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On behalf of the Australasian College of Dermatologists (ACD), we would like to extend our thanks to the Menzies School of Health Research who were engaged to conduct the evaluation of our Flexible Approach to Training in Expanded Settings (FATES) project, *A supervisory rotational model for specialist dermatology training in the Top End, Northern Territory*.

This project has achieved the intended goals of increasing supervising consultant training capacity, sustainability and service delivery in the Top End including to First Nations and remote communities. We have been successful in seeking and obtaining commitment from NT Health for continued funding of a rotational model to enhance and sustain a quality training program, enabling ACD to allocate a further training position to be filled by a Darwin local resident. These outcomes validate this model as a positive step towards building a homegrown workforce.

Whilst we know that the most effective long-term solution for addressing rural workforce shortages is to recruit and train locally, it is important that short-term solutions are considered. Investment in innovative models can increase healthcare delivery to communities in need and create robust and quality training opportunities that lay the pathway towards longer-term solutions to attracting, building, sustaining, and retaining rural workforce.

The findings presented in the accompanying Evaluation Report demonstrate that, with Commonwealth funding support, specialist medical colleges are well placed to lead all relevant stakeholders in successful co-design and collaboration at a local level, leveraging all available funding mechanisms. This leadership and collaboration are critical to the successful implementation of efficient and effective models that sustain quality training and supervision and build a future rural health workforce, including investment in capacity to foster the pipeline.

To leverage learnings and ensure transferability success, the Department may wish to collaborate further on the development of a resource guide that outlines the processes for implementation and sustainability of supervisory rotational models across geographic locations and disciplines to ensure a positive rural medical education culture and enriched experience for trainees and supervisors.

ACD thanks the Department for the opportunity to deliver this much needed project in the Top End and looks forward to continued collaboration to improve access to care by addressing the dermatology workforce shortage and maldistribution nationally.

Dr Haley Bennett

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The Australasian College of Dermatologists

Evaluation of a supervisory rotational project for specialist dermatology training in the Top End, Northern Territory

Contents

Version table

Version	Author	Date	Detail
V0.1	Sophie Pascoe	18 December 2023	Draft circulated for review with team
V0.2	Sophie Pascoe	22 December 2023	Draft circulated to ACD
V0.3	Gill Gorham Victoria Cox	25 January 2024	Feedback provided by ACD - revised
V0.4	Gill Gorham James Harley Victoria Cox Sophie Pascoe	5 February 2024	Updated draft and formatting
V1.0	Gillian Gorham	15 February 2024	Report submitted to ACD
V1.1	Sophie Pascoe Gillian Gorham	24 February 2024	Updated and finalised for FATES reporting

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1. Introduction

The dermatology workforce is in undersupply across Australia, but in rural and remote areas there is a critical workforce shortage and the greatest barriers for patients to access skin health services (1). At the commencement of the Flexible Approach to Training in Expanded Settings (FATES) project, the demand for dermatology services in the Northern Territory (NT) significantly outstripped supply, with the service comprised of; one permanent local consultant dermatologist, one Specialist Training Program (STP) funded accredited dermatology registrar, one Nurse Practitioner and one Resident Medical Officer (RMO) providing public and private dermatology services across the Northern Territory (2). This limited service had implications for equity of access, quality of care, economic impact of delayed diagnosis and treatment, potential for clinician burnout and an overall threat to the sustainability of the service (3).

In 2021, the Australasian College of Dermatologists (ACD) received funding from the Department of Health under the FATES program to implement a supervisory rotational model to allow specialist dermatologists to visit Darwin for one to four weeks over a 2-year period. The visiting rotations equate up to 0.5 full-time equivalent (FTE) consultant capacity to Royal Darwin Hospital (RDH). The supervisory rotational project was intended to improve education and quality of training available in Darwin and provide capacity to work towards building a quality sustainable rural training hub for dermatology in the Top End.

The success of the model has been assessed by an evaluation framework comprising outcome measures of acceptability, sustainability, and scalability. An intended outcome was to determine the enablers and barriers to supervisory rotational models for dermatology training to inform approaches for rural and remote dermatology service delivery and training across Australia. The ACD engaged the Menzies School of Health Research as an evaluation partner for this project. This report outlines the approach, scope, and methodology of the evaluation, as well as the key findings from a process and summative evaluation.

1.1. Aim of the project

The aim of this project was to build the capability, quality, and sustainability of specialist dermatology service delivery and training in the Top End, NT, through the implementation and evaluation of a supervisory rotational model.

1.2. Objectives of the project

a) To improve and promote positive rural and remote medical education culture and support quality specialist medical training in rural and remote Australia.
b) To reduce barriers and improve incentives for entering rural and remote medical practice.
c) To improve the imbalance of distribution of the non-GP specialist medical training arrangements and workforce, particularly in areas of unmet need.
d) To attract and support Aboriginal and Torres Strait Islander trainees to grow the Indigenous workforce towards population parity.

1.3. Intended outcomes

a) To test a rotational model to build dermatology workforce capacity and capability with Darwin as a pilot site and determine model scalability for other rural and/or remote areas and training programs in Australia.
b) To address NT dermatology workforce shortage and maldistribution via a novel rural specialist workforce attraction strategy, including increased service delivery into regional centres.
c) To expand supervisory support to ensure quality and sustainability of dermatology training positions.
d) To build capacity for a rural training centre, where trainees can build knowledge and expertise in Indigenous, tropical, and rural dermatology.

e) To increase capacity to meet needs of NT patients, with a focus on Aboriginal and Torres Strait Islander communities.

2. Methodology

2.1 Methodological approach

This evaluation has employed a qualitative methodological approach and involved a process evaluation and a summative evaluation. Qualitative research draws on an interpretivist theoretical position where reality is understood as socially constructed and subjective; this allows for multiple perspectives and recognition of different positions, which is necessary when evaluating this project (4). Within this qualitative approach, a process evaluation was used to assess how the project has been implemented, whilst identifying enablers and barriers in its implementation. The summative evaluation identified early outcomes related to the objectives of the program to inform future workforce planning and advocacy. Given the timeframe of the evaluation over a 15-month period, consideration of patient experiences of the rotational model and impacts on health outcomes was outside the scope of this project. The summative evaluation provides indicates the extent to which the project achieved its intended outcomes.

2.2 Setting, participants, and recruitment

This evaluation was conducted within the dermatology department at RDH as the only permanent department that offers dermatology services to patients across the NT. Participant recruitment was from all clinical staff involved in the supervisory rotational project including the visiting supervising consultants (hereafter, referred to as visiting consultants), dermatology trainees, nursing staff, RMOs and the local consultant dermatologist. A non-probabilistic purposive sampling strategy was used to target interviewees who were approached through direct email communication to establish consent and arrange a mutually convenient interview time.

2.3 Data collection methods

The lead evaluator conducted 14 semi-structured qualitative interviews between November 2022 and October 2023, either in person or via Microsoft Teams. Questions followed an interview guide that included both baseline questions around previous experience in the NT, motivations for participating in the project and questions on their experiences during rotations. These questions were informed by the literature on rotational supervisory models and intended to assess acceptability, sustainability, and scalability of the model.

An online survey was also administered to participants in the project to enable anonymised feedback and triangulate interview data. The survey was emailed to 12 participants and had a 100% response rate. The ten survey questions focused on rating experiences with the rotational supervisory model and identifying advantages and disadvantages of the program, and opportunities for improvement.

2.4 Data analysis

With consent, notes were taken during interviews and were audio-recorded when possible, before being transcribed using OtterAI transcription software. The transcripts were checked for accuracy, edited, and then coded manually by two researchers using inductive thematic analysis. Rather than testing pre-defined hypotheses, an inductive approach allowed themes to emerge from the data (5). Emerging themes were identified by each researcher independently after collating categories from grouped codes and key quotes. Themes were then validated by both researchers sharing and comparing their coding and reaching mutual agreement around the key findings. Triangulation occurred alongside validation where anonymous results from the survey were used to triangulate interview responses to ensure consistency.

2.5 Ethics

This study "Implementation and evaluation of a supervisory rotational system for specialist dermatology training in the Top End Northern Territory" was granted full ethical approval on 26 September 2022 (HREC 2022-4430). The ethics for the project was deemed low-risk as the participants would be limited to clinicians involved in the supervisory rotational project.

3. Results

Based on the analysis of qualitative interviews and survey results, five key findings emerged from this evaluation:

i) The supervisory rotational model project was acceptable across multiple domains, including: a) enhancing training for registrars; b) enabling upskilling and capacity building for the local dermatology service; c) supervising consultant satisfaction; d) reducing waitlists; and e) providing outreach to underserviced remote Aboriginal communities.

ii) Administrative processes – including access, credentialling and patient follow up – has an impact on the acceptability and efficiency of the model.

iii) 'Altruism can only take you so far' – visiting consultants were motivated to support the NT dermatology service, the local consultant, and underserviced remote First Nations communities; but logistical and financial challenges may limit the sustainability of the model in the longer term.

iv) The 'invisible cohort' of patients and associated impacts on workload need to be recognised and reflected within models of care for rural and remote dermatology.

v) Fostering relationships and connections between people and places is central for the sustainability and scalability of the model, and for rural and remote dermatology across Australia.

3.1 Acceptability of the supervisory rotational model across different domains

3.1.1 Dermatology Trainees

The rotational project has achieved its intended outcome to expand supervisory support to ensure quality and sustainability of the dermatology training position at RDH. The project has facilitated significant additional clinical training opportunities for dermatology trainees rotating to Darwin, including:

- Exposure to different supervision and teaching styles,
- Engagement with different consultants from across Australia,
- Greater experience and specialist teaching on different sub-specialty fields (including surgical, hair and nail, gynaecological and paediatric dermatology),
- Opportunities to provide care for First Nations patients in remote Aboriginal communities,
- Direct experience with practicing infectious and tropical dermatology, and
- New ideas from different healthcare services.

The dermatology trainees that participated in the project noted that consultants often "*stick to their way of doing things*" [Int-2] which is consistent with a visiting consultant perspective that "*we've all got different experiences based on our own strengths, based on our particular practices and our particular areas we practice in*." [Int-7] One dermatology trainee remarked:

> "*It's getting a bit of a broader understanding of how other people practice. Having people come into the wards and seeing consults face to face and getting that bedside teaching as well*." [Int-4]

Furthermore, in the absence of a consultant dermatologist in the NT with sub-specialty expertise, the rotational model has provided dermatology trainees with additional teaching opportunities across different sub-specialty areas. A dermatology trainee noted the limitations of the existing service:

> "*Having only one dermatologist in Darwin, we take a more medical dermatology approach. We see a lot of the medical side of dermatology and being able to assess and manage those sort of complex conditions, it's not having as much of a surgical side of things*." [Int-4]

Another benefit of having visiting consultants was the additional time and unique opportunities for training dermatology trainees to complete mandatory workplace-based assessments. To make the most of the additional educational opportunities provided by visiting consultants, one interview participant suggested:

> "*Encouraging, in advance, sharing information between the trainee about the visiting consultant's area of expertise, so that the trainee might be able to do some pre-reading around certain topics or prepare some practice exam questions based on that they could then discuss*." [Int-10]

However, the additional workload created from increased clinical and non-clinical tasks during the project was consistently reported by junior staff and is an important consideration, despite the clear benefits reported overall. One of the dermatology trainees remarked:

> *"Those are always super busy weeks, from just being there in clinic, but then there's the catch up afterwards… it was sometimes spending the next few weeks catching up on stuff."* [Int-2]

3.1.2 Upskilling and capacity building for dermatology service

The project provided opportunities to build dermatology workforce capacity and capability in the NT through allowing the local Darwin-based dermatologist to undertake a sabbatical, reportedly "*only possible because of this [FATES] program."* [Int-5] as their supervision requirements and clinical workload was covered by the visiting consultants. During their sabbatical, the local dermatologist spent twelve weeks working in different dermatology units in the United Kingdom, upskilling in nail and surgical dermatology. The benefit is clearly described:

> "*Because of this [sabbatical], I'll be able to do more surgery, which is one of the things that the registrar is lacking because I'm not doing it. So, it allows me to kind of upskill in that sense*." [Int-5]

This is a clear example of how the supervisory rotational model has facilitated opportunities to build the capacity of the overall dermatology service through enhanced teaching opportunities for training dermatology trainees and inevitable flow-on impacts for service delivery in the NT. Additionally, one visiting consultant reflected on another benefit of the sabbatical:

> "*As a sole practitioner in a remote location, it's critical that* [the Darwin-based consultant's] *capacity to supervise and train registrars is preserved*." [Int-10]

Furthermore, this project created capacity for visiting consultants to provide additional teaching lectures through Charles Darwin University and Flinders Medical School. This has had a positive impact on the number of local medical students who are interested in gaining practical exposure to dermatology as a career pathway, which may create a pipeline of future dermatologists 'for the region from the region'. Undertaking the FATES evaluation in partnership with the Menzies School of Health Research has allowed for a local junior doctor with an interest in pursuing dermatology as a career to be involved with conducting the program evaluation as a component of their PhD research program.

One local staff member suggested that the upskilling and capacity building could have been extended further, to make the most of the visiting consultants through the duration of the FATES program, and emphasised the importance of establishing regular and protected educational opportunities within the department:

> "*What I would like to see is them* [visiting consultants] *provide more education. So, they do the education clinically, but it gives an opportunity to have half a day where they do nothing but providing education to the registrars, RMO and Nurse Practitioner, there is no price that I could put on that*." [Int-13]

3.1.3 Supervising consultant satisfaction

Overall, there was a high level of satisfaction among visiting consultants who participated in the rotational project. The results of the survey indicated that 70% of the consultants were 'very satisfied' with their overall experience of the project, and 90% of the consultants indicated that they would take part in a rotational supervision model again.

In the interviews, visiting consultants positively remarked:

> "*This is going to be a much more interesting week of dermatology than I'm normally exposed to."* [Int-1]

> "*I'm just thrilled to be here, and I'm just so grateful for the opportunity*." [Int-8]

Visiting consultants also highlighted the benefit of practising different kinds of dermatology outside their usual roles and scope of practice working in a different clinical context; one remarked:

> *"I realised that probably I'm the one that's going to gain the most out of it."* [Int-8]

Specifically, this project facilitated a unique opportunity for visiting consultants to engage with different patient cohorts, particularly with Aboriginal and Torres Strait Islander patients from remote communities and develop experience with tropical dermatology and Indigenous health. One visiting consultant remarked:

> *"I have to really brush up on all my tropical infections and so that's beneficial for me too, as a learning process and firming up my skills."* [Int-7]

This included the opportunity to learn about tropical diseases such as melioidosis, scabies, strongyloidiasis, lupus, fungal and bacterial skin infections, acute rheumatic fever and post-streptococcal glomerulonephritis firsthand; dermatoses and sequalae that are commonplace in the NT but rarely seen in urban centres in Australia (6).

Many of the visiting consultants also mentioned that they had enjoyed the opportunity to teach the dermatology trainees with a lot of one-on-one time, as well as with the RMO and Nurse Practitioner, which was more hands-on than their usual clinical practice. Overall, the strong satisfaction was apparent from the visiting consultants involved with the rotational supervisory program:

> "*This is a fantastic project*." [Int-2]

3.1.4 Reducing waitlists

One local member of staff commented on the limitations and challenges of the dermatology workforce and service provision prior to the commencement of the FATES project:

> "[the dermatology service was] *not really meeting our target in terms of the waitlist in the public hospital*." [Int-5]

During the project's duration, 18 visits were completed. As a direct result, outpatient dermatology waitlists were reduced to meet departmental targets across Category 1, 2 and 3. There is a clear downtrend in waitlists across all categories from the start of the supervisory rotational model in September 2022 (see Figures 1 and Figure 2 using data supplied from RDH), suggesting that the increase in workforce capacity has created opportunities for RDH to utilise the time of clinical staff and facilities more efficiently. Indications suggest that the Dermatology Department at RDH were on-track to meet outpatient key-performance indicators for waitlist times by the end of 2023. Another local staff member remarked:

> "*That is a precipitous drop in the waitlist, it is pretty dramatic … It's given us a bit of breathing space to actually look at our processes and change them … It's not just this number, seeing this graph come down to zero, there's real world implications for patients in life or death."* [Int-12]

Even prior to the conclusion of the pilot project, there was demonstrated progress towards the intended program outcomes of improving service delivery in regional centres and increasing capacity to meet the needs of patients in the NT. One participant noted the impact on patients:

> "*Some patients have already commented… I didn't expect to get in this quickly [for a clinical consult]*." [Int-4]

While reducing waitlists is important, interview participants did raise issues around lack of continuity of care for patients who are unable to see the same consultant dermatologist for follow up and ongoing treatment management and care under a rotational model. The possibility of being unable to maintain waitlist targets in the future without the support of visiting consultants was also reported. One visiting consultant remarked:

> *"You can't just have it* [specialist visits] *as a one-off, because you're adding thirty people to this pool of patients. So, there has got to be something to kind of sustain that*." [Int-2]

This highlights the positive impact that a rotational model can have on waitlists and service provision, but also the need for sustainable models of care.

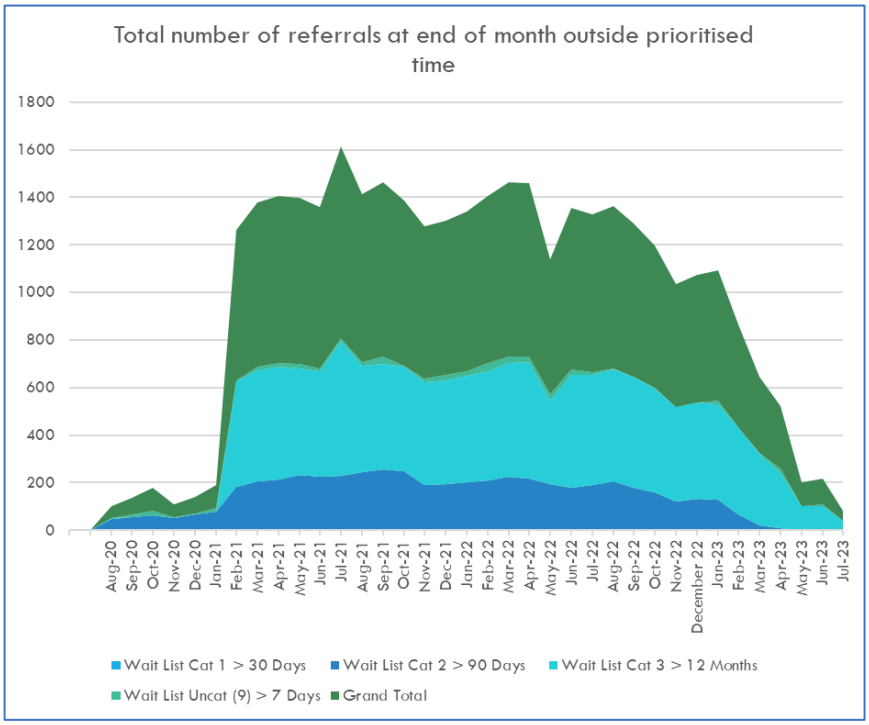

Figure 1: Total number of referrals on the waitlist at end of the month: outside prioritised time

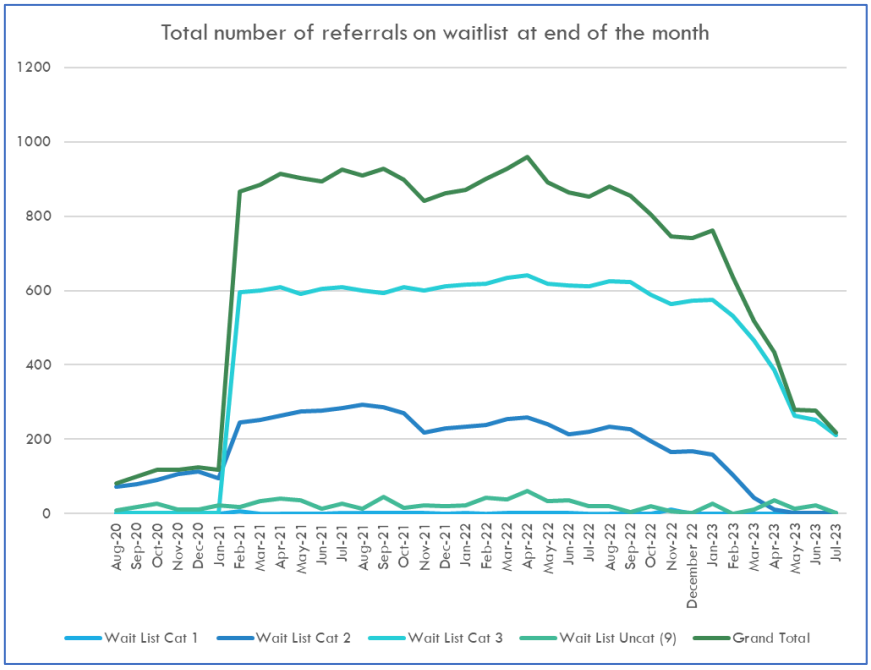

Figure 2: Total number of referrals on the waitlist at end of the month

3.1.5 Providing outreach

Maningrida and Wadeye are two Aboriginal communities that received a visiting dermatology service for the first time as part of expanding outreach service, which occurred due to additional consultant capacity under the supervisory rotational model coupled with a commitment from NT Health utilising SONT funding. Importantly, the College-led FATES project has facilitated greater service provision, bringing together alternate funding opportunities, for First Nations people as well as providing unique learning

opportunities for visiting consultants and the dermatology trainee. This was reported to be an overwhelming positive experience:

> *"[it] was good to provide a service to an area that doesn't normally get a dermatology service."* [Int-2]

The importance of facilitating local healthcare provision and specialist care in-community through remote outreach dermatology services cannot be understated. Anecdotally, the outreach communities were receptive to dermatology services. The communities were able to see the benefits of dermatology services and the visiting dermatology team building rapport with the community and local healthcare professionals, which has led to the normalization of management of many dermatological conditions amongst these communities, as well as the delivery of virtual public services post project.

Expansion of visiting outreach services may lead to an improvement in skin health outcomes and facilitate the provision of culturally safe healthcare, as well as reduce costs from unnecessary patient travel and resourcing long-term.

Furthermore, having a positive and enriching experience when undertaking a visiting outreach trip may encourage future service provision from dermatology trainees post Fellowship, as one noted:

> "*I've actually really enjoyed the outreach programs because it's shown me that potentially when I'm a consultant, what I might be able to do, and how I can actually organise these trips to go to communities and other rural and remote areas that otherwise don't get that access."* [Int-4]

However, there were some important limitations of expanding the visiting outreach service in the NT. Many surgical procedures can only be performed at RDH and medication availability could not always be guaranteed. In future, it may be necessary to work with local pharmacists to ensure that common topical and oral agents are available on the clinic formulary. Again, concerns around sustainability of expanding the visiting outreach service arose from not wanting to raise community expectations if service provision was not able to continue if staffing levels reduced after the conclusion of the FATES-funded project. Visiting consultants understood the importance of consistence of care and sustainability for First Nations people:

> "*Anyone who's done any Aboriginal health work knows that you have to earn your credibility, and it takes quite a long time of consistency to do that. So, there's a massive unmet need, especially in remote Aboriginal but also in non-Indigenous groups, who miss out on care."* [Int-6]

In terms of areas for improvement, one dermatology trainee flagged a missed opportunity in using visiting outreach visits to promote rural workforce recruitment:

> "*One of my philosophies on rural workforce recruitment is that people need to have positive experiences with the rural location itself… with our trip to Gove and Nhulunbuy, a place which is described as being a very unique and beautiful part of the world, because it was a day trip we literally just went from the airport to the hospital and back to the airport again. So, I didn't actually get to see any of Gove, or any of Nhulunbuy, which made it a very sterile experience. It was really just the same sort of clinical work in a different location*." [Int-10]

Providing opportunities for dermatologists and trainees to spend additional time and have culturally enriching experiences in remote Aboriginal communities is another consideration for strengthening rotational models.

In addition to increasing healthcare access for First Nations peoples, other less obvious benefits of expanding the visiting outreach service include reducing the 'invisible cohort' as patients are managed in-person, increasing the scope of practice of the Dermatology Department and reducing the burden of skin health provision on local primary health practitioners and other medical specialties. One visiting consultant reflected on their clinical practice:

> *"There will be other similar skin conditions that are being treated safely from infectious diseases clinics, which we don't even come across, but we would have been able to manage better if we had a presence there [in the remote Aboriginal community]."* [Int-5]

If done in a sustainable manner, considerable benefits for patients, service demand and health outcomes, could be realised through expanding outreach services.

3.2 Impacts of administrative processes on acceptability and efficiency

The project has highlighted the impact of administrative challenges and barriers on the acceptability and efficiency of a supervisory rotational model. Particularly at the beginning of the FATES project, there were notable issues with consultants gaining access to the NT Department of Health systems, which took significant time and repeated follow up in some instances. Visiting consultants voiced the importance of being prepared for clinics so they could "*hit the ground running*" [Int-2] and this was a problem "*especially for dermatologists who are only coming up once or twice, to have to learn that whole system and practice software*." [Int-5]

The process of ensuring appropriate credentialling for RDH was an additional challenge that required completion of hand hygiene certification, fire safety modules and vaccination paperwork – visiting consultants described these requirements as time consuming and frustrating, particularly as they needed to be renewed each year. Irrespective of whether consultants had a Working With Children Check (WWCC) from another state, all NT Health specialists are required to have a valid Ochre Card and this required additional time to complete an application for. It was suggested that security forms and ID access cards should be organised ahead of time, so they are ready to collect when the visiting consultant arrives in Darwin.

These findings were substantiated by survey responses that invited feedback on areas for improvement, which highlighted the need to better facilitate the induction process at RDH and less red tape in the hospital. From the survey, 50% of consultants were 'very satisfied' and 40% were 'satisfied' with the local administration of the project. The local dermatology staff also mentioned the additional workload of helping visiting consultants get set up and orientated to computers, processes, and systems, which was often left to junior staff. One dermatology trainee remarked:

> *"I suppose all that extra work… sometimes it's a bit extra work, but it's not the end of the world."* [Int-4]

Throughout the project, administrative processes did become more streamlined and the benefit of supervising consultants returning to RDH for repeat visits was apparent. One returning visiting consultant stated:

> "*When I signed up for it there was a little bit of unknown in terms of how it would run, would things be well organised … but now that I have done it before I am relying a lot less on the juniors … I think coming back for a second round, I feel a lot more comfortable with the IT the second time*." [Int-9]

This experience was supported by another visiting consultant during a later rotation:

> "*Computer systems were all set up, hospital ID, security, all of that stuff was excellent*." [Int-9]

In addition to gaining IT access, another significant administrative challenge for visiting consultants during the project was the ability to effectively complete specialist letters and follow up on patient results. Delays in transcription of dictated letters and difficulties with remotely accessing patient records meant that this follow up was often left to the dermatology trainee and RMO with a resulting increase in their workload. One visiting consultant reflected on feeling that they were "*leaving a mess behind for someone else*." Facilitating remote access to the NTG system for visiting consultants would address this issue in the future. Embedding dedicated administrative support into the Division of Medicine for the dermatology team to facilitate access, administration and improved patient attendance would also help to improve the acceptability and efficiency of a rotational model.

3.3 Recognition of the 'invisible' cohort of patients and impacts on workload

An interesting theme that emerged from this evaluation relates to the 'invisible cohort' of patients across the NT and the clinical workload implications for local service and visiting consultants. The Darwin-based consultant described an 'invisible cohort' of patients that they never see in person and have no visibility over, but are responsible for managing their care remotely:

> "*It's a really bizarre thing, because I don't know how many patients I would see* [treat] *and I never meet, and we never talk, but I'm responsible for treating remotely. It's a very unsettling kind of feeling. I think it's acceptable and you can rationalise that away, but I'd probably be responsible for just as many patients who we don't see in person as that we do. This wouldn't be the case if we had adequate staging and dermatology services in the Territory. I don't think any other clinic operates that way, but we do it out of necessity*." [Int-5]

The Dermatology Department at RDH provides email and phone advice to clinicians working at Palmerton Regional Hospital, Alice Springs Hospital, Katherine District Hospital, Gove District Hospital, and Tennant Creek Hospital as well as primary healthcare practitioners working for Aboriginal Medical Services in 35 different remote Aboriginal communities across the NT. After a referring practitioner (such as a general practitioner or Remote Area Nurse) contacts the department with a referral through either a phone call or email, the dermatology RMO or trainee dermatologist will usually request further patient information and clinical images before triaging the patient and seeking advice from a consultant dermatologist to confirm the plan, and then communicating this to the referring practitioner.

Workforce estimates suggest that many patients in the 'invisible cohort' are managed by the Dermatology Department but are never formally reviewed by a treating doctor with an in-person clinic, telehealth, or phone consultation that is itemised and reimbursed through Medicare. This is unfortunately not necessarily unique to dermatology, but may be exacerbated by an overall lack of outreach services to remote Aboriginal communities across the NT (7). Furthermore, the lack of a better alternative options is recognised, despite acknowledgement from local and visiting consultants that this is not an 'ideal' model of care and is distinctly different from expectations of regular clinical practice interstate. One visiting consultant remarked:

> *"In inner city practice, you become really risk averse, and you tend to practice in a very tight way, but up here that actually might not really benefit certain populations and you're going to end up denying people treatment or interventions or advice. Because you can't do everything absolutely rigidly according to total gold standard practice [in the Northern Territory]."* [Int-8]

Despite the limitations, the importance of continuing to provide this service was recognised. Another visiting consultant remarked on the specific risk of not continuing to provide healthcare in this way:

> *"And if I wasn't accessible, that part of the population's health care would disappear."* [Int-6]

It has even been suggested that the unpaid workload expectations that attract an additional risk for providing a routine clinical service has a negative impact on workforce recruitment for RDH:

> *"That's also the reason why we haven't had the recruitment [of dermatologists in the Northern Territory] because people know that this is the system."* [Int-5]

Recognising and capturing the 'invisible cohort' of patients alongside the associated workload and clinical risk is an important part of evaluating current models of care and informing future service delivery. The inherent relationship between increasing visiting outreach services leading to establishment of an in-person dermatology service is an important consideration, as this directly reduces the existence of an 'invisible cohort' and quantifies the 'invisible burden' of skin disease affecting people in the NT:

> *"…there's no measure of that. Especially when the patients are invisible, and the health problems are invisible."* [Int-6]

3.4 Altruism and sustainability of the supervisory rotational model

The interviews highlighted altruism as a strong motivator for participating in the supervisory rotational model, but there are some limits to relying on altruism in the long term. The ACD received expressions of interest in the FATES program from Fellows across Australia, and although many consultant dermatologists had never visited the NT before, they were aware of the challenges relating to the work environment and clinical workload. Many Fellows who showed interest in the program wanted to provide support to a colleague working in a remote service, which is reflected in the comments around motivation:

- "*I'm not coming up here for financial reasons. I'm coming up here to get that exposure to Top End medicine, Top End dermatology, do some outreach, have a different group of patients, different dermatological diseases … Just to feel like you're making a bit more of a difference … feeling like you're actually doing good and contributing to the world*." [Int-1]
- "*The ability to contribute from an altruistic perspective to disadvantaged groups who are under serviced… and who it's difficult to service that similar group of patients where they are at … I think that a discreet way of contributing to underserved populations is a way to fulfil that kind of desire to do something that is altruistic."* [Int-5]
- "*I wanted to come back [to the NT] and provide a dermatology service, because it's an area of need, and particularly for the Aboriginal community … I could offer some quality dermatology care that's still able to do that within my time commitments and running a private practice … I thought that it would be more important for me to do public work whilst I was here*." [Int-7]
- "*I've always wanted to work somewhere much more rural or an area of greater need, and I wanted to come up here for a long time, but it's just hard to organise*." [Int-8]
- "[My rotation is] *just in public [at RDH], if I'm coming up here, I want to do as much as good as possible*." [Int-9]
- "*There's probably a bit of a selection bias, the people who were interested in coming up here probably a little bit more altruistic*." [Int-12]

These comments were consistent with responses from the open-ended survey questions:

- The most common motivation (70% of responses) was an interest in Indigenous health, tropical dermatology and opportunity for a 'change of scenery'
- The second most common motivation (60% of responses) was a desire to 'give back' and provide support to an under-resourced service
- The third most common motivation (50% of responses) was a desire to support dermatology training in rural settings
- The fourth most common motivation (40% of responses) was a desire to support the local dermatologist and team at RDH

Despite these strong motivations, there was a sense that 'altruism can only take you so far' and that it is difficult to sustain a dermatology service based on altruism alone. Many of the visiting consultants mentioned the costs involved in participating in the project and the benefit of having the flexibility to undertake public and/or private work according to their preference. Across the rotations, 70% of consultants worked across public and private (all with a 50:50 split) and 30% worked in the public sector only. The Darwin-based consultant remarked upon the importance of visiting consultants being able to undertake private work:

> "*It's not as much of a financial inconvenience if they can work privately."* [Int-12]

Also pertaining to financial barriers, a number of visiting consultants mentioned the difficulty and cost associated with booking flights, hire cars, and accommodation in Darwin, particularly in the popular dry season when there is limited availability. These challenges could limit the uptake of the rotational model and long-term sustainability. Ensuring that the funding and budget is commensurate with accommodation and travel costs to enable clinicians to justify taking time away from their own practices is essential. Providing information to visiting consultants, especially those who are not familiar with Darwin, about travel and accommodation options could make the process smoother. Engaging an administrative officer to provide support for travel bookings would also make the rotational model more appealing.

3.5 Relationships and scalability of the supervisory rotational model

The evaluation revealed that ACD Fellows interested in being involved with the supervisory rotational model often had a prior connection to the NT that had informed their motivations, including previously undertaking training in the region. One visiting consultant recounted:

> "*I did a placement at Gove District Hospital* [which was] *amazing, that gave me the first taste of the NT and been trying to come back here whenever possible since then."* [Int-1]

This speaks to the importance of fostering relationships between clinicians, remote health services, and communities. Participants explained that sense of connection with the NT is important, which may be through family or prior experience, and is the best option to promote a permanent increase in long-term staffing within the Dermatology Department. This is an important consideration for ensuring there are opportunities for training dermatology trainees to undertake rotations in regional and rural areas. It is crucial to continue to facilitate rural and remote exposure for dermatology trainees and consultants working in urban settings and to promote consideration of applicants from rural and regional areas for the dermatology trainee program. One visiting consultant stated:

> "*I guess it shows the importance of connections and being able to help people maintain connections so that they don't get wooed by the bright lights, the family, and other advantages of living somewhere else."* [Int-6]

Whilst not leading to a permanent increase in the local workforce, fostering relationship developed through the FATES project and supporting committed consultants to return to the NT is a way to address

immediate workforce needs and maintain support from visiting consultants required to continue the supervisory rotational model. The intent is "*that even beyond the end of this program, because of the relationships built, we may be able to secure some kind of ongoing funding, or we might be able to secure the interests of the dermatologists who have been doing it to want to continue*." [Int-5]

Furthermore, current dermatology trainees involved with the FATES project have also showed an interest in being involved with the program in the future, expressing hope that "*something like this will be available for me to do when I graduate and then I can keep on doing this* [rotations] *as well."* [Int-4]

Ultimately, increasing long-term workforce provision through permanent relocation of a consultant dermatologist to the NT will be built upon establishing meaningful relationships and connections between dermatology consultants and the local community. Unfortunately, the short and cyclical nature of the current rotational model leaves little opportunity for this to occur and requires further consideration.

4. Discussion

The process and summative evaluation of the FATES project has explored the acceptability, sustainability, and scalability of supervisory rotational models for rural and remote dermatology. Testing the rotational supervisory model at RDH has allowed for an impressive increase in local service delivery with dramatically reduced waitlist times and increased access, and an increased capacity to meet healthcare needs for patients in the NT, specifically through expanding outreach visits for First Nations people in remote Aboriginal communities. The FATES program was successful in expanding the supervisory support to deliver quality dermatology training locally in the NT. One local team member described the overall impact of the FATES project:

> "[this project] *has really shown that just having enough number of visitors coming in a calendar year does make a big difference across the board. If you're talking registrar supervision, if you're talking wait lists, if you're talking about morale… just having adequately staffed visiting workforce does help significantly*." [Int-12]

However, this evaluation has highlighted the importance of a sustainable funding model and workforce in the NT, as well as the need to prioritise fostering relationships and connections between dermatologists and rural and remote communities.

Evaluation of the FATES program has identified enablers and barriers of a supervisory rotational model. Enablers included a willingness of ACD Fellows to support the rotational pilot program, the availability of funding from the Commonwealth Government through the FATES program, organisational support from the ACD for the program, leadership of key ACD Fellows to establish the program and willingness of the dermatology trainee and RMO to support visiting consultants through formal and informal means. However, there were a number of barriers that emerged from evaluation of the FATES project:

- **Uptake:** reliance on visiting consultants for the success of the program was apparent. The ACD is relatively small compared to many other medical specialty colleges in Australia. With 645 practicing ACD Fellows across Australia, there is a relatively small group of individuals that could support a rotational supervisory model long term. Reliance on altruism and individuals that have a pre-existing relationship with the local Darwin-based dermatologist may further limit the number of consultants with a sustained interest. Consultant dermatologists may be hesitant to be involved due to the perceived logistical challenge of organising travel and accommodation and the potential financial loss. Additional non-financial costs included the time required to make bookings, complete paperwork, follow up after paperwork submission, organise access to computer systems, and complete mandatory training requirements unique to NT Health.

- **Implementation:** many of the barriers to program implementation are similar to the challenges described above, including navigating a lengthy and complicated IT process and organisational logistics which caused significant frustration for many visiting consultants.
- **Maintenance:** a long term sustained version of this model would benefit from consistency of 2-3 consultants doing repeat visits to optimise the stability of the service, building of relationships and continuity of supervision and culturally safe care.
- **Cost:** the direct cost of funding the program is significant. However, the investment made in the project should be considered as seed funding that informs future investment and models that can sustain quality supervision and training to meet the care needs of the community.

Several risks for a supervisory rotational model have been identified from the FATES project. Increased service provision will lead to a greater number of people with skin disease managed by the Dermatology Department at RDH and may also lead to a perceived increase in incidence and prevalence of reported skin disease. Whilst increased service provision is positive, any increase must be sustainable both for the treating clinical team and for the community. This must be a primary consideration for any service extension plans through RDH and Palmerston Regional Hospital and for visiting outreach services to remote Aboriginal communities. The utilisation and uptake of what may initially be a 'slow' service in remote sites will naturally increase as community residents become aware of the service and trust is built from repeat visits, both from referring practitioners and from local community members. There is a real risk that a crisis situation could be created with variable, inconsistent, or reduced support from visiting consultants and lead to a snowball of additional work for the local dermatology department. The increase in workload created from visiting consultants was clearly apparent during the project but was perceived as manageable by junior staff and a reasonable trade-off given the other benefits of the program.

A consideration for ongoing funding is that the project has gone a long way to meeting the unmet skin health needs of the Top End communities. This highlights the need for the sustainability of any such project. Better outpatient management and early diagnosis and management preventing/reducing late diagnosis, hospitalisations and burden on NT Health PLUS homegrown workforce. At the same time, high quality service and training opportunity will attract workforce and supervisory models such as these are therefore a critical interim solution to meet the longer term goal of a homegrown workforce.

Finally, the role of the dermatology trainee, RMO, and Nurse Practitioner were central to the success of this project. A rotational supervisory model is dependent on having dermatology trainees to supervise. In the context of time spent at RDH, if we are to retain workforce, the quality of trainee supervision and experience is crucial.

The evaluation has highlighted the importance of focusing on a long-term view of sustaining the dermatology workforce and the need to foster relationships and connections between dermatologists, trainees, and rural and remote communities in order to achieve any permanency of workforce in the Top End. These efforts should be focused on sustaining increased consultant supervisory capacity to allow fostering of educational, research, and clinical opportunities in dermatology for local medical students, prospective trainees with a rural and regional background, and junior doctors that have demonstrated a commitment to working in the NT. Of course, this strategy could also be applied to other rural and regional locations across Australia in an area of workforce need. One participant stated:

> *"The best evidence for workforce recruitment at the moment is to recruit people from a rural background, where possible, to keep them on location as much as possible and provide trainees with very positive experience in rural locations."* [Int-10]

The current workforce provision for dermatology in the NT is significantly less than the national average per capita (1). Based upon population metrics, Darwin requires an additional two 1.0 FTE consultant dermatologists, without even accounting for the service delivery needs and healthcare provision for remote Aboriginal communities across the NT (3). However, until these consultant positions are funded, recruited, and established, maintaining a visiting consultant workforce is essential to ensure that the Dermatology Department is able to provide an effective healthcare service for the community. As a direct result of this project, advocacy efforts from the Project Lead, Dr Dev Tilakaratne and ACD have ensured the ongoing provision of service delivery to Darwin and Top End communities. An additional, 0.23 FTE visiting consultant (12x1 week visits per year) will be funded by NT Health ongoing. These visits will be conducted by two visiting consultants who participated in this project to ensure continuity of care and stability for both the dermatology trainee and Dermatology Department.

Following the increased consultant capacity and sustainability of the supervisory capacity in Darwin, College has been able to allocate a second STP-funded dermatology training position to RDH. This has in part occurred in response to an overwhelmingly positive recount of the quality of training, educational opportunities, and supervision experienced by local dermatology trainees. It is to be acknowledged that a local NT resident has been successful in their application of the training position and will commence in February 2024. This is a significant step towards building long-term workforce capacity and increasing dermatology service provision in the NT, and perhaps the first step towards building a homegrown dermatology workforce in NT.

This evaluation highlights an important gap in the evidence-base and an opportunity for future research to inform service delivery needs for dermatology in Northern Australia. The need for greater skin health services is clearly apparent; as many as 17% of all primary healthcare consultations are skin-related in primary healthcare settings across Australia (8), and may account for up to 22% of presentations in remote Aboriginal communities (9, 10). While a local GP Skin Cancer Clinic closed during the project, resulting in an increase in the number of referrals received by Darwin Dermatology (private practice) for new appointments for skin cancer checks, the capacity created as a result of this project allowed for the Darwin-based dermatologist to have the capacity outside the project funding to upskill and mentor other local GPs in skin cancer detection and diagnosis to alleviate the burden on dermatology services in the region. This highlights the importance of both increasing specialist dermatology services in rural and remote settings, and upskilling primary healthcare practitioners.

Supervisory rotational models have previously been implemented in different healthcare settings in Australia, including rural rotations for optometry students (12), medical students (13) and medical interns (14). One recent investigation reported the challenges and opportunities of implementing rural and regional STP-funded ophthalmology training positions supported by the Royal Australian and New Zealand College of Ophthalmologists. All interviewees reported benefits of rural training sites with similar themes identified during this evaluation: rural immersion, unique learning opportunities for trainees, learning about the operation of private clinics, altruistic practice and contributing to rural and remote service delivery (15). From a supervisory perspective, important enablers of ensuring effective supervision of ophthalmology trainees in rural and remote settings included; availability of appropriate equipment, availability of an online curriculum, supervision 'champions' as well as enough consultants to share the supervision workload, appropriate choice of trainees, strong relationships with the training college and other regional training sites, and appropriate funding support (16). These findings, along with the outcomes of this project indicate the transferability of supervisory rotational models across geographic locations and disciplines. It is crucial that these models are locally nuanced and funded by ongoing investment from state and/or territory health districts.

5. Conclusion

Whilst it is well known that the most effective long-term solution for addressing rural workforce shortages is to recruit and train locally, we need to consider effective short-term solutions. The FATES project undertaken in the NT is proof-of-concept that investment in innovative supervisory training models will increase healthcare delivery to communities in need with robust training opportunities and provide a pathway towards longer-term solutions to attracting, building, sustaining, and retaining workforce.

The project has facilitated ACD to allocate a further STP funding training position to RDH, with ongoing support from NT Health and expanded opportunities for high quality dermatology training in the NT. It has provided the proof of concept that short-term Commonwealth funding can facilitate collaborations between Federal, state and Colleges to develop innovative models that make progress towards long-term solutions aimed at building a rural homegrown and sustainable workforce.

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