# You can add tech, but you can’t replace people. Unexpected learnings from a Churchill Fellowship

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*Churchill Fellow 2025*

FELLOW'S PROFILE

# REBECCA PAYNE

## Technology enhanced healthcare for remote communities

FELLOWSHIP

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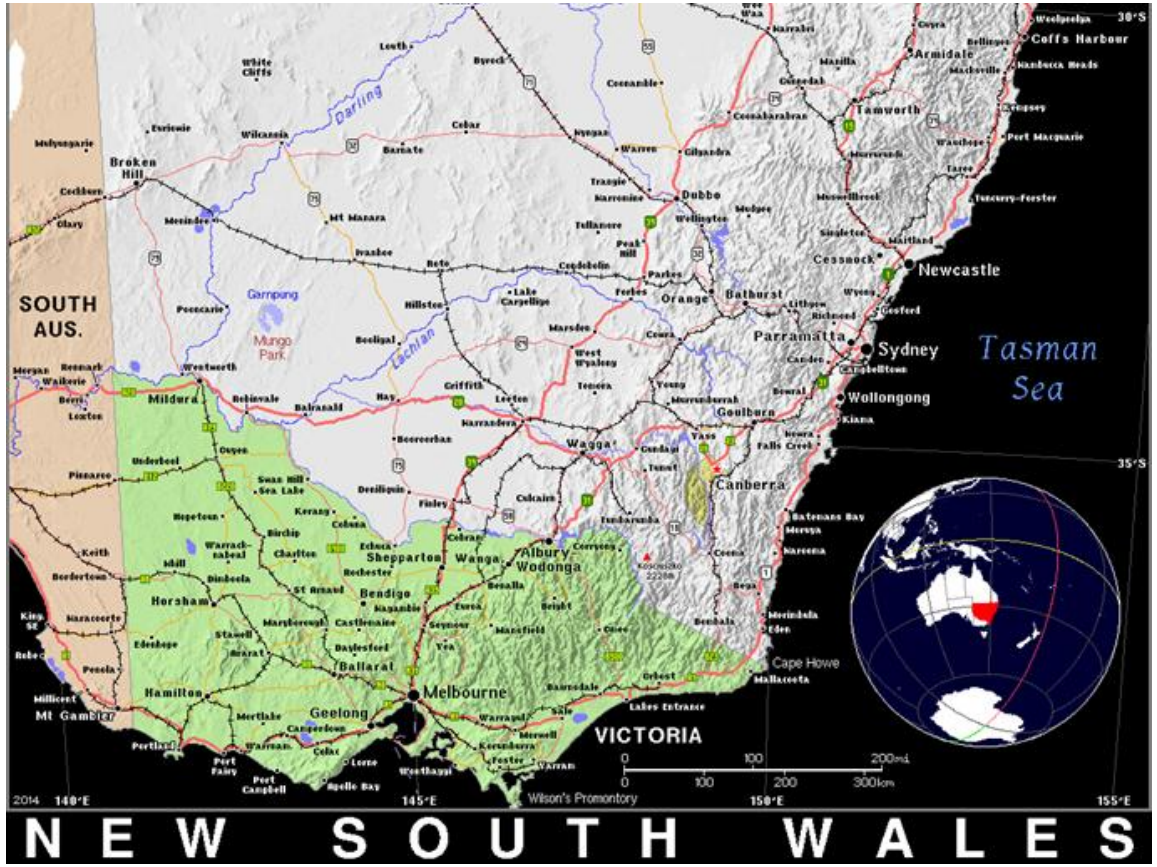
|---|---|
| Themes | SCIENCE AND TECHNOLOGY · TECH FOR ALL · ... |
| Focus | Exploring technological solutions to support the delivery of rural healthcare |
| Countries | AUSTRALIA · U.S.A. |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Tasman Sea
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Horsham
Shepparton
Orange
Dubbo
Tamworth
Coffs Harbour
Port Macquarie
Broken Hill
Parramatta
Bathurst
Goulburn
Cessnock
Cape Howe
Wilson's Promontory
VICTORIA
NEW SOUTH WALES


Barrow
Prudhoe Bay
Far North
ARCTIC CIRCLE
Nome
Fort Yukon
Interior
Fairbanks
Tok
Glennallen
Southcentral
Palmer
Anchorage
Valdez
Cordova
Kenai
Seward
Homer
Southwest
Bethel
Dillingham
King Salmon
Kodiak
Sand Point
Southeast
Skagway
Haines
Juneau
Petersburg
Wrangell
Sitka

# Where I went...

# Who I visited

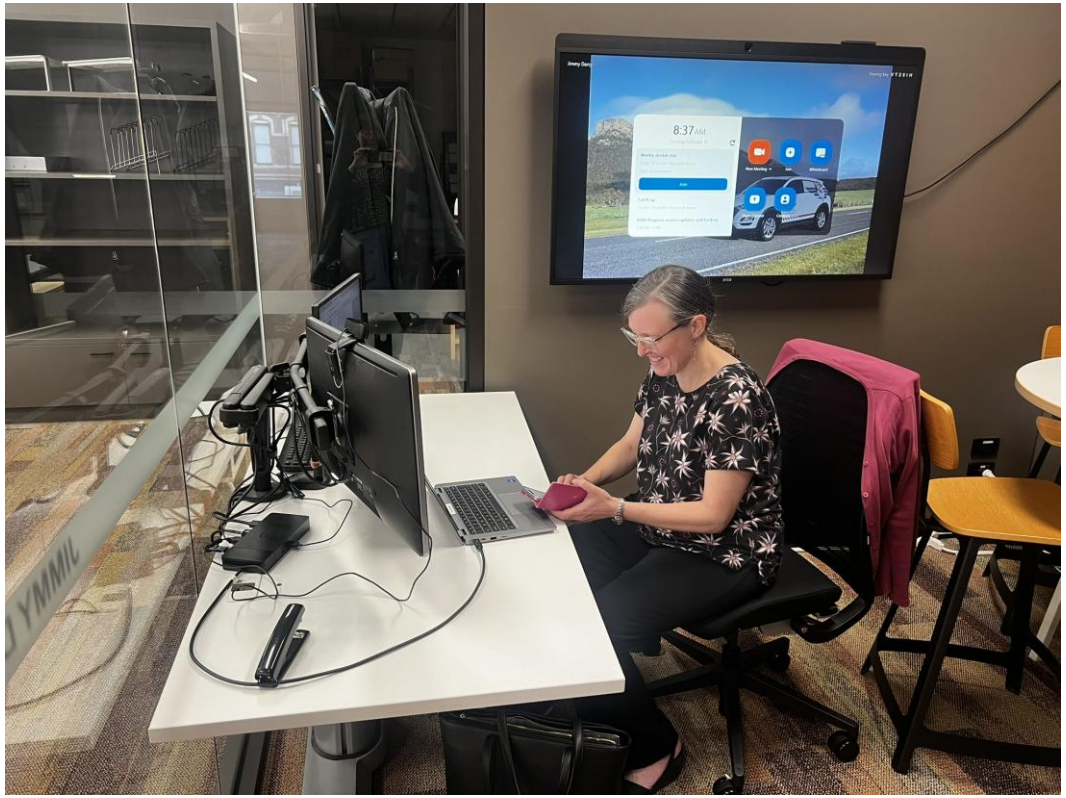
- Primary care providers
- Secondary care providers
- Tele-psychiatry providers
- Royal Flying Doctors Service
- Integrated healthcare providers – South Central Foundation, SEARCH

## What I discovered

The tech WAS cool, but the people made it work

# Even the most amazing tech still needed people...


# Human facilitation and the importance of relationships in telehealth




### Human Facilitation in Telehealth

Human facilitation in telehealth enables effective examinations and helps clarify patient concerns through active engagement.

### Importance of Relationships

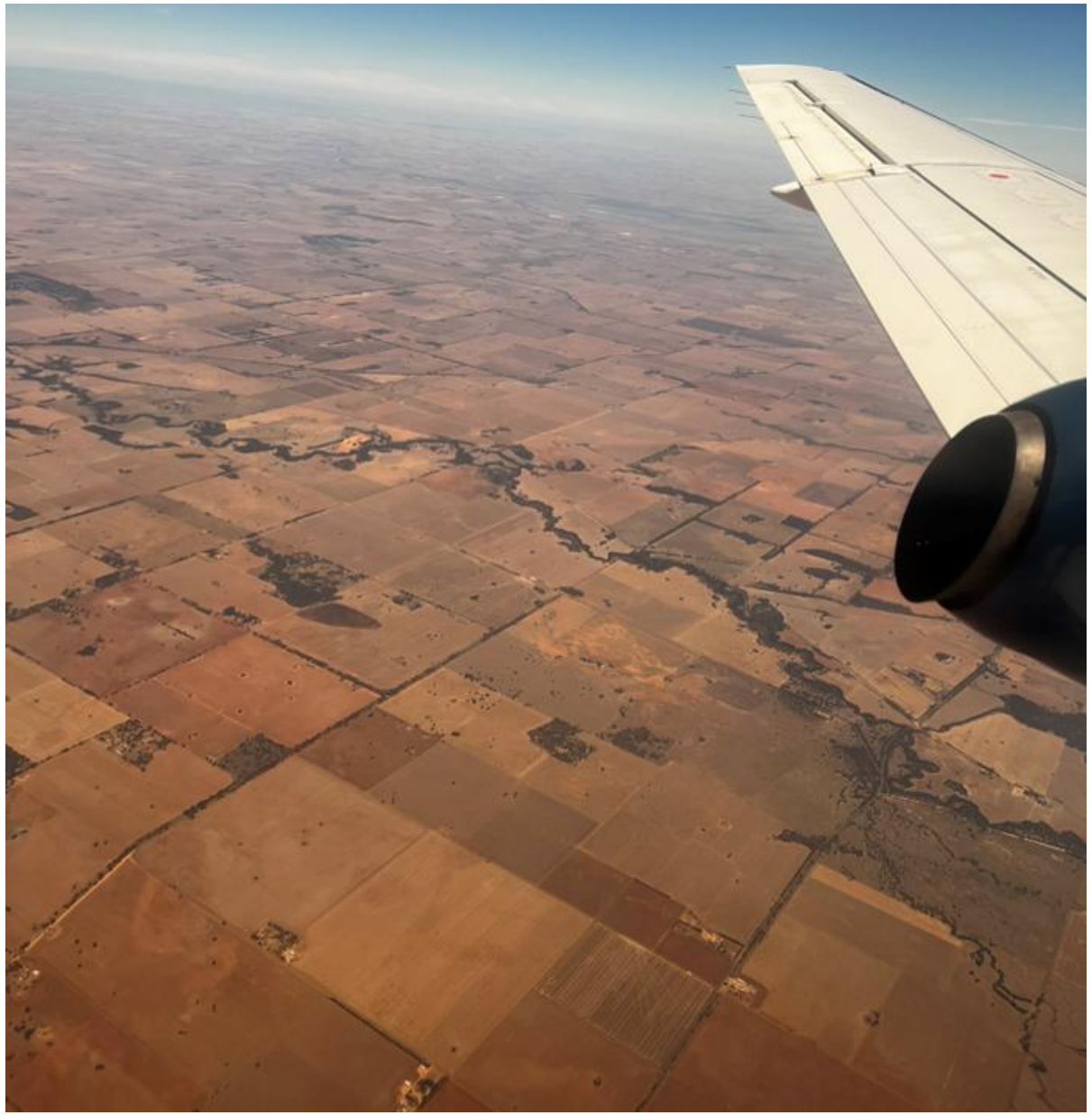
Strong relationships and clear messaging enhance telehealth, ensuring technology complements rather than replaces human care.

### Electronic Health Record Support

Electronic health records underpin telehealth, enabling remote care coordination across multiple medical specialties.

### Peer Support for Telehealth Implementation

Peer support is essential for healthcare providers adopting telehealth technologies to ensure successful implementation.



# Human resource costs and the need for dual clinician involvement in remote care

**High Human Resource Costs**

Remote healthcare often incurs significant human resource expenses due to wage costs in remote communities.

**Dual Clinician Involvement**

Effective remote care typically requires two clinicians to collaborate, rather than a single healthcare provider.

# Role of healthcare workers in facilitating technology use

**Facilitating Patient-Technology Engagement**

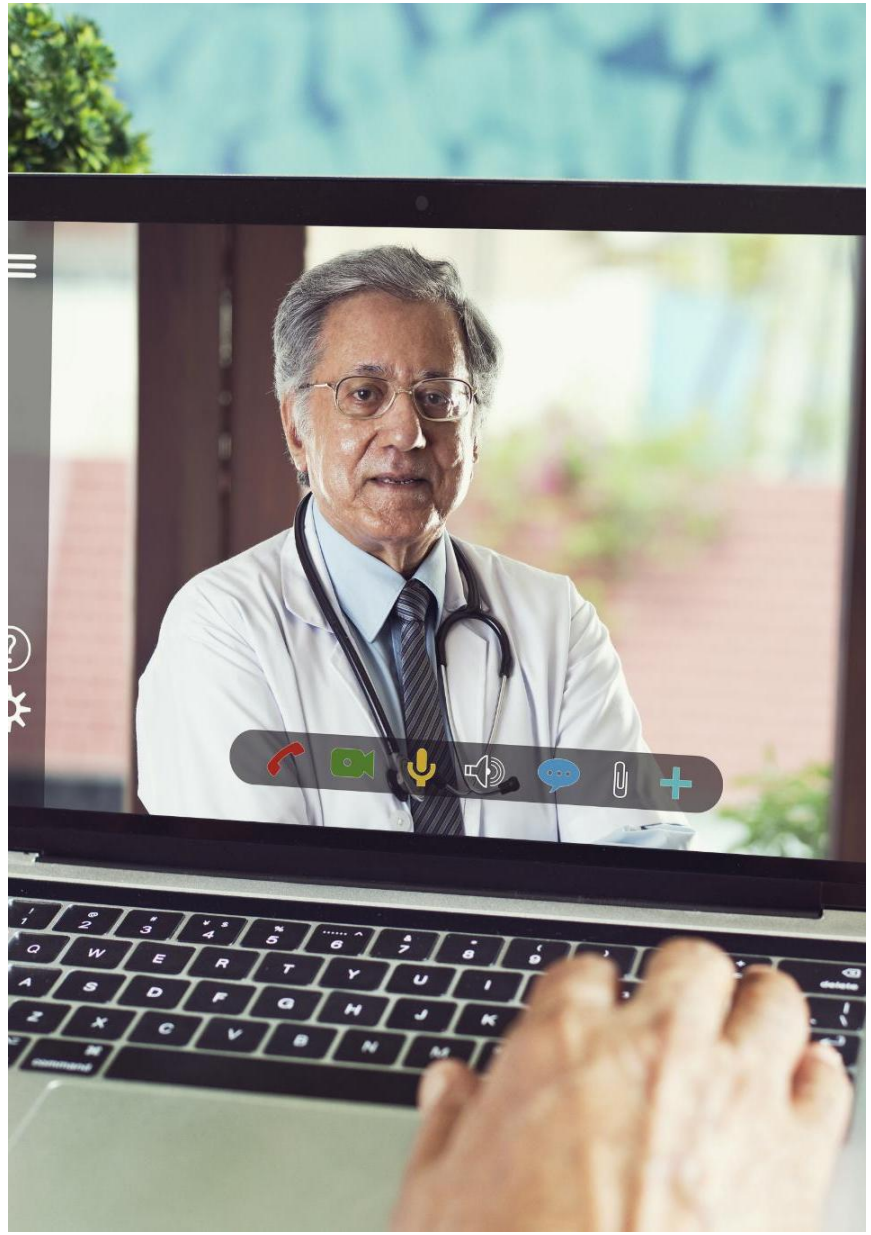
Healthcare workers support patients by facilitating video connections with doctors and specialists during telehealth sessions, playing a key role in history taking and examination

**Supporting Patient Understanding**

Workers ensure patients understand their medical guidance clearly to prevent misunderstandings during remote consultations.

**In-Person and Remote Care Integration**

Technology supports, rather than replaces, healthcare workers who remain essential in patient care delivery.



# Standout learning

**Simple Tech Solutions**

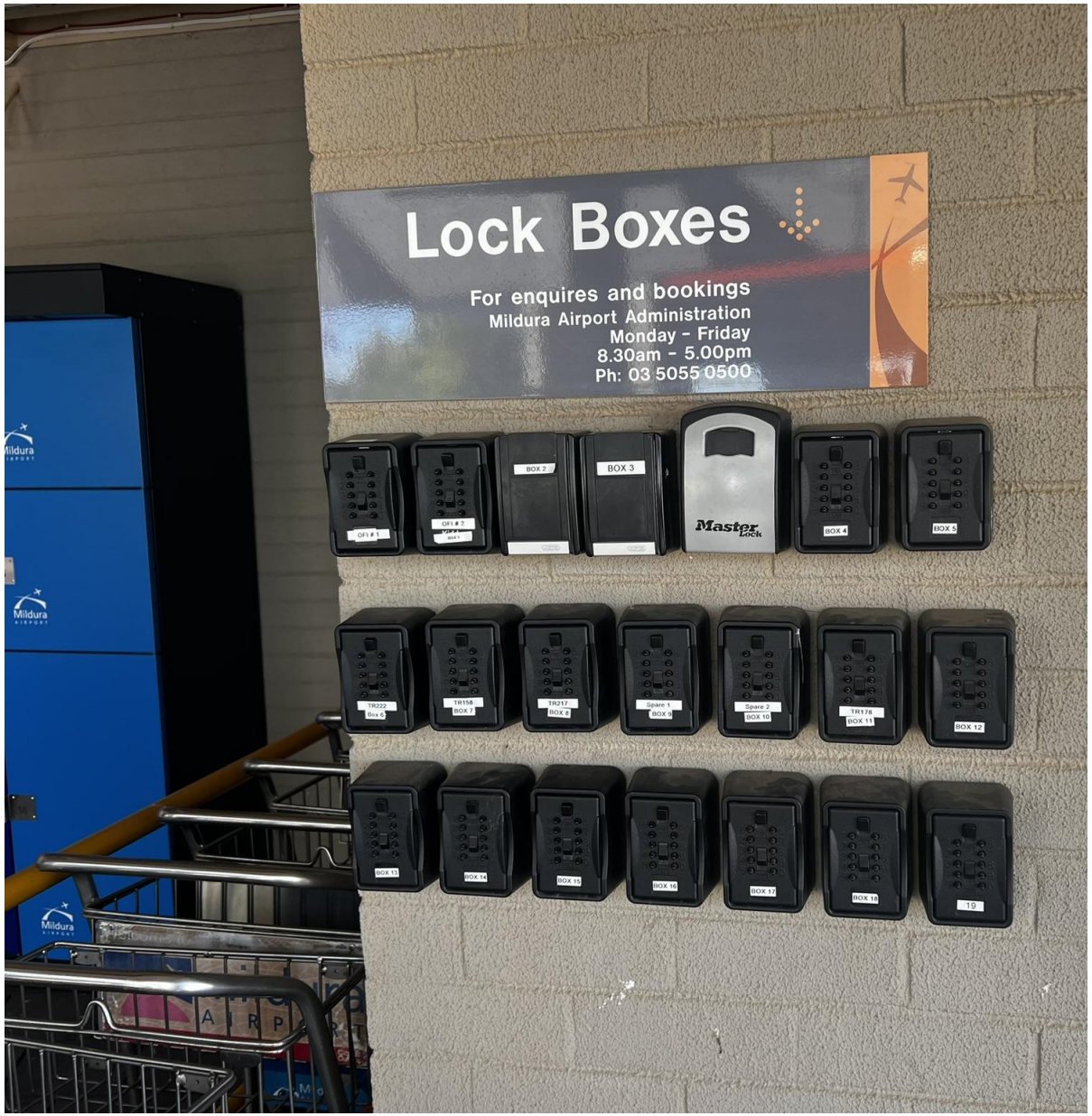
Simple tools like lockboxes for car keys improve access for fly-in fly-out rural healthcare workers.

**Remote Consultation Devices**

Digital tech doesn’t need to be complicated - iPads and webcams are commonly used to connect rural patients with remote clinicians effectively.

**High quality, technology enabled rural healthcare is expensive**

Integrating tech into services isn’t a route to cost reduction



# Telehealth Models and Services in Australia

# Primary care telehealth: nurse facilitation and electronic prescribing

### Nurse-facilitated Telehealth

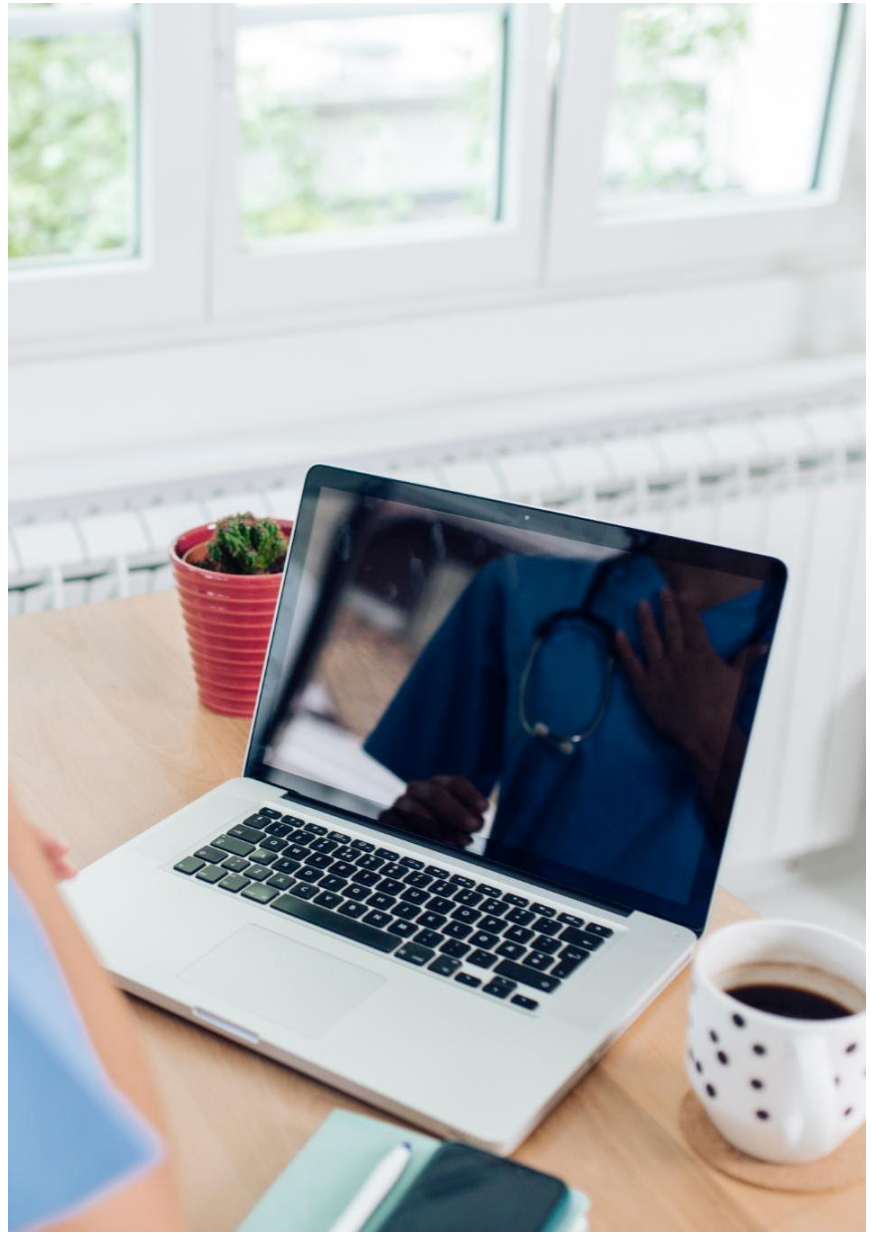
Patients usually attend the health centre where nurses assist video consultations

### Electronic Prescribing System

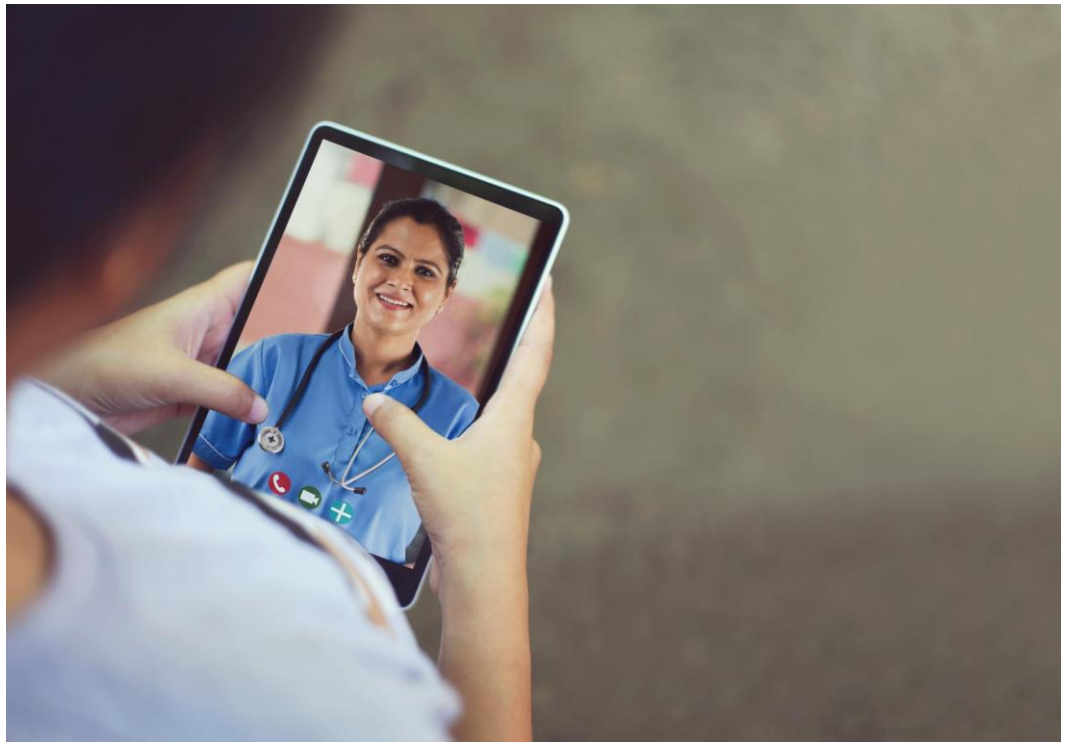
Doctors send prescriptions electronically using one-time QR codes, ensuring secure and efficient medication delivery.

### Challenges and Limitations

Telehealth is better than no care but less ideal than in-person visits, with challenges including medication access and provider preference.



# Urgent care telehealth: Victoria Virtual Emergency Department (VVED) model and impact



**Telehealth Model and Workflow**

VVED enables nurses in rural EDs or patients connecting from home to connect patients with remote doctors via iPads for virtual examinations and e-prescriptions.

**Service Scale and Accessibility**

VVED operates 24/7, treating up to 1,000 patients daily, improving rural healthcare access and reducing hospital admissions.

**Cost-Effectiveness and Impact**

Virtual consultations cost significantly less than in-person ED visits, diverting 80-85% of cases from hospitals and saving resources.

**Technology and Workforce**

VVED uses video consultations supported by advanced connectivity and a flexible multidisciplinary workforce for efficient care delivery.

# Limitations and patient transfer protocols in virtual emergency care

### Virtual ED Patient Limitations

Virtual ED excludes highest acuity patients, such as those with Manchester triage scores 1 or 2, requiring in-person care.

### Patient Transfer Coordination

Nurses coordinate directly with air ambulance and emergency services for timely transfer of critical patients.

### Onsite Paramedic Support

Paramedics assist nurses onsite with critically unwell patients until evacuation teams arrive to ensure continuous care.

### Remote Area Evacuations

Patient transfers in remote communities rely primarily on air evacuation to ensure rapid access to advanced care.

# Specialist and Mental Health Telehealth Services in Australia

# Mental health crisis support and co-design with local clinicians

**Remote Mental Health Support**

MHEC links specialist clinicians and social workers via video to local urgent care centres for mental health crises.

**Reducing Patient Transfers**

The service reduces long-distance patient transfers, minimizing community ambulance unavailability and patient disruption.

**Co-designing Care Models**

Local clinicians are engaged in co-designing care models, building trust through visits and feedback.

**Growing Staff Support**

Initially skeptical staff have become enthusiastic supporters after seeing the positive impact on care.

# Specialist appointments and telehealth for Aboriginal communities

**Telehealth and Specialist Access**

The RFDS offers first specialist appointments via telehealth with standardised referral processes improving appointment efficiency.

**Support for Aboriginal Patients**

Aboriginal health centres support patients attending telehealth appointments, reducing long travel times and providing home visits for housebound patients.

**Challenges in Remote Telehealth**

Low literacy, device access, and poor rural broadband hinder telehealth uptake in Aboriginal communities despite multiple initiatives.

**Personalised Consultation Approach**

Personalised services consider literacy, home conditions, and social factors to determine the best consultation mode and support needs.

# Hybrid and culturally sensitive telehealth services for speech therapy, drug and alcohol, and child/adolescent mental health

### Hybrid Telehealth Model

Services combine in-person and video consultations to support remote community healthcare.

### Speech Therapy via Telehealth

Speech therapy starts with an in-person appointment followed by ongoing video sessions for continuity.

### Culturally Sensitive Care

Telehealth services respect indigenous cultural needs by reducing displacement and trauma risks.

### Mental Health and Substance Support

Drug, alcohol, and child/adolescent mental health services are provided via hybrid or video consultations.

# Telehealth Models and Innovations in Alaska

# Integrated tribal telehealth: Health Aides, protocols, and Afcan cart technology


### Role of Health Aides

Health Aides serve remote villages with basic care, trained for six weeks and equipped with digital protocols on tablets.

### Digital Protocols Integration

Protocols guide health aides through examinations and treatments, integrating medicine and reference materials digitally.

### Afcan Cart Teleconsultation

The Afcan cart enables capturing and sharing of ECGs, audiometry, and images for real-time or asynchronous teleconsultation.

### Communication Technologies

Satellite internet like Starlink enhances synchronous telehealth communication, reducing delays from asynchronous reviews.

# Technical support, platform integration, and challenges in remote consultations

**Patient Support for Remote Appointments**

Patients join early for tech checks by administrative staff to ensure smooth connection for remote consultations.

**Technical Support for Clinicians**

Clinicians have quick access to technical support with a goal to resolve connection issues within 5 minutes.

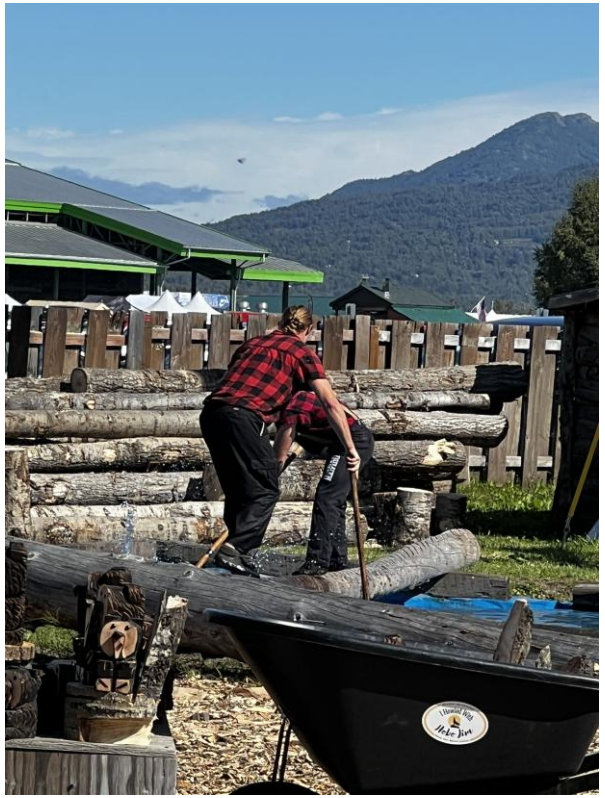
**Platform Integration with Medical Records**

Zoom platform is integrated with medical records and software updates are selectively applied to avoid clinical disruptions.

**Challenges in Remote Physiotherapy**

Automatic camera focus on faces during calls hinder remote physiotherapy and requires manual adjustment.

# Video vs telephone consultations and patient support in Alaskan telehealth



**Predominance of Video Consultations**

More than 90% of Alaskan remote consultations are conducted via video, reflecting its widespread adoption.

**Bandwidth and Video Usage**

When bandwidth is limited, video is often disabled during calls to preserve connection quality and maintain communication.

**Patient Support in Health Centers**

Over 70% of non-mental health teleconsultations occur in health centers with support from health aides and staff.

**Home-Based Mental Health Consultations**

Many mental health teleconsultations happen with patients at home, allowing privacy and comfort during sessions.

# Digital Tools and Pharmacy Integration in Remote Healthcare

# AI scribes for medical record keeping and consultation support

### Integration with Medical Records

AI scribes are integrated with electronic medical records to transcribe and structure consultation notes efficiently.

### Consultation Transcription Process

AI apps record consultations via smartphones and generate transcripts and summaries for clinician review.

### Clinician Verification Importance

Clinicians review and edit AI-generated notes to ensure accuracy before finalizing patient records.

### Time Savings and Patient Focus

AI scribes save clinician time and improve patient experience by allowing more direct doctor-patient interaction.

# Remote dispensing and medication safety in Alaskan health centers

**Centralized Medication Processing**

Medicines are packed centrally and distributed to remote health centers for storage in automated dispensing machines.

**Electronic Prescription Verification**

Prescriptions are electronically sent to a central pharmacist who verifies and approves before remote dispensing.

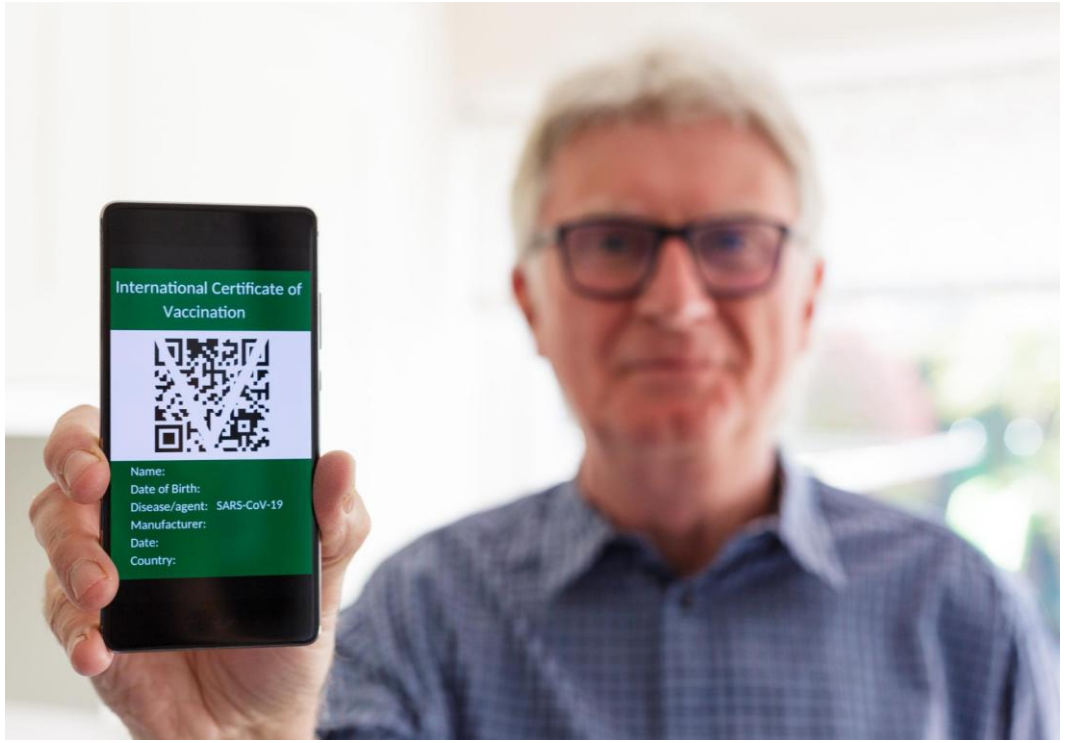
**Barcode-Enabled Dispensing Safety**

Barcode scanning at dispensing and final issuance prevents medication errors and ensures patient safety.

**Inventory Control and Stock Management**

Central records track stock and expiry dates, guiding timely restocking and compartment placement in machines.

# Electronic prescribing and challenges in medication access in Australia




**Electronic Prescribing System**

Patients receive prescriptions via QR codes on their phones, improving convenience and choice of pharmacy.

**Patient Adaptation**

Initially, many patients preferred paper prescriptions but have increasingly accepted electronic prescribing systems.

**Medication Access Challenges**

Patients still must visit physical pharmacies, which can be far during out-of-hours, limiting timely medication access.

**Virtual ED Medication Limitations**

Virtual ED nurses can issue limited prescriptions but patients often travel over an hour for out-of-hours medication.

# Supporting Rural Communities and Workforce through Technology

# Rotational jobs and telehealth support for female GPs in rural areas

### Female GP Rural Workforce Gap

Despite many female GPs qualifying, they are 20-40% less likely to work in rural areas compared to their male counterparts.

### Barriers in Rural Practices

Male-only GP practices in rural Australia create barriers to healthcare access for rural women, especially for screening and gender-specific needs.

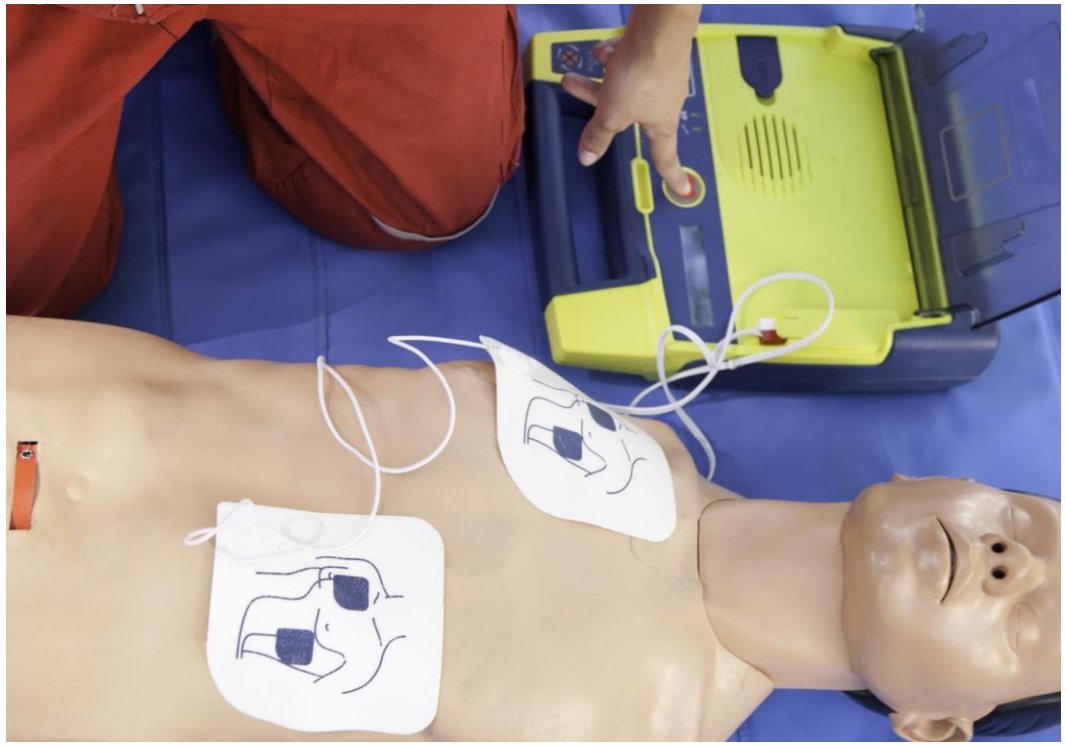
### Supportive Initiatives

The RACGP supports female rural GPs through committees and online groups encouraging workforce participation and normalising FIFO roles.

### Rotational and Telehealth Models

Female GPs balance city roles with rotational rural work, supported by RFDS and telehealth to provide ongoing remote care.

# Technological support for student training and placements in rural healthcare



**Healthcare Courses in Rural Areas**

La Trobe University offers pharmacy, dentistry, and nursing courses in rural towns, supporting local student placements.

**Simulation Laboratories**

Simulation labs provide rural students with hands-on experience across diverse medical presentations despite remote locations.

**AI-Powered Student Support App**

An AI app helps students live chat with tutors, get administrative help, mental wellbeing support, and personalized learning.

**Student Feedback and Engagement**

Students can use the app to provide feedback on placements, enhancing training and support quality.

# Use of simple tech for GP support and specialty groups

**Simple Telemedicine Tools**

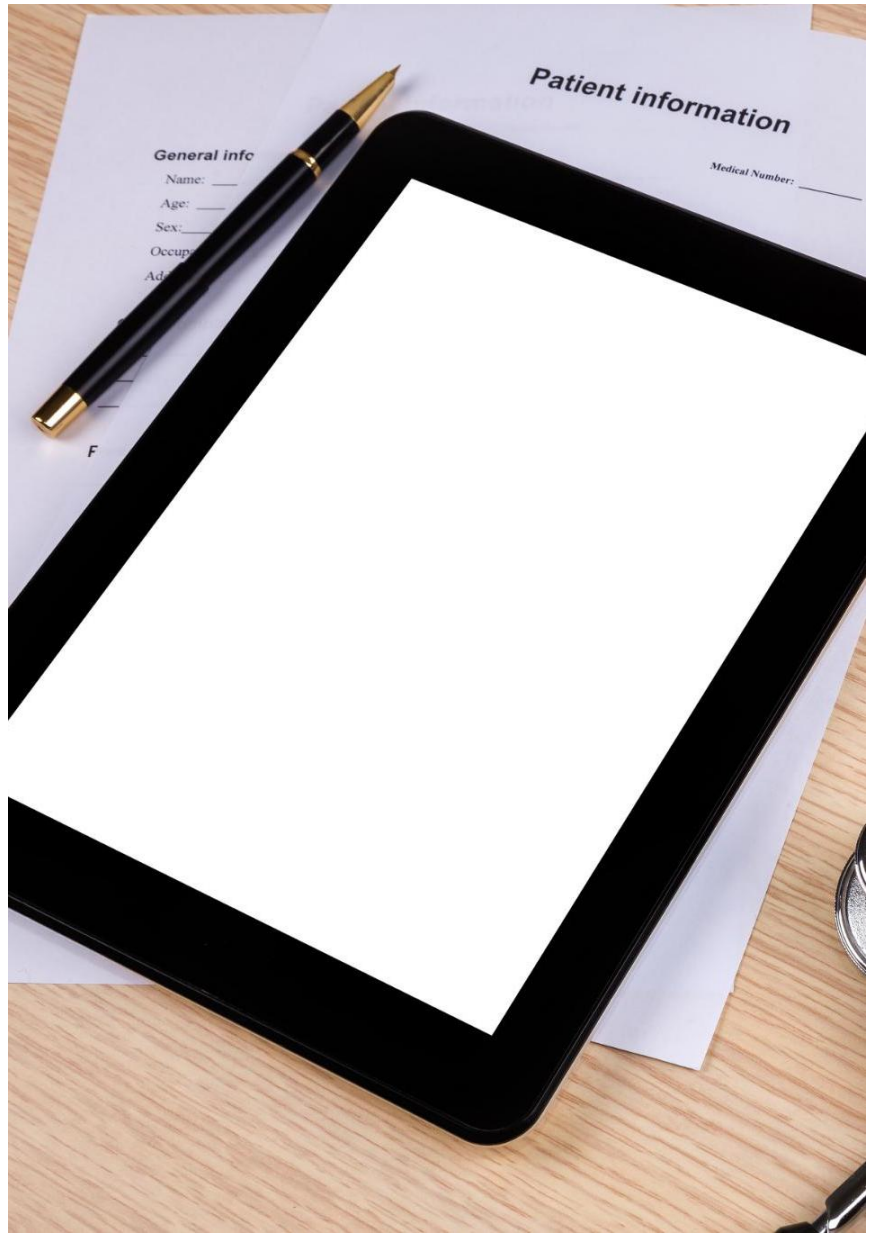
Virtual ED uses an iPad and primary care telemedicine relies on a webcam and external laptop speaker for communication.

**Diagnostic Devices Status**

Electronic otoscope shares ear images but is currently non-functional; digital stethoscope was used during COVID but now missing.

**Nurse Physical Examinations**

Nurses perform physical exams and report clinical findings to doctors on calls, supported by paper proformas for each patient.



# Digital Healthcare for Dental and Optometry Services

# Mobile and fixed dental services in Australia and Alaska

### Mobile Dental Vans in Australia

Australia uses dental vans to serve remote communities but faces challenges including long travel time and equipment limitations.

### Operational Inefficiencies in Mobile Care

Dental vans require setup time, offsite sterilisation, and multiple vehicles, increasing costs and reducing efficiency.

### Fixed Base Model Consideration

Australia is exploring a fixed base model where patients travel to a rural hub to improve service value and efficiency.

### Alaska's Remote Dental Services

Alaska has remote dental suites visited biannually by dentists, with dental aides providing basic care year-round.

# Optometry services and telehealth-enabled eye care

### Routine Optometry Visits

Optometrists visit South Central Foundation clinics twice yearly for routine eye exams and frame selection.

### Remote Ophthalmic Care

Health aids follow protocols and use afcan carts to capture eye images sent to specialists remotely.

### RFDS Telehealth Services

Royal Flying Doctor Service provides telehealth-enabled specialist eye care to rural and remote communities.

# Challenges in Digital Healthcare Delivery

# Infrastructure, connectivity, and limitations of technology in remote care

### Dependence on Robust Infrastructure

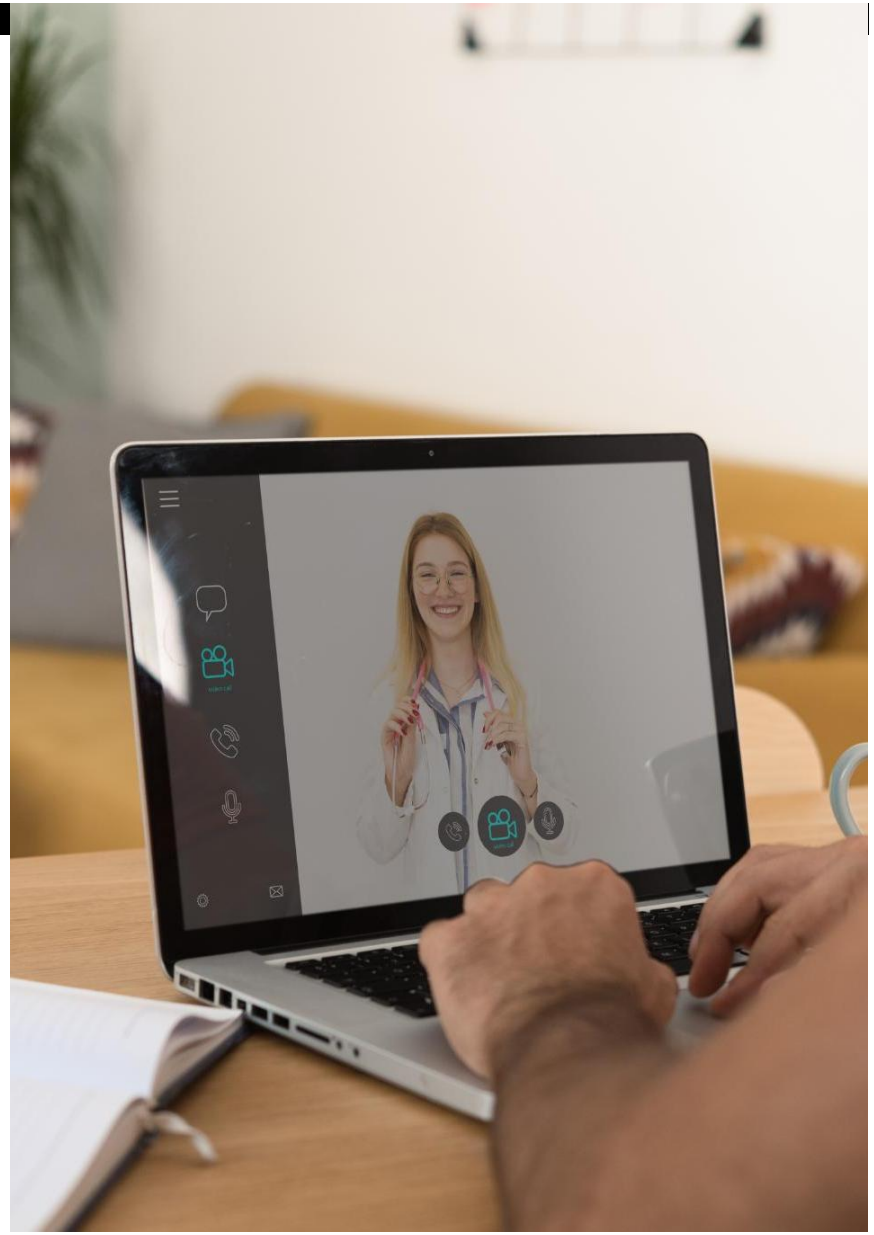
Virtual Emergency Department services rely entirely on video consultations, requiring strong infrastructure to maintain high service quality and safety.

### Connectivity Technologies

4G, 5G, high-speed Wi-Fi, and low-orbit satellite technologies are crucial to support remote healthcare connectivity evolution.

### Software Adaptations and Challenges

Software updates need carefully checking to avoid impacting clinical care; manual adjustments are sometimes needed for remote assessments.



# Conclusion

### Technology Overcoming Barriers

Innovations in digital healthcare help overcome geographic and cultural barriers to access quality medical services in remote areas.

### Ongoing Challenges

Despite progress, challenges like infrastructure and cultural differences still hinder healthcare delivery in isolated regions.

### Human-Centered Innovation

Focusing on human needs and continuous innovation is essential to deliver effective healthcare to remote communities.