A FEASIBILITY STUDY OF
TELEDERMATOLOGY FOR THE DELIVERY OF
SPECIALIST DERMATOLOGY TRAINING AND
SERVICES

2019-20 Pre-Budget Submission to the
Australian Government Treasury
# A FEASIBILITY STUDY OF TELEDERMATOLOGY FOR THE DELIVERY OF SPECIALIST DERMATOLOGY TRAINING AND SERVICES

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Introduction

The Australasian College of Dermatologists is seeking Federal Government funding for the establishment of a pilot program to support 5-6 dedicated Teledermatology registrar training positions at regional teaching hospitals around Australia.

The proposed pilot program aims to demonstrate the feasibility of Teledermatology as a mechanism for increasing specialist dermatology training and patient access to services in regional, rural and remote Australia.

This proposal aligns with the Commonwealth’s National Digital Health Strategy and addresses several key recommendations in the National Medical Training Advisory Network’s (NMTAN) Dermatology Action Plan.

The Australasian College of Dermatologists

The Australasian College of Dermatologists (ACD) is the sole medical college accredited by the Australian Medical Council for the training and continuing professional development of medical practitioners in the specialty of dermatology. Representing over 500 specialist dermatologist Fellows and 100 trainees, we are the leading authority for dermatology, providing information, advocacy and advice to individuals, communities, government and other health stakeholders on dermatological practice in Australia.

Teledermatology using Store and Forward technology

Teledermatology using Store and Forward technology is an innovative model for service delivery, whereby a patient’s digital images and clinical data are captured by their general practitioner (GP) or other medical specialist and securely forwarded to a specialist dermatologist for assessment, diagnosis and therapeutic recommendation.

This service provides an alternative pathway to the traditional face-to-face specialist consultation for patients deemed clinically suitable, including those with inflammatory skin conditions, skin infections and skin lesions.

Teledermatology using Store and Forward is a successful complementary mechanism for the training and education of specialist dermatologists. The specialty faces a projected workforce shortage and has marked geographic maldistribution. Regional training of registrars supported by Store and Forward technology will not only expand the specialist dermatology workforce, it will improve patient access to dermatology services outside of metropolitan centres.
Creating a sustainable dermatology workforce to meet service demands in regional, rural and remote Australia

Tackling the burden of skin disease

Dermatology is predominately a chronic disease specialty. More than 1.06 million people in Australia – over 4.5% of the population – suffer from a long term condition of the skin\(^1\) and skin disorders rank sixth of all disease groups for non-fatal disease burden.\(^2\) Melanoma and non-melanoma skin cancer rates continue to rise,\(^3\) as does the corresponding demand for surveillance, management and follow up. In 2017, the annual health system expenditure for melanoma alone was estimated at AU$272 million.\(^4\) Access to specialist dermatology services leads to improved patient outcomes\(^5\) and drives efficiencies within the health system.\(^6\)

A mechanism supporting healthcare closer to home will further benefit patients requiring long term specialist care for chronic disease management. The impact of rurality and Indigenous status on patient outcomes for skin disorders is evident in many clinical and health economic measures, including higher admitted patient expenditure\(^7\) and hospital admissions,\(^8\) and higher melanoma mortality rates in regional areas.\(^9\) Furthermore, preventable skin infections such as crusted scabies\(^9\) and impetigo, the latter of which has a prevalence of up to 44.5% in children living in remote Indigenous communities, are a significant public health burden and may have lifetime consequences if left untreated.\(^10\)

Store and Forward teledermatology is a prospective solution to improve access to timely dermatological care for regional, rural and remote communities and to address inequitable outcomes for these patients.

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Growing the specialist workforce to meet skin health demand

Addressing inequalities in health outcomes and access to services in regional, rural and remote Australia is a key Federal Government priority. Like a number of medical specialties, dermatology has a marked geographic maldistribution of services, both public and private, and is faced with a burgeoning workforce shortage.

The National Medical Training Advisory Network (NMTAN) – tasked with advising governments on the national coordination of medical training – recently commissioned modelling of the specialist dermatology workforce. The resulting report, the Department of Health’s Australia’s Future Health Workforce – Dermatology (May 2017), found that while the existing dermatology workforce is located throughout Australia, it is almost exclusively concentrated in metropolitan areas, with 92% in major cities (as demonstrated in the map below).

Figure 1: Dermatology workforce (clinicians) by MM, 2015

Source: NHWDS, Medical Practitioner 2015

Despite concerted efforts in face-to-face outreach to regional, rural and remote communities, considerable gaps in access remain. Store and Forward represents an innovative technological solution that complements existing outreach and Telehealth services and would safeguard access to best practice care for those patients with dermatological conditions in underserviced areas.

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12 DoH, Australia’s Future Health Workforce – Dermatology, op cit.
13 ibid, p.16.
NMTAN’s report examined the long term supply of dermatologists based on the existing training output. It reported a “substantial undersupply of dermatology specialists”, with a projected undersupply of about 90 FTE Dermatologists by 2030 out of a workforce of about 650.14 An expansion of the ACD dermatology training program of up to eight new registrar positions per year is needed to meet this long term service demand.

Store and Forward teledermatology is a novel mechanism to address dermatology workforce undersupply and maldistribution. The ACD’s proposal aligns with key ‘strategic actions’ identified in NMTAN’s Dermatology Action Plan: that ACD evaluates the current training program to consider alternative approaches to increase training capacity; and that ACD increase the number of trainees with a greater likelihood of living and working in a non-metropolitan location.

Prepared by a working group endorsed by NMTAN to implement the recommendations of the May 2017 report, the Action Plan focuses on key actions to be taken in the next two years, aimed at delivering the goal of a sufficient, balanced dermatology workforce by 2030.

The primary aim of this pilot is therefore to demonstrate that Store and Forward is a feasible mechanism to help address the geographical maldistribution and projected workforce shortage of specialist dermatologists in Australia via a novel regional recruitment and training pathway.

A technological solution to improve access to dermatology services

Harnessing innovative technology-based solutions to improve health service access aligns with the guiding principles of Australia’s National Digital Health Strategy.15 Digitally-enabled models of care that drive improved accessibility, quality, safety and efficiency is identified as a Strategic Priority in the Strategy, which also highlights the desire to widen access to telehealth services, especially in rural and remote Australia.

Dermatology is a visual specialty and is highly suited to the use of digital images for diagnostic and disease management purposes.16 Due to the chronic nature of

14 ibid, p.7.
many dermatological conditions, patient management often requires long term treatment approaches and follow up to ensure optimal outcomes and prevent disease recurrence.

For delivery of specialist care, patients in non-metropolitan areas must travel to urban centres or attend outreach clinics serviced by fly-in fly-out specialists. Both options are a cost burden and are impractical for ongoing care, driving the likelihood of treatment lapses and emergency department admissions. The visual characteristic of dermatology offers a unique opportunity to deliver technology-enabled specialist care for such patients with dermatological conditions residing in underserviced locations.

Teledermatology using Store and Forward technology is one such innovative technology-based model for service delivery. This model has been trialed longitudinally in Australia in several settings, demonstrating clinical effectiveness, safety, acceptability, reduced waiting times and out-of-pocket costs, and high patient-reported satisfaction.  

Teledermatology using Store and Forward technology is supported by international evidence and guidelines, and the ACD have recently commissioned the Centre for Online Health at the University of Queensland to develop Practice Guidelines for Teledermatology. The guidelines will consider clinical, technical and administrative issues and identify how to optimise patient care, optimise benefit and reduce risk for dermatologists practicing teledermatology.

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Case study: Princess Alexandra Hospital in Brisbane servicing regional Queensland

In common with Australians living in regional and rural areas, many of Queensland’s geographically dispersed populations are unable to access specialist dermatology services at their regional hospitals. Clinicians working in these areas therefore have limited ready-made access to specialist consultation and advice when needed.

To address this issue, the Princess Alexandra Hospital (PAH) in Brisbane runs a teledermatology service to its regional catchment area. First established as a pilot service in 2008, the Skin Emergency Tele medicine Service (SETS) incorporates both telehealth (i.e. videoconferencing) and Store and Forward technologies.

The project utilises existing telehealth equipment at regional Queensland hospitals using Store and Forward technology, with referring clinicians in the catchment area emailing captured images, and a completed proforma detailing the patient’s clinical history, to consultant dermatologists at PAH’s Department of Dermatology, who review and report on the cases.

The Dermatology Research Centre at The University of Queensland recently published a study of 318 referrals to SETS – patients with dermatology conditions – during the period 1 January-31 December 2014. 18 While 55% of referrals during this period came from the emergency departments at PAH and Queen Elizabeth II Jubilee Hospital, a significant proportion of external referrals came from emergency departments at small and rural hospitals, community centres and general practitioners in a range of small and large towns across Queensland. These included Innisfail (1616km from Brisbane), Townsville (1357km from Brisbane), Mackay (971km from Brisbane) and Quilpie (953km from Brisbane).

The study found that over half (62%) of the referrals were responded to within 3 hours and a further 20% received a response within 3-6 hours. Only 3% of patients waited over 24 hour for a final response. These results highlight not only prompt diagnosis and treatment, but also the reduced need for patients to travel long distances, avoiding both costs and disruptions to their employment and family life. The service may also reduce hospital admissions, driving further efficiencies within the health system.

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The study concluded that “The SETS has proved to be a successful, sustainable and valuable addition to the specialist dermatology services provided across Queensland. Although the service has not been actively marketed or promoted, referrals have steadily increased since the conception of the service, from 60 cases in 2008 to 167 in 2012 and 318 in 2014.”

“Teledermatology can rapidly reduce waiting times and the burden on patients and the health care system, particularly in rural and remote regions of Australia. Our research shows that diagnosis of skin conditions with teledermatology is accurate and reliable.”

Professor H Peter Soyer
ACD dermatologist and Director of the Dermatology Research Centre at The University of Queensland

Store and Forward technology as a teaching tool

As noted in the Australia’s Future Health Workforce – Dermatology report “Maintaining a high quality and clinically diverse program with exposure to general dermatology and its sub-specialties is essential. This could be achieved by greater use of telehealth and store/forward teledermatology services during training.”

Results from several recent studies from the United States support the use of Store and Forward as a teaching tool in medical education and specialist dermatology training. These studies provide preliminary evidence of its usefulness in teaching core clinical competencies and medical knowledge, as an opportunity for practice-based learning and as a novel tool to assess trainee performance.

19 ibid, p.16.
Given the benefits of Store and Forward technology, an important role for the ACD is to provide training and education in Teledermatology to its trainee registrars, to grow a specialist dermatology workforce within which the core skills to deliver care safely and effectively using this model are embedded.

It is essential that governments invest in strengthening the evidence base for new models of specialist care such as Store and Forward, which can be easily integrated into existing structures and can narrow the gap in health service access.
Looking towards a national roll-out of Teledermatology using Store and Forward technology

Current challenges to uptake of Teledermatology

Digital communications technology is already utilised by Australian dermatologists to assist their patients in rural and remote areas to access specialist health care services.

The Medicare Benefits Schedule (MBS) has since 2011 provided for access to specialist video consultations under the Telehealth program, whereby a range of existing MBS attendance items can be provided by specialists via video conferencing, with a derived fee adding to the base item fee. Complementary MBS items provide for patient-end services, to support a range of medical and nurse practitioners to provide face-to-face clinical services to patients during the consultation with the specialist.

Dermatology is a visual specialty and is highly suited to the use of digital images for diagnostic and disease management purposes. As such, Telehealth – i.e. consultations undertaken via videoconferencing and reimbursed through the MBS – would appear to offer a satisfactory solution to address inequitable access to specialist care for rural patients. However dermatologists at both public and private sites around Australia have reported to the ACD that videoconferencing alone is inadequate for effective dermatology consultations due to the low visual quality of live streaming. Accompanying high quality digital images, most commonly provided by the patient’s GP via Store and Forward are frequently required.

The technological requirements for Store and Forward are modest; image capture technology found in every day smartphones offer adequate resolution for many skin conditions, and access to a secure email server is sufficient for the transmission of clinical images and data. For high resolution imaging of certain lesions or more complex conditions, digital dermatoscopes can be used to provide greater visual acuity.

There is currently no reimbursement mechanism for the essential Store and Forward component of the videoconference consult, neither for the GP capturing the images nor for the dermatologist providing the analysis.

The ACD has attempted to address this deficiency by applying to have Teledermatology using Store and Forward technology listed on the MBS through two applications to the Medical Services Advisory Committee (MSAC) in November 2014 and April 2017.
MSAC has sought additional clinical evidence on safety, effectiveness, diagnostic concordance and diagnostic accuracy between Teledermatology using Store and Forward and its comparators (face-to-face consult and videoconference). MSAC has also requested further effectiveness and utilisation data on the existing Telehealth services in dermatology.

**The Australian College of Rural and Remote Medicine (ACRRM)’s TeleDerm**

The Australian College of Rural and Remote Medicine (ACRRM)’s TeleDerm program uses Store and Forward to provide learning opportunities, continuing professional development and remote skin treatment advice from two consultant dermatologists to ACRRM’s rural GP members. With a library of over 1,000 education cases, TeleDerm is a recognised example of Store and Forward technology as a valuable teaching and learning tool for primary healthcare professionals. This program is distinct from the SETS service run at the Princess Alexandra Hospital in Brisbane.

ACD’s proposed pilot will be an excellent complement to the TeleDerm program, whose focus is to improve skills and knowledge in dermatology at the level of primary care. ACD’s pilot will help to grow the specialist dermatology workforce in regional Australia, strengthening ties with local rural GP networks and improving patient access to specialist dermatology care.

Renewal of funding for TeleDerm in early 2017 has allowed this program to continue to early 2020. The program is block funded via the Commonwealth’s Rural Health Outreach Fund on a three-year cycle. However the long-term sustainability of the program is uncertain as it may be subject to changing funding priorities.

**Embedding Store and Forward into the Medicare Benefits Schedule**

It is the ACD’s strong view that establishing a secure mechanism for provision of a national Teledermatology service using Store and Forward technology, through the establishment of an MBS item, is essential in providing incentives for uptake and will help to address the critical service maldistribution in regional and rural Australia.
The secondary aim of this pilot program is therefore to add to the existing body of evidence – both clinical and economic – being sought by MSAC, while also supporting the long term benefits of embedding Teledermatology within the public health system.

The ACD’s proposal aligns with an additional key ‘strategic action’ identified in NMTAN’s Dermatology Action Plan, that ACD investigate feasibility of listing MBS item numbers to support teledermatology in order to improve service delivery in regional, rural and remote areas.

The ACD proposal also works towards addressing Recommendation 7 in the House of Representatives Standing Committee on Health’s March 2015 report, Skin Cancer in Australia: Our National Cancer, which stated: The Committee recommends that store and forward teledermatology as used by registered medical providers be included on the Medicare Benefits Schedule.23

The ACD agrees with the sentiment expressed in the National Digital Health Strategy that “It is vital that digital technologies are rigorously tested and their benefits proven in real-world environments (i.e. “test beds”), prior to being scaled up to the whole of the Australian health system”24 and suggests that this pilot program provides an ideal opportunity to establish and assess the benefits of Teledermatology using Store and Forward technology.

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Australasian College of Dermatologists Proposed Pilot Program

The ACD strongly supports the need for a feasibility study of Teledermatology using Store and Forward technology for the remote delivery of specialist dermatology services to regional, rural and remote areas of Australia, and to collect the additional clinical evidence sought by MSAC. However, as a small specialist college, it is not within the College’s capacity to support this pilot program and we are therefore seeking Federal Government funding support for this project.

Pilot objectives

This pilot program will aim to demonstrate that Teledermatology is:

- A sustainable, safe and clinically effective model of care for patients with limited access to specialist dermatologist consultation;
- A successful complementary method for registrar training in regional centres, increasing opportunities for exposure to diverse and complex clinical cases and enriching the training experience; and
- A mechanism to help address the geographical maldistribution and projected workforce shortage of specialist dermatologists in Australia via a novel regional recruitment and training pathway.

Pilot methodology

This pilot will be implemented using the following proposed methodology:

1. Teaching hospitals with an established and formalised rural catchment area and sufficient supervisory capacity will be identified and approached to submit an Expression of Interest. Once selected, providers (rural GPs and hospitals) in the catchment area will be identified.

   - The selected training post will undergo standard College accreditation processes prior to introduction into the College’s Dermatology Training Program.
   - A targeted communication strategy will be put in place to notify providers of the Teledermatology service, including information on patient eligibility and data requirements, via the Primary Health Network (PHN) and Local Health or Hospital District / Area Health Service.
   - Template documentation will be developed by ACD to ensure that a minimum dataset for clinical information and administrative requirements is collected.
2. A dedicated Teledermatology registrar will be appointed to the position under the supervision of a consultant dermatologist.
   - As this would be a new trainee position, it would not add to (or distract from) the duties of current trainees employed at the hospital.

3. In addition to face-to-face outpatient consultations, the registrar will evaluate Store and Forward Teledermatology cases referred by identified providers in the catchment area.
   - The registrar will utilise existing telehealth equipment at regional hospitals.
   - Opportunities for the registrar to attend outreach clinics within the catchment will be sought wherever possible, to strengthen ties with local communities and referring providers.

4. Cases would be submitted by the identified provider for the registrar to review using a template history and accompanying images. Real-time interrogation of the history will be possible, if required, including seeking additional information from the provider or requests for higher quality or supplementary images, submitted via secure email/web portal.

5. The registrar will prepare a diagnosis and treatment/management plan for review by the consultant dermatologist. Once approved by the consultant the registrar will send the plan to the provider for delivery of care. Patient management is undertaken by, and is the responsibility of, the referring practitioner.

6. Liability and confidentiality
   - Liability would be covered by the consultant’s public hospital indemnity. Scope of practice would be defined within clauses of employment contracts.
   - The consultation would have a medical record kept at the hospital, in addition to local record at the requesting provider location. Clerical support will be required at the hospital to provide this additional administrative task.
   - Emails would be sent by secure server in use within the area / service.
   - Patients will be required to expressly consent to their clinical data being sent electronically.
Pilot budget

ACD seeks funding of $3.45 – 4.05 million over four years for this pilot program.

This funding will be utilised to support 5-6 dedicated Teledermatology registrar training positions, located at regional teaching hospitals in major states (QLD, NSW, VIC, SA, WA), over a four year period – together with an independent evaluation.

This funding comprises:

- $150,000 per annum over four years for each registrar position ($600,000 in total per position) that will cover the registrar salary, on-costs and rural loading for completion of the 4 year ACD dermatology training program. This amount is in line with standard funding allocations according to award (i.e. the Commonwealth’s Integrated Rural Training Pipeline [IRTP] specialist training award).
- $100,000 per annum over 4 years for a dedicated project manager ($400,000)
- $50,000 for independent evaluation at the conclusion of the project.

Pilot evaluation

The ACD proposes an independent evaluation of the project, considering the following broad outcomes:

- Effectiveness as a novel complementary mechanism for registrar training
- Impact on regional dermatology services i.e. utilisation rates, waiting times
- Satisfaction and acceptability i.e. patient, GP, hospital, trainee
- Economic outcomes: impacts on health service costs and patient costs

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25 The ACD training program of four years of defined clinical and educational experience in training positions accredited by the College and a series of assessments, culminating in the Fellowship Examinations.