Telehealth - Future Vision for Video Conferencing

This document outlines a vision for clinical telemedicine in New Zealand. It does so by describing clinical scenarios and high level requirements for the use of video conferencing in patient care, and for education, across the NZ health sector, then listing the key requirements of videoconference systems. It can be used as a starting point for defining the technology required for telemedicine to be conducted in a safe and effective manner[1].

Vision:

Accessible, user friendly technology supporting the safe and effective delivery of patient centred healthcare closer to home

Clinical Scenarios:

Note: at the end of each example:
S = Scheduled care
U = Unscheduled care

1. Specialist consultations to secondary care sites. Examples are:		
a. A tertiary or secondary hospital-based cardiologist providing remote specialist consultation to patients at an outpatient clinic in a district hospital such as Kaitaia	S	
b. A tertiary hospital-based oncologist/neurologist providing specialist advice on patients at other hospitals to their onsite clinical teams	S	
c. NICU and remote hospital staff being able to collaboratively make the decision of whether transfer of a baby to NICU is required, where NICU can see the baby and any results		U
d. The renal physicians at Northland Base Hospital doing virtual 'rounds' of patients at satellite clinics or in their homes and e.g. providing direction on care to the specialist nurses	S	
e. District Hospital ward round between the patient bed space and an off-site specialist		U
f. District Hospital ward round between the local non specialist and an off-site specialist as a chart round	S	U
2. Specialist consultations and support to primary and community		

[1] The scope is limited to telehealth applications using videoconferencing and doesn't include others such as telemonitoring or store and forward technologies, unless / until they also include a videoconferencing component.

healthcare organisations. Examples are:		
a. Diabetes specialists in hospital consulting with patients at primary care practices or in their homes, with or without primary care doctors/practice nurses in attendance	S	
b. Diabetes specialists in hospitals providing advice to primary care practitioners about managing specific patients with diabetes, or about practice improvement initiatives to improve their overall care of diabetes	S	U
c. Rheumatology nurse specialist providing support to long term condition patients being managed through primary healthcare organisations	S	U
3. Clinical support within primary and community healthcare organisations. Examples are:		
a. Primary care clinic doctor supporting remote clinic doctor or nursing staff within the same or to a different primary healthcare organisation	S	U
b. General Practitioner conducting consultations for patients in an aged care facility	S	U
4. Specialist consultations to a non-health environment. Examples are:		
a. Orthopaedic specialist in secondary care providing outpatient follow up appointment to corrections facility patients	S	
5. Access to multi-disciplinary meetings from primary and community healthcare organisations. Examples are:		
a. Monthly meetings where cardiology/renal patient cases are discussed in a multi-disciplinary format. Attendance is open to an unlimited number of primary care doctors from any primary care organisation in the multi-disciplinary team's geographic sphere of responsibility and can be accessed from their desk PCs and laptops.	S	
b. Primary care practitioners or others contacting secondary or tertiary hospital based experts about the acute management of a patient in front of them		U
6. Access to multi-disciplinary meetings from multiple tertiary and secondary care sites. Examples are:		
a. Oncology multi-discliplinary meetings with the shared viewing of video, radiology, pathology and clinical plans	S	
7. Delivery of education to secondary, primary and community healthcare organisations. Examples are:		
a. Realtime video-conferenced teaching sessions hosted from one site and accessible to multiple other staff members, from multiple sites including from their desk PCs or mobile devices	S	
8. Provide District and Community nursing in the field with links to secondary, primary and community healthcare organisations. Examples are:		

a. *Community-based nurses and allied therapists visiting people in their homes or rest homes/aged care facilities etc., being able to seek advice from hospital-based or other colleagues, including being able to show them the wound/ patient/ environment*	S	U
9. Link emergency and retrieval services with each other and to Hospital EDs and ICUs. Examples are:		
a. *Emergency Department staff being able to see patients, ECG s etc. who may be in transit to the ED*		U
b. During patient retrieval i.e. between the patient bed space and the retrieval service pre and during retrieval		U
10. Provide specialist and GP consultations to patients in their own home. Examples are:		
a. *Hospital-based or clinic-based practitioners consulting with patients at home, such as the TB Directly Observed Therapy programme (TeleDOT), to view the patient taking their medications; and to prevent the patient having to travel to the centre where this is an issue, such as people with epilepsy*	S	U
b. Hospital-based or clinic-based practitioners consulting with patients with long term conditions that have destabilised and need assessment at home or in their workplace to prevent the patient having to travel and to avoid hospital admission, ED attendance or further deterioration.		U
11. Consultations to and from overseas. Examples are:		
a. An NZMC registered cardiologist moves to the UK and provides patient consultations to a secondary hospital in order to alleviate pressure on patient lists while his replacement is found	S	
b. A New Zealand patient travelling overseas is unwell and is reviewed by their New Zealand based Specialist or General Practitioner.	S	U
c. A New Zealand registered General Practitioner or Nurse providing overnight after-hours triage assessment from an overseas daytime location to NZ patients in their own homes to avoid patients having to travel to ED or an A&M centre at night.		

Key Consideration:

The clinical scenarios described above vary in respect to the complexity of the technology required to support them. The most complex consultations require diagnostic level videoconferencing, and the least complex require consultation level videoconferencing. These can be understood as –

> Diagnostic level – high definition image transfer and display with pan tilt zoom patient end camera and far end camera control e.g. Tertiary hospital ICU supporting rural emergency department during resuscitation.
>
> Consultation level – standard definition image transfer and display with fixed cameras at either end. May include software based solutions and mobile

devices e.g. specialist calling patient at home to discuss test results or response to treatment.

A continuum of complexity exists between these two extremes, and more complex solutions may be used for less complex consultations, but the opposite does not apply. The clinician is responsible for ensuring that the system they are using in any given situation supports them to make the right treatment decisions.

Videoconference Technology Should:

- Be simple to introduce and use
- Ubiquitous technology – device agnostic, easily available
- Be able to operate in low connectivity areas - with upload and download speeds down to 1 mbps
- Be cost effective
- Provide image and sound quality suitable for clinical and educational use
- Be interoperable and interconnectable with other networks and devices
- Meet standards for health information security and privacy
- Be highly reliable
- Have low requirements for user and technical support
- Have low administration overhead during operational use
- Be able to integrate with patient portals, clinical information systems and patient administration systems
- Be provided by vendors committed to ongoing system development and support
- Be able to be locally branded eg. with NDHB/Northland Health Sector or Regional telehealth service brand