies is critical to appropriate deployment. The Polar Medicine Unit continues to provide ongoing around-the-clock case management of presentations, in support of the learner.

The need to train and support education in austere environments has led to the creation of the Centre for Antarctic, Remote and Maritime Medicine as a center of excellence in the delivery of remote clinical supervision and education.[10]

Townsville Tele-oncology Model for remote supervision

The Townsville Tele-oncology Model for remote supervision is a process for delivering contextually specific and high quality training for interns and junior doctors in the management of complex oncology cases in a remote context.[3]

Cameron et al[3] identify a range of factors that contribute to successful models – and which can reduce feelings of isolation and motivate self-directed learning. These include

- the supervisor's personal attributes and communication styles;
- regular clinical contact;
- the supervisor's commitment to clinical teaching;
- the supervisor's validation of junior clinicians' decisions in a supportive team environment;

- thorough orientation;
- the availability of a local clinical team – inclusive of rural generalists, general practitioners, nursing and allied health professionals;
- building clinical supervision and training into day-to-day clinical practice;
- consistent time commitments, preparation and goal-focussed learning; and
- technical training on telemedicine, along with appropriate administrative and nursing support.

Interns who were remotely supervised improved their knowledge of patient care, the role of the extended health care team and "validation of their current and future practice management" Cameron et al.[9] These authors also describe a previously unexplored aspect of remote clinical supervision: trainees in remote supervision arrangements appeared to develop greater confidence ('professional edge') than their peers, gained through exposure to, and care of, more complex patients. This finding evolved from working in an environment of relative clinical autonomy while being well supported by senior peers.

The digital future for remote models of supervision

Medical colleges have a range of governance systems for the selection, distribution, training and assessment of trainees. They also differ in their approaches to providing support to solving the maldistribution of medical specialists.

The advent of the 'internet of things', virtual health, and the globalisation of health care has offered new opportunities to consider steps to decentralise training even further, whilst maintaining standards.

The Mercy Model

The Mercy Virtual Care Centre in the USA is the world's first hospital with doctors, nurses and support staff, but no beds. It provides

- high level monitoring and support of 30 ICUs;
- stroke support for those facilities with no neurologist; and
- hospitalists [generalist clinicians] for virtual patient care at home or in a doctor's rooms for higher level advice, support or training.

This could offer a potential model for regional/rural training.

Examples in Australia

The Telemedicine Emergency Support Unit in Queensland is Australia's first 24/7 co-ordinated care model where rural/remote generalist clinicians can access specialist support for any emergency presentation. For example, the Princess Alexandra Hospital is monitoring blood sugar levels of all patients in Mackay a thousand kilometres away who are on an insulin infusion – and can have an endocrinologist consultation as necessary.

The journey of digital support for better patient care has just begun. While it will have an impact on what the 'clinician of the future' looks like and how they are trained, the siloed functions of specialty colleges increase the risk of a disjointed approach to clinical workforce training. Currently some specialty colleges are still using traditional methods for intake, training and assessment of trainees. They have been slow in considering how digital disruption in training and education can provide alternatives to existing models, particularly for generalist clinicians.

Effects of digitisation on the workforce

The Topol Review should be read by all influencers associated with digital health and workforce production. An excellent report on preparing the British health care workforce for the digital future, it asserts that:

> *"The combination of rapid technological advances and the changing health care needs of the UK will cause a degree of disruption, requiring the workforce to be agile. Roles will become more fluid and role boundaries may blur."* [11]

This will further challenge current training models, as well as governance.

Australia currently has separate strategies for health workforce training, siloed into medical, nursing and allied health. Digital disruption offers opportunities to develop different types of clinicians fit for purpose for the demographic area. Can the 'generalist medical model' be expanded to a 'generalist clinician model'?

The USA are global leaders in the role of the physician assistant model to support patient care. While this model had minimal acceptance in Australia, digital support and training may offer an opportunity to revisit the value of similar models, particularly for rural and remote health service delivery.

Conclusion

This chapter has outlined the contention that remote supervision is relevant, applicable and effective for the development of trainees in the context of regional medical services. Regional and rural remote supervision models are neither of a lower standard, nor less rigorous, than traditional models.

The chapter discusses several cases where remote supervision models have contributed to improved access to education, coupled with service improvements for regional and rural people. These models have delivered good educational outcomes for trainees, and possibly improving retention in the process.

Barriers and enablers include the careful consideration of supervisors, trainees and service development – while the specific context, expectations, infrastructure as well as pastoral care are all important considerations when planning for remote supervision.

The future for remote supervision models is empowered by rapid progress in digital technologies – including knowledge management, information access, delivery tools and the fidelity of remote learning. The perceived primacy of face-to-face, tertiary supervision and training is challenged by these new contexts and the many examples of innovation.

References

1. Wearne S. In-practice and distance consultant on-call general practitioner supervisors for Australian general practice? *Medical Journal of Australia* 2011; 195(4), 224-228.
2. Kilminster SM & Jolly BC. Effective supervision in clinical practice settings: A literature review. *Medical Education* 2000; 34(10), 827-840.
3. Cameron M, Ray R, & Sabesan S. Remote supervision of medical training via videoconference in northern Australia: A qualitative study of the perspectives of supervisors and trainees. *BMJ Open,* 2015; (5). doi:10.1136/bmjopen-2014-006444
4. Chipps J, Brysiewicz P & Mars M. A systematic review of the effectiveness of videoconference-based tele-education for medical and nursing education. *Worldviews Evidence Based Nursing* 2012; 9(2), 78-87. doi:10.1111/j.1741-6787.2012.00241.x
5. Tomlinson J, Shaw T, Munro A, Johnson R, Madden DL, Phillips R & McGregor D. How does tele-learning compare with other forms of education delivery? A systematic review of tele-learning educational outcomes for health professionals. *N S W Public Health Bulletin* 2013; 24(2), 70-75. doi:10.1071/NB12076
6. Martin P, Kumar S & Lizarondo L. Effective use of technology in clinical supervision. *Internet Interv,* 2017; 8, 35-39. doi:10.1016/j.invent.2017.03.001
7. Ducat W, Martin P, Kumar S, Burge V & Abernathy L. Oceans apart, yet connected: Findings from a qualitative study on professional supervision in rural and remote allied health services. *The Australian Journal of Rural Health* 2016; 24(1), 29-35. doi:10.1111/ajr.12192

8. Young L, Peel R, O'Sullivan B & Reeve C. Building general practice training capacity in rural and remote Australia with underserved primary care services: a qualitative investigation. *BMC Health Services Research* 2019; 9(1), 338. doi:10.1186/s12913-019-4078-1

9. Wearne S, Dornan T, Teunissen PW & Skinner T. Twelve tips on how to set up postgraduate training via remote clinical supervision. *Medical Teacher* 2013; 35(11), 891-894. doi:10.3109/0142159X.2013.805878

10. Centre for Antarctic, Remote and Maritime Medicine. *Healthcare in Remote and Extreme Environments.* 2019. Retrieved from https://www.carmm.org.au/

11. Topol E. *The Topol Review. Preparing the healthcare workforce to deliver the digital future. An independent report on behalf of the Secretary of State for Health and Social Care, February 2019.* Retrieved from https://topol.hee.nhs.uk/

12. Wearne, S. Giddings, P, McLaren, J, Gargan, C. Where are they now? The career paths of the Remote Vocational Training Scheme registrars. *Australian Family Physician*. 2010; 39(1), 53-6.

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