New Zealand Telehealth Stocktake

PHOs / NGOs

NZ Telehealth Forum

Promoting sustainable telehealth

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IT HEALTH BOARD

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NZ Telehealth Forum:

To find out more about the NZ Telehealth Forum and resources, visit http://ithealthboard.health.nz/telehealthforum.

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Executive summary

This report presents the results of Phase 2 of the National 2014 Telehealth Stocktake. Phase 1 surveyed telehealth activity in New Zealand's twenty District Health Boards (DHBs). Phase 2 has surveyed Primary Health Organisations (PHOs) and Non-Government Organisations (NGOs).

There is a growing consensus that telehealth in all its forms can and should play an increasing role in addressing many of the issues facing all health systems in the developed world, New Zealand being no exception. The use of videoconferencing facilities to enable clinical teams to meet without unnecessary travel is now commonplace. The same technology enabling clinics to be run remotely is also increasingly playing a key role in improving productivity and the patient experience. Telemonitoring in their homes for people with long term conditions is less common, but is starting to be recognised as part of the movement towards 'personalised medicine'. Mobile health is on the cusp of a major explosion in usage, though much of this is consumer based with little or no connection with health professionals. Finally use of the Internet is enabling closer e-based relationships between patients and their carers, as well helping grow a new generation of health literate consumers.

All these applications of technology were seen in the DHB survey as commanding increasing attention from clinicians, consumers and healthcare provider management. Although uptake was varied and arguably New Zealand lags behind many like jurisdictions, the DHB survey provided proof statements about value as well as identifying barriers to more rapid uptake. However telehealth has at least as much potential to support the efforts of our NGOs and PHOs (and their member practices), and for this reason the Telehealth Forum sought from them responses to a modified version of the DHB survey. The survey was distributed by the National Health IT Board (NHITB) to all PHOs, selected NGOs based on known telehealth activity (or plans), and to the NGO liaison in the Ministry of Health for further distribution.

Responses were received from eleven NGOs and eighteen of the thirty-two PHOs (with fourteen PHOs completing some or all of the survey questions). Given that the survey was completed by under half of the PHOs and a much smaller proportion of the total number of NGOs, some caution needs to be exercised in the analysis of the results. The NGO sector comprises organisations providing a wide variety of services and not all NGOs would be likely candidates for use of telehealth tools. It would be a fair assumption that there is a direct connection between interest and involvement in telehealth and responses to the survey. On that basis the survey may be considered representative of telehealth users in this part of the sector and provides a baseline from which progress can be measured.

Survey results

It is encouraging that there is some usage of telehealth technologies across both the PHO and the NGO sectors, though the actual findings were, not surprisingly, somewhat different between the two.

Governance

The importance of governance for building sustainable telehealth-enabled services has been recognised by respondents in both groups. Almost all have an ICT Governance group, while several PHOs and most of the NGOs have telehealth strategies / policies and clinical leaders. Some have telehealth programme managers or facilitators and have established protocols. One PHO (Midlands Health Network) and one NGO (Nurse Maude) responded 'yes' to all of the governance criteria.

Telehealth technologies and applications

The NGO respondents were generally more sophisticated in their current or planned use of telehealth. In many cases telehealth was a core enabler of their care model rather than the add-on services by many DHBs and PHOs (or their primary care members). As with the DHBs, video conferencing is the dominant technology, used by most respondents for administrative and management meetings and to a lesser extent for clinical education, and several in each group are participating in some form of (multi-site) multi-disciplinary team meetings. Only two PHOs are using VC for patient – clinician interactions. However new services are planned, including connectivity with DHB hospital services, expanding into rural areas, and interactions for long term conditions and in-home services.

Other technologies and applications being considered by PHOs include monitoring /coaching /triage from call centre for chronic care patients, text messaging to support smoking advice, mHealth/ smartphone applications for youth mental health and email consultations.

NGOs are using or considering home telemonitoring, telerehabilitation services, mHealth text reminders for paediatric and other services, email consultations, increased web-based functions (including self-referrals and bookings), and full service web-based applications for smartphones.

(It should be noted that the survey did not seek specific information from PHOs as to the use of telehealth by their General Practitioners. As a result, services provided or being considered by PHO members are most likely under-represented and may be a target for a further survey.) It should also be noted that the survey did not dwell on the use of consumer portals, as this has already been the focus of much of the work of the National Health IT Board.

Benefits

The benefits that telehealth brings to these organisations predictably focus on the convenience that remote service provision and out of hours service provision can bring to both care providers and consumers/patients. Implicit productivity gains through reduction in travel are supplemented by the ability to focus more closely on those in need, which may be seen as indicative of a move towards more personalised medicine, specifically among those with long term conditions. The PHOs agreed there were benefits in having improved linkages with hospital specialists for outpatient appointments,

support for clinical staff and better acute care. However these linkages were of less benefit to NGOs. A comment by one of the NGOs helps to explain the difference:

> *"The questions are very hospital focused and show that there is a need to connect more with organisations working in primary care other than GPs. The key benefits that we see is increased access to our services, reduced waiting times for appointments, being able to offer services where we currently don't have clinics… (telehealth is) more cost effective and we don't need to have as much bricks and mortar. In our client surveys young people like using new technology so it fits with our client group."*

Barriers to uptake

Interestingly, the two sectors saw barriers to uptake somewhat differently. Almost all of the PHOs and all of the NGOs cited lack of investment in infrastructure as a barrier. However, only half of the PHOs and one of the NGOs said that senior management support was a barrier. It is difficult to reconcile the comfort in respect to senior management support with the lack of investment that would deliver the telehealth based services. Perhaps the value proposition may be accepted in principle, but the detailed business cases (with evidence) may be lacking, or there is a lack of the seed funding needed to lay the infrastructure foundation. For the NGOs, this may also reflect, and be reflected by, the more strategic view of telehealth implicit in their responses.

Patient acceptance was cited as a barrier by very few of the NGOs, similar to the DHBs in Phase 1, whereas nine of thirteen PHOs cited it. This may reflect the possibility that the patient cohorts for the PHOs see telehealth as a dilution of the personal interaction that has traditionally been at the core of primary healthcare, whereas NGOs serve patient or consumer groups who may be more comfortable with telehealth being part of their specific model of care. This may also be due to the greater experience in the use of telehealth technologies in the DHBs and NGOs, and results from patient satisfaction surveys. Patient acceptance has been positive in some primary care projects, e.g. the Telehealth Demonstration Project in the Bay of Plenty. However the high percentage of PHOs that cited this as a barrier needs to be investigated and if found to be systemic it needs to be addressed.

VC interconnectivity was cited by almost all of the DHBs as a barrier, but to a much lesser extent by the PHOs and NGOs. This is assumed to be due to the relatively high use of VC by the DHBs for telemedicine interactions, whereas this application isn't as advanced within the PHO / Primary/Community and NGO sectors where connectivity with organisations outside their immediate network is needed. For NGOs, it may also not be as relevant, depending on their types of service.

Technical infrastructure

As with the DHBs, there is a growing use of software –based VC clients on desktop PCs, laptops and tablets, as opposed to dedicated room systems. The use of web-based VC applications is also growing. With regard to VC capacity meeting demand, the PHOs and NGOs said that either demand was being met, or that they had forward investment plans.

Both groups are using a mix of internal IT support and external providers for their VC support. The majority of PHOs and NGOs said that their VC systems either didn't meet the international and NZ HISO standards for interoperability, or that they weren't sure.

The majority of both groups are using Ultrafast Broadband already, or planning to use it as it becomes available for their sites. Those with rural sites are using Rural Broadband where it is available.

Next steps

Accelerated uptake of telehealth technology will most effectively happen with increased support from the centre, both from the specialised organisations such as the Forum, but also by educating other bodies such as the licensing and professional organisations, Consumer representative groups, and Health Workforce New Zealand. The Forum will consider, within its limited resources, a focus on working with these types of influencers.

However, if it is a reasonable assumption that those that didn't respond to this survey did not do so because at least in part they did not have much to report, questions arise as to why telehealth has been so enthusiastically embraced by some, while being virtually ignored by many.

There may be two possible explanations for this. Firstly there is a need for greater education, specifically of management and clinical leaders, about the importance of these technology enablers. The Telehealth Forum, along with the NHITB and other central agencies needs to reach out to these groups with the value propositions that have been developed by their colleagues. Secondly, there is a lack of independent, peer reviewed evaluation of the use of telehealth. This lack may go some way to explain why, in a fiscally constrained environment, telehealth struggles to get to the head of the queue when spending priorities are determined.

With the above qualifications in mind, the survey results do provide:

- *indicators from which to measure progress, the barriers that will inhibit progress and the benefits that will help to support further investment and improved uptake.* It is clear that there is a correlation between the size and reach of both PHOs and NGOs and their interest in investing in telehealth. With the benefits demonstrated (but not necessarily evaluated) the challenge will be to spread the use of the enabling technologies to the smaller and/or less geographically dispersed providers.
- *examples of current and planned activity to help foster collaboration and to add to the growing network of telehealth expertise.* Again the challenge is to create the evidence base and the accompanying narratives that give those organisations not yet confident to take the first steps the demonstrable value propositions and the know-how that will enable them to do so.
- *priorities for support from the National Health IT Board and the Telehealth Forum.* The NGOs in particular were very clear that they would welcome support from the Forum and the NHITB. Many have asked for follow up consultation on their use and potential use of telehealth. There was general agreement that the availability of guidelines and case studies in respect to the implementation and operation of

telehealth would be very helpful. These resources are being added to the Forum's website, and once it has become firmly established, the Telehealth Resource Centre, a joint initiative of the Forum and Mobile Health, will become increasingly important in terms of the provision of generic support.

The overall report card is that while there have been encouraging signs of progress and there are a number of organisations in both sectors that are embracing the opportunities presented by telehealth, there is still much to be done. There is a clear demand for greater education and leadership if the true potential of these enablers is to be realised in these parts of the healthcare sector. The Forum will consider the findings of this survey in setting the priorities for its ongoing work programme.

1 Introduction

This report presents the results of Phase 2 of the National 2014 Telehealth Stocktake. Phase 1 surveyed telehealth activity in New Zealand's twenty District Health Boards (DHBs). Phase 2 has surveyed Primary Health Organisations (PHOs) and Non-Government Organisations (NGOs).

The survey was distributed by the National Health IT Board (NHITB) to all PHOs, selected NGOs based on known or planned telehealth activity, and to the NGO liaison in the Ministry of Health for further distribution.

Survey questions addressed governance, the use of videoconferencing for current and planned clinical services, the supporting technical infrastructure, and other technologies being used or planned. Questions were also asked about evaluations, barriers to uptake, and what support the NZ Telehealth Forum and the National Health IT Board should provide to enable them to increase their use of telehealth. (We were aware that telehealth activity wasn't as far advanced for these organisations as compared to the DHBs, which was taken into consideration with a shorter survey.)

Eighteen of a total of thirty-two PHOs responded, with fourteen providing information on some or all of the survey questions. One PHO was going to implement telehealth tools, but said it was too early to respond. One response was from a primary care provider member of one of the PHOs. Eleven NGOs responded, although, as with the PHO responses, not all questions were answered. Several additional respondents said that the survey wasn't applicable to their organisation.

The results shown in this report are as received in the survey responses. We are also aware that new developments have taken place since the survey was conducted that won't be reflected in this report. See Appendix A for survey respondents.

As for Phase 1, telehealth is defined as meaning any technology enabled healthcare intervention where people are connected remotely. Specifically, the categories of telehealth include:

- Telemedicine: the use of interactive videoconferencing (VC) and store-and-forward technologies for remote consultations, diagnosis and treatment, including multi-disciplinary team meetings for shared care and health care related education, research and evaluation. Examples of store-and-forward include teleradiology and teledermatology.
- Telemonitoring: patients using simple medical devices in their domestic settings to inform their care providers about their condition.
- mHealth: the use of mobile communications technology (such as smartphones) to deliver healthcare and healthy lifestyle services.
- Interactive portals: the use of websites, social networks and supporting triage/consulting services to interact with patients.

2 Telehealth governance

Governance questions were asked about strategies and policies, clinical leadership, availability of planning and operational support (facilitators/ programme managers) and the availability of protocols and guidelines. Responses are shown below for the seven PHOs and five NGOs that responded to this question. Blank sections indicate no response.

Four PHOs have telehealth strategies / policies, four have clinical leaders, two have telehealth programme facilitators / programme managers , all seven have an ICT Governance Group and two have telehealth protocols and guidelines. One PHO (Midlands Health Network) responded 'yes' to all of the governance criteria. All five of the NGOs have telehealth strategies / policies and clinical leaders. Three have a facilitator / programme manager, four have an ICT governance group and have telehealth protocols / guidelines. One NGO (Nurse Maude) responded 'yes' to all of the governance criteria.

Figure 1: Telehealth Governance in PHOs and NGOs

	Strategy policies	Clinical Leader	Facilitator / Programme Mgr	ICT Governance Group	Approval required for telehealth investment	Protocols and guidelines
PHOs						
Compass Health	No	No	No	Yes	No	No
Midlands Health Network	Yes	Yes	Yes	Yes	Yes	Yes
Nga Mataapuna Orange (1)	Yes	Yes	Yes	Yes	No	No
Procare Networks	Yes	Yes	No			
Well Health Trust	Yes	No	No	Yes	No	Yes
West Coast PHO	No	No	No	Yes	Yes (2)	No
Whanganui Regional Network	No	Yes	No	Yes	No	No
NGOs						
Family Planning NZ	Yes	Yes	Yes	Yes		Yes
Laura Fergusson Trust	Yes	Yes	No	No		No
Nurse Maude	Yes	Yes	Yes	Yes	Yes	Yes
Royal NZ Plunket	Yes	Yes	No	Yes	Yes	Yes
St John	Yes	Yes	Yes	Yes	No	Yes

(1) Nga Mataapuna Orange Ltd was a pilot site for the Bay of Plenty DHB Telehealth Demonstration Project. Ngati Porou Hauroa replied that they would also be a pilot site, but that it was too early to complete the questionnaire.
(2) for DHB owned practices.

3 Videoconferencing (VC) usage and clinical activity

The PHOs and NGOs were asked about their use of videoconferencing for administrative and management meetings, clinical education, services involving direct contact between clinicians and patients, participation in multi-disciplinary team meetings with secondary care or other primary / community services and any other uses directly related to the delivery of health services.

If the organisations indicated that they are using VC for clinician – patient consultations, they were also asked if they have a method of re-imbursement for telehealth – related interactions (scheduled or un-scheduled). They were also asked if they were aware of any new services to be added in the 2014/15 period.

Ten PHOs and nine NGOs responded to this question.

All ten of the PHOs and seven NGOs are using VC for administrative and management meetings. Nine PHOs and three NGOs are using VC for clinical education. Two PHOs are using VC for patient – clinician interactions, one of these PHOs said they had a re-imbursement method and another that is planning to use the technology, also has a re-imbursement method. (The survey didn't specifically ask the PHOs to respond on behalf of their member practices. As a result, services provided or being considered by Primary Care members of the PHOs are most likely under-represented.)

Four PHOs and three NGOs are participating in some form of (multi-site) multi-disciplinary team meetings. Four PHOs and three NGOs had new services planned. These included connectivity with DHB hospital services, expanding into rural areas, and interactions for long term conditions and in-home services.

The figure below shows individual PHO and NGO responses. The organisations shown responded "yes" to at least one of the VC usage and clinical activity questions. Blank sections indicate no response.

Figure 2: How videoconferencing is used by PHOs and NGOs

	Admin & management meetings?	Clinical education?	Direct clinician and patient contact?	Participating in MDMs with secondary or other providers?	Other uses for health services?	Method of re-imbursement for scheduled or unscheduled interactions?	New services planned?
PHOs							
Compass Health	Yes	No	No	No			
Health Hawke's Bay Ltd	Yes	Yes	No	No			
Midlands Health Network	Yes	Yes	Not yet	Planned		Yes	Yes - a range of services via alliance with the DHB
Nga Mataapuna Orange Ltd	Yes	Yes	Yes	Yes - working with DHB IT staff on issues between private and public networks for VC	Yes - starting to use for meetings with other PHO and DHB staff in the BOP region.	Yes	Yes - expanding telehealth into more rural based hauora and looking to connect with hospital services that use telehealth in the BOPDHB. See note (1)
Procare Networks Ltd	Yes	Yes	No	No			Yes - working towards clinical interactions in some pilot practices through our Long Term Conditions project.

	Admin & management meetings?	Clinical education?	Direct clinician and patient contact?	Participating in MDMs with secondary or other providers?	Other uses for health services?	Method of re-imbursement for scheduled or unscheduled interactions?	New services planned?
Te Awakairangi Health Trust	Yes	No	No	No	No	No	No
Te Tai Tokerau PHO Ltd	Yes	Yes	No	Yes - Long term conditions Governance Group, Health Service Planning, Local Diabetes Team	Yes - Patient remote involvement with nurse-led adolescent health services	No	No
Well Health Trust	Yes	Yes	No	No	Yes - Clinical Governance	No	No
West Coast PHO	Yes	Yes	Yes - for rural remote practices	Yes - weekly inter-disciplinary meetings for management of complex long term condition patients and others	Yes - Specialist consults when weather cancels flights to the West Coast	No	Yes

	Admin & management meetings?	Clinical education?	Direct clinician and patient contact?	Participating in MDMs with secondary or other providers?	Other uses for health services?	Method of re-imbursement for scheduled or unscheduled interactions?	New services planned?
Whanganui Regional Network	Yes	Yes	No	Yes - Development of clinical pathways e.g. Map of Medicine project, Whanganui Inter-Professional Education (WIPE), National and regional meetings to link with rural practices, Clinical Governance and Nurses Forum	No	No	No
NGOs							
Care NZ	Yes	No	No	No	No	No	Yes – part of future development
Deaf Aotearoa	Yes	No	No	No	No	No	No
Family Planning NZ	Yes	Yes	No	No	No	No	No
Laura Fergusson Trust	Yes	Yes	No	Yes	No	No	No

	Admin & management meetings?	Clinical education?	Direct clinician and patient contact?	Participating in MDMs with secondary or other providers?	Other uses for health services?	Method of re-imbursement for scheduled or unscheduled interactions?	New services planned?
Nurse Maude	Yes	Yes – see note (2)	Yes	Yes – see note (3)	Yes – see note (4)	No - see note (5)	Yes – Trial of home set up with Vivid Solutions for paediatric palliative clinical nurse specialist.
Pacific Island Advisory and Cultural Trust	No	No	No	Yes – National, Regional and District planning meetings	No	No	No
Relationship Aotearoa	No	No	No	No	No	No	Yes – investigating various platforms for VC deployment
Royal NZ Plunket Society	Yes	No	No	No	No		
St John	Yes	No	No	No	No	No	No

(1) Nga Mataapuna Oranga's plans include: consultations between patients' GPs and community service specialists and followup consultations between patients and community specialists, treatment of patients by speech language therapists from Tauranga Hospital with (local) community specialist support for patients, cardiologist consults between Tauranga Hospital and patients in remote sites accompanied by specialist nurses, discussions on individual patient treatment plans between clinicians and their professional colleagues.
(2) Palliative Care Journal club with South Canterbury / Westport / Greymouth / Ashburton. Wound Care Nurse Specialist provides clinical support via the Mobile Bus. Video conference in to national and international education sessions for specialist nurses.
(3) Regional Palliative Care meetings including Complex case meetings with South Canterbury / Westport / Greymouth / Ashburton, patient consults to West Coast from Christchurch, Palliative MDT with Ashburton weekly, Care Coordination participate in Integrated Care Collaborative meetings with GPs.
(4) National education sessions. patient to clinician forum monthly, South Island Palliative Care Forum, National Monthly meeting paediatric palliative care (Clinical Nurse Specialist).
(5) We pay the CDHB for use of their machines (Amanda Landers machines). The CDHB invoice us 3 monthly for the link. We also pay a yearly subscription for a Nurse Maude and a Careco webex licence.

4 Technical infrastructure for videoconferencing

Questions that were asked about current / planned technical infrastructure were only sparsely answered, making it difficult to draw any meaningful conclusions. It is likely that there is more infrastructure deployed than indicated in the responses.

As with the DHBs, there is a growing use of software-based VC clients on desktop PCs, laptops and tablets, as opposed to dedicated room systems. The use of web-based VC applications is also growing. With regard to VC capacity meeting demand, the PHOs and NGOs said that either demand was being met, or that they had forward investment plans. Both groups are using a mix of internal IT support and external providers for their VC support. The majority of PHOs and NGOs said that their VC systems either didn't meet the international and NZ HISO standards for interoperability, or that they weren't sure.

The figure below shows a summary of the replies.

Figure 3: Technical infrastructure for VC in PHOs and NGOs

	Technical Infrastructure
Hardware-based units?	Two PHOs have Polycom units, and two replied that they use DHB units. Two of the NGOs have (dedicated) room systems, and one with video capability via its NEC PBX.
Software-based units and mobile devices equipped with VC client?	Five PHOs have some form of software and cameras used with desktops. Software clients cited were Skype, Cisco Jabber and VC Anywhere. One PHO also has a desktop set up as a mobile unit. Five PHOs are using iPads and laptops equipped with Skype or Cisco Jabber. One PHO mentioned using Web ex in house and facilities at the DHB for CME/CNE. Several NGOs are using, or planning to use, iPads, laptops and desktop PCs for VC. Software clients cited were Skype, MS Lync, FaceMe and Go to Meeting.
VC network provider / providers?	Network providers cited by PHOs were Gen-i (Spark Digital), City Link, Vivid Solutions, Asnet. Telesmart is the provider for one of the NGOs.
Do your VC systems meeting current international and NZ HISO standards for interoperability?	Only one PHO replied 'yes', three said 'no' while seven weren't sure. Two NGOs replied 'yes', three said 'no', three weren't sure.

	Technical Infrastructure
Does available VC capacity meet the current demands from your organisation?	Five PHOs replied 'yes', four said 'no' and one not sure. Three of the total five 'no' or 'not sure' replies have investment plans for unmet demand. Two NGOs replied yes, six said 'no'. Five have forward investment plans for current unmet and future demand.
Who provides Help Desk and technical support for your VC users?	Two of eight PHO replies cited internal IT. The remaining six use either the VC network provider or another 3rd party. Three NGOs cited internal IT, two are supported by outsourced IT help desk (Codeblue and Dimension Data).

4.1 Broadband usage

The PHOs and NGOs were asked if they were using or planning to use Ultrafast and Rural Broadband. Responses are shown in the figure below. Blank sections indicate no response.

The majority of both groups are using Ultrafast Broadband already, or planning to use it as it becomes available for their sites. Rural Broadband is only being used for those with rural remote sites, and where it is already deployed.

Figure 4: Broadband usage in PHOs and NGOs

	Ultrafast Broadband?	Rural Broadband?
PHOs		
Compass Health	Yes in rural areas for other PHO offices - Wairarapa etc	Currently using ADSL for some rural offices
Hauraki	Will be utilised when available	Yes
Kimi Hauora Wairau (Marlborough PHO Trust)	Yes	No
Midlands Health Network	Yes	Yes
Nga Mataapuna Orange Ltd (1)	UFB and High Speed Copper in use at GP clinics since early 2013	Wireless and ADSL and high speed copper at Hauora
Ora Toa PHO Ltd	Yes	No
Procare Networks Ltd		No
Ropata Medical Centre	Yes	No

	Ultrafast Broadband?	Rural Broadband?
Te Awakairangi Health Network	Yes	No
Te Tai Tokerau	No	No
Well Health Trust	No	No
West Coast PHO	In our more urban areas	Currently in our rural remote areas
Whanganui Regional Network	Yes	No
NGOs		
Family Planning NZ	Yes	No
Life Unlimited	No	No
Nurse Maude	We currently use fibre at our main sites. Would use broadband for other areas if it was available.	No
Quitline	Yes - Citylink	No
Relationships Aotearoa	When and where available to support the WAN	No
St John	Connecting our external stations and sites.	

5 Other telehealth technologies

The PHOs and NGOs were asked to indicate other telehealth technologies being used or considered, including telemonitoring, mHealth and smartphone applications, links with hospital specialists, and other technologies such as email. They were also asked if they are using or planning to implement patient portals and what the functionality is for the patients.

Note: As with other sections of the stocktake, it is understood that there may be telehealth initiatives within the PHOs and NGOs that may have progressed further since the survey.

Six PHOs and seven NGOs responded to this question. Other technologies and applications being considered by PHOs include monitoring /coaching /triage from call centre for chronic care patients, text messaging to support smoking advice, mHealth/ smartphone applications for youth mental health and email consultations.

NGOs are using or considering home telemonitoring, telerehabilitation services, mHealth text reminders for paediatric and other services, email consultations, functions via websites (including self-referrals and bookings), and full service web-based applications for smartphones.

The figure below shows individual PHO and NGO responses. Blank sections indicate no response.

Figure 5: Other technologies being used / planned

	Telemonitoring?	mHealth / smart-phone apps?	Links with hospital specialists?	Other, e.g. email consults?
PHOs				
Midlands Health Network			Planned	Yes – via our model of care sites and network roll-out of shared EHR and patient portal
Nga Mataapuna Orange Ltd (1)			Planned (1)	
Oratoa PHO			Yes – e referrals, Manage My Health (shared care)	
Procare Networks Ltd	Yes – looking to add monitoring /coaching /triage from call centre for chronic care patients.	Yes – text messages to support smoking advice		
Te Tai Tokerau PHO				Yes – variable use of technology by contracted GP providers
West Coast PHO		Considering for youth mental health	Yes – already doing	Planned
NGOs				
Care NZ				Yes - receiving self referrals through the website
Family Planning NZ	Planned	Planned		Yes - email or web bookings planned
Laura Fergusson Trust	Planning a range of tele-rehabilitation technologies			

	Telemonitoring?	mHealth / smart-phone apps?	Links with hospital specialists?	Other, e.g. email consults?
Life Unlimited		Yes		Yes – email consultations
Nurse Maude	Considering home telemonitoring for post acute and chronic conditions and expanding use of Medications Carousel for community based patients	Investigating mHealth for paediatric continence service patients. Some departments do use e-text/text messages to patients and reminders, e.g. continence service text their patients at night time to remind them to go to the bathroom or not to drink any more.	For palliative care and plan for wound care Nurse Practitioner case conferencing with vascular, infectious diseases and hyperbaric unit at CDHB.	
Quitline	Patients who enrol on a three month support programme receive targeted messages (website, SMS, email) that are driven by their stage on the programme and that are delivered as per the channel preferences (phone, web, email, SMS) selected by the patient.	The Quitline support service web application for smartphones. This is a full self-service application that is driven by the interfaces with the patient record and communication preferences.	DHB clinicians and PHOs are able to refer patients to Quitline and DHBs can receive status reports of the patients referred.	If the patient selects this channel they can receive smoking cessation support over email, text or the internet online support service.
Relationships Aotearoa		Yes – Athena Penelope CMS		We do get email questions from clients, which our PlunketLine nurses answer

(1) Nga Mataapuna Oranga's plans include: consultations between patients GPs and community service specialists and followup consultations between patients and community specialists, treatment of patients by speech language therapists from Tauranga Hospital with (local) community specialist support for patients, cardiologist consults between Tauranga Hospital and patients in remote sites accompanied by specialist nurses, discussions on individual patient treatment plans between clinicians and their professional colleagues.

Six of the PHOs and three of the NGOs indicated that they were using or planning to use Patient Portals. The figure below shows types of usage. Blank sections indicate no response.

Note: The deployment and use of the patient portal in Primary Care has progressed since the survey was conducted and is reported on separately on the NHITB website.

Figure 6: Patient Portal Usage

Patient Portal Usage	Access their health record	Make appointments (face to face)	Request a video appointment	Access their lab results	Access their meds list	Email their care providers
PHOs						
Compass Health	Yes	Yes	No	Yes	Yes	Yes
Midlands Health Network	Yes	Yes	No	Yes	Yes	Yes
Procare Networks Ltd	Yes	No	No	No	No	No
Ropata Medical Centre	Yes	Yes	No	Yes	Yes	Yes
Te Awakairangi Health Network	No	Yes	No	Yes	Yes	Yes
Te Tai Tokerau PHO	Yes	Yes	No	Yes	Yes	Yes
NGOs						
Family Planning	No	Yes	Yes	No	No	Yes
Nurse Maude	Yes	Yes	No	No	No	Yes
Quitline (1)	Yes	No	No	No	No	Yes

(1) Quitline's online clients have a personalised web page with features such as personal Quit Stats, Quit Plan and links to the on-line peer support community (6,000 active bloggers). Also, Quitline has developed referral systems with the health sector, with the most developed being with Medtech that includes a Quitlines referral capability auto-populated from within Medtech, and with automated feedback to their Medtech Patient Management System of patient progress at Quitline back to the referring medical practice. Such feedback loops are essential to building trust and confidence in the Quitline referral service.

6 Telehealth benefits and evaluations

6.1 Benefits

Thirteen PHOs and nine NGOs completed this question. Most of the PHOs (eleven) and all of the NGOs said that avoiding travel for their own clinicians and patients was a benefit of telehealth. There was a similar agreement on the benefit of providing out of hours support between clinicians and patients (nine PHOs and seven NGOs). However there was a wide gap in how the organisations viewed the benefits of linkages with hospital specialists for outpatient appointments, support for clinical staff and better acute care. A comment by one of the NGOs helps to explain this difference:

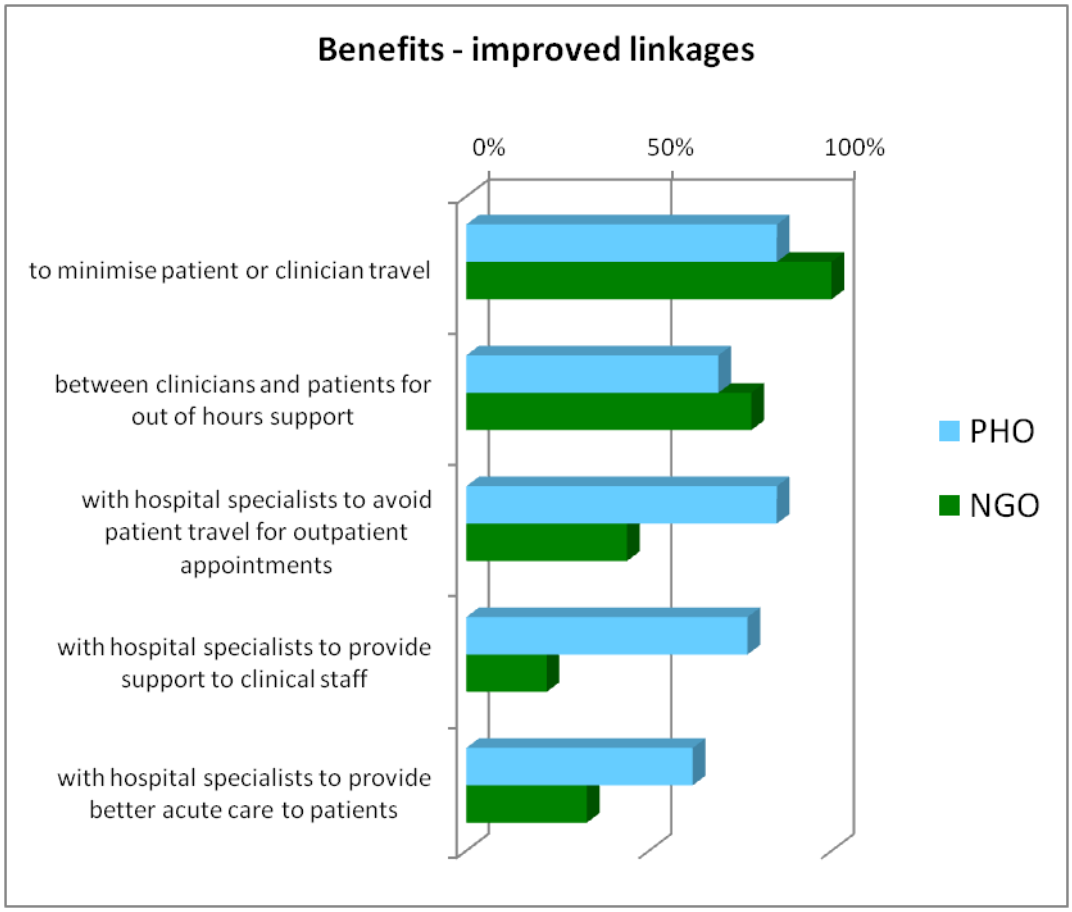
> *"The questions are very hospital focused and show that there is a need to connect more with organisations working in primary care other than GPs. "The key benefits that we see is increased access to our services, reduced waiting times for appointments, being able to offer services where we currently don't have clinics… (telehealth is) more cost effective and we don't need to have as much bricks and mortar. In our client surveys young people like using new technology so it fits with our client group."*

The following figures show to what extent the PHOs and NGOs agreed with the telehealth benefits cited in the questionnaire.

Figure 7: Telehealth benefits from improved linkages

Benefit	% of PHOs that agreed with the benefit out of total thirteen (13) responses	% of NGOs that agreed with the benefit out of total nine (9) responses
Improved linkages between your clinicians and patients to avoid patient or clinician travel	85%	100%
Improved linkages between your clinicians and patients for out of hours support	69%	78%
Improved linkages with hospital specialists to avoid patient travel for outpatient appointments	85%	44%
Improved linkages with hospital specialists to provide support to your clinical staff	77%	22%
Improved linkages with hospital specialists to provide better acute care to your patients	62%	33%

Figure 8: Telehealth benefits from improved linkages



6.2 Evaluations

The PHOs and NGOs were asked if they had conducted any formal evaluations of telehealth-based services, and if not, did they have anecdotal examples.

None of the PHOs have conducted evaluations although one PHO, (Midlands Health Network), does have some anecdotal feedback. Five of the NGOs have conducted evaluations (Family Planning, Nurse Maude, Quitline, Relationships Aotearoa, and Royal NZ Plunket Society).

7 Barriers to uptake of telehealth

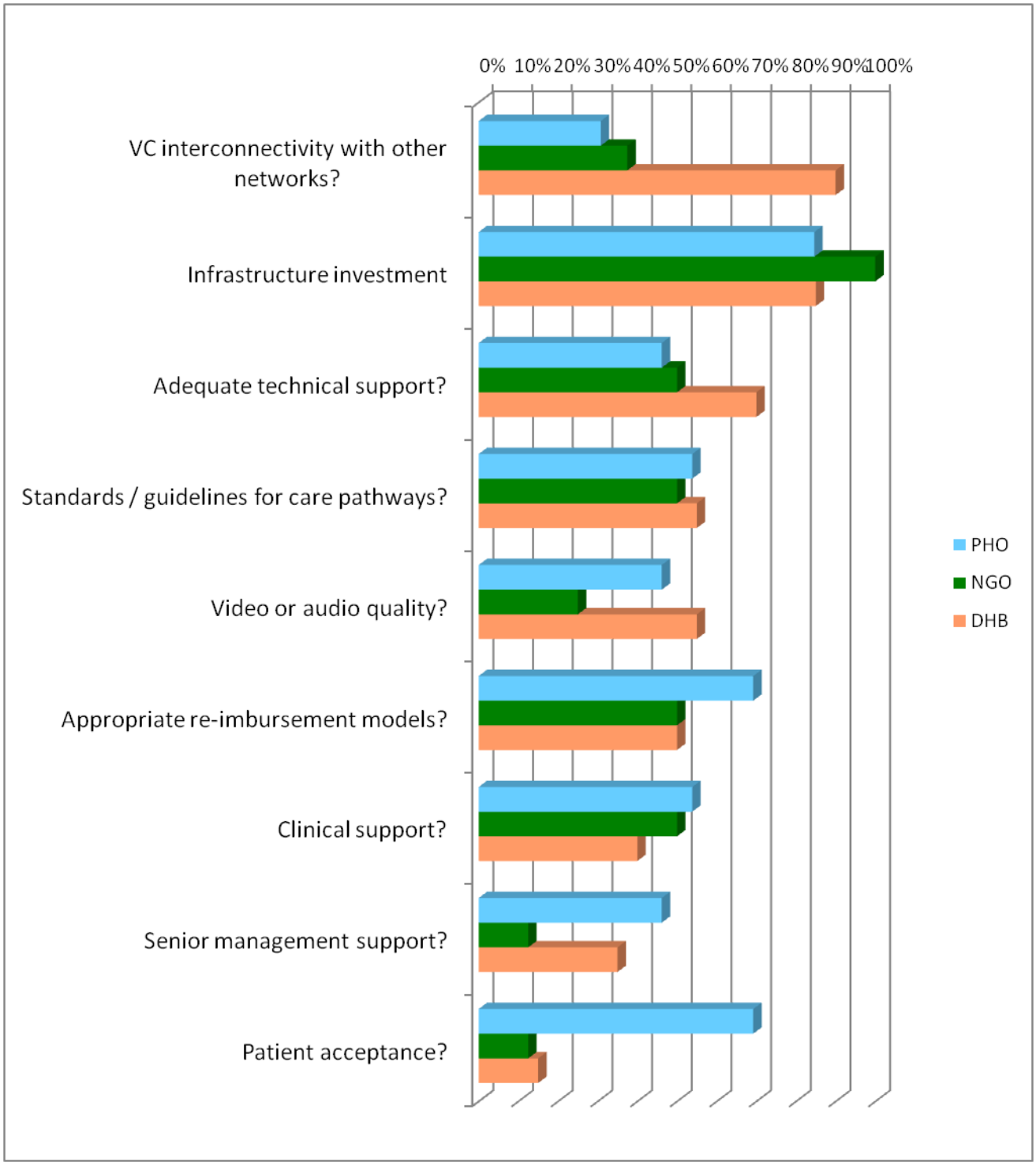
The survey asked respondents to cite the factors that were barriers to the uptake of telehealth.

Thirteen PHOs and eight NGOs responded to this question. The following figures show the results for the responding organisations. The barriers cited by DHBs in Phase 1 of the Stocktake are shown for comparison.

Figure 9: Barriers to uptake of telehealth cited by PHOs, NGOs and DHBs

	PHOs – % yes out of 13 responses	NGOs – % yes out of 8 responses	DHBs - % yes out of 20 responses
VC interconnectivity with other networks?	31%	38%	90%
Infrastructure investment?	85%	100%	85%
Adequate technical support?	46%	50%	70%
Standards or protocols/guidelines for care pathways?	54%	50%	55%
Inadequate or inconsistent video or audio quality?	46%	25%	55%
Appropriate re-imbursement models?	69%	50%	50%
Clinical support and concerns about clinical accountability?	54%	50%	40%
Senior management and planning/funding acceptance of the value proposition?	46%	13%	35%
Patient acceptance?	69%	13%	15%

Figure 10: Barriers to uptake of telehealth cited by PHOs, NGOs and DHBs



Infrastructure investment was cited by eleven of PHOs and all of the NGOs, and by seventeen of the twenty DHBs in the Phase 1 Stocktake. However support from senior management and planning/funding is cited as a barrier by only six of the PHOs, one of the NGOs and seven of the DHBs in the Phase 1 Stocktake. This suggests a disconnect; the value proposition may be accepted in principle, but the

detailed business cases are lacking, or there is a lack of the seed funding needed to lay the infrastructure foundation.

VC interconnectivity was cited by almost all of the DHBs as a barrier, but to a much lesser extent by the PHOs and NGOs. This is assumed to be due to the relatively high use of VC by the DHBs for telemedicine interactions, whereas this application isn't as advanced within the PHO / Primary and NGO sectors where connectivity with organisations outside their immediate network is needed. For NGOs, it may also not be as relevant, depending on their types of service.

Of interest is that patient acceptance was cited as a barrier by very few of the NGOs and DHBs, whereas nine of the eleven PHOs cited it. This may be due to the more advanced use of telehealth technologies in the DHBs and NGOs, including patient satisfaction surveys. There is anecdotal evidence of high degrees of patient acceptance in some primary care projects, e.g. the Telehealth Demonstration Project in the Bay of Plenty. However the high percentage of PHOs (69%) that cited patient acceptance as a barrier needs to be considered and addressed.

Additional comments from PHOs on barriers included:

- Broadband speed in rural areas can be a constraint
- Progress is dependent on systems compatibility with the DHB provider arm and support from planning and funding
- VC interconnectivity is the biggest issue with 'blocking' between VC network providers
- Quality of bridge calls is greatly reduced.

Quitline commented that its telehealth service is primarily with the individual clients, so their access to communications is key. For health sector interface, investment in referral systems and integration on NHI number (patient ID) would be highly desirable. The immediacy of telehealth benefits is offset by paper based Nicotine Replacement Therapy (NRT) prescriptions. It would be advantageous if the patient experience could be augmented by electronic NRT prescriptions.

8 Support from NHITB and the Telehealth Forum

PHOs and NGOs were asked to cite the services provided by the NHITB and the Telehealth Forum that would be most beneficial.

Nine PHOs and eight NGOs completed this section of the survey.

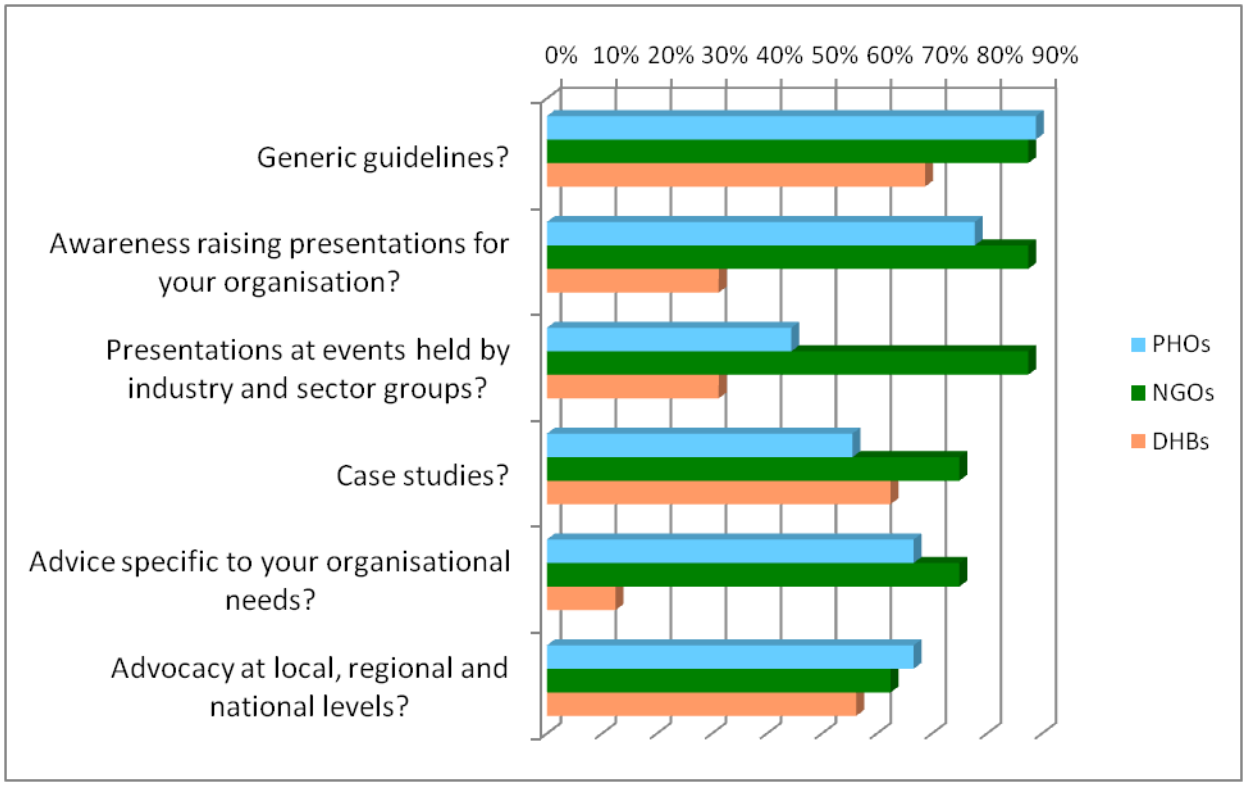
PHOs cited generic guidelines as having the most benefit, followed by awareness raising presentations for their organisations. NGOs cited generic guidelines, awareness raising presentations for their organisations and at industry and sector events as having the most benefit, followed by case studies and advice specific to their organisational needs. The most benefit cited by DHBs in the Phase 1 Stocktake was seen to be in generic guidelines and case studies followed by advocacy.

The following figures show the results for the responding organisations. The DHB responses are included for comparison.

Figure 11: Support services most beneficial for PHOs, NGOs and DHBs

Telehealth Forum / NHITB Support	% of PHOs that cited each type of support out of total 9 responses	% of NGOs that cited each type of support out of total 8 responses	% of DHBs that cited each type of support out of total 16 responses
Generic guidelines?	89%	88%	69%
Awareness raising presentations for your organisation?	78%	88%	31%
Presentations at events held by industry and sector groups?	44%	88%	31%
Case studies?	56%	75%	63%
Advice specific to your organisational needs?	67%	75%	13%
Advocacy at local, regional and national levels?	67%	63%	56%

Figure 12: Support services most beneficial for PHOs, NGOs and DHBs



Additional comments from PHOs and NGOs on the type of support required included:

> *"...keen to become involved in (national) telehealth developments but we must be part of local, regional and national initiatives with appropriate support and funding. Multiple challenges must be overcome first."*

> *"...guidance from clinicians and PHOs in other regions that are doing good things. Let's hear about pilots and what has worked and what hasn't and why."*

> *"...more sharing of what organisations are doing to problem solve things like paying fees, we will be very happy to share our experience and policies etc once we are a little further down the track."*

> *"... keeping abreast with and utilising telehealth techniques is central to service development. Barriers include access to expertise in health sector network infrastructure and funds to develop software."*

The Forum is addressing most of the support preferences in its current work programme, and will take the priorities shown by the PHOs and NGOs into consideration in its ongoing work programme.

Appendix A: Survey respondents

A.1 PHO respondents

Eighteen of a total of thirty-two PHOs responded, with fourteen providing information on some or all of the survey questions. One response was from a primary care provider (Ropata Medical Centre).

Figure 13: PHOs responding to the survey and lead DHBs

	PHO / Location	Lead DHB
1.	Compass Health , Capital and Coast	Capital and Coast
2.	Hauraki PHO, Thames	Waikato DHB
3.	Health Hawke's Bay Limited	Hawkes Bay DHB
4.	Kimi Hauora Wairau (Marlborough PHO Trust)	Nelson Marlborough DHB
5.	Midlands Health Network, Hamilton	Waikato DHB
6.	Ngā Mataapuna Oranga,, Thames	Bay of Plenty DHB
7.	Ora Toa Health Services , Porirua	Capital and Coast DHB
8.	ProCare Health Limited , Auckland	Auckland DHB
9.	Ropata Medical Centre, Lower Hutt (Member of Cosine Primary Care Trust)	Capital and Coast DHB
10.	Te Awakairangi Health Network, Lower Hutt	Hutt Valley DHB
11.	Te Tai Tokerau PHO, Kaitaia	Northland DHB
12.	Well Health Trust PHO, Wellington	Capital and Coast DHB
13.	West Coast PHO, Greymouth	West Coast DHB
14.	Whanganui Regional Health Network, Wanganui	Whanganui DHB

The following returned the survey questionnaire, but without sufficient information to be used in this report:

- Christchurch PHO (Canterbury DHB)
- Ngati Porou Hauroa Charitable Trust (Tairawhiti DHB) indicated they would be part of the BOPDHB Telehealth Demonstration Project, but it was too early to provide information.
- Rotorua Primary Health Services (Lakes DHB).
- South Canterbury Primary and Community Services is integrated with the South Canterbury DHB, with access to all the DHB's IT tools and IS systems such as videoconference, skype etc. They do not have any Primary Care telehealth services but do have secondary telehealth networks whereby the DHB employed clinicians join into regional network meetings remotely.

A.2 NGO respondents

The eleven NGOs that responded to all or some of the survey questions are shown below, including a description of services as shown on their websites.

Figure 14: NGOs responding to the survey

	NGO	Location / Services
1.	Care NZ	National Office in Wellington. CareNZ helps people – as well as those who love them – struggling with alcohol and/or drug abuse problems to change their lives for the better. CareNZ is the delivery arm of **NSAD** (The New Zealand Society on Alcohol and Drug Dependence) – a charitable foundation which has been involved in alcohol and drug treatment policy and delivery in New Zealand since 1954.
2.	Deaf Aotearoa	National Office in Wellington, with locations in North and South Islands. Provides a range of services for the deaf and hearing communities including community relations, awareness workshops, service coordination for members of the deaf community, deaf friendly equipment, sign language classes and other services.
3.	Family Planning New Zealand	Locations of clinics in North and South Islands from Whangarei to Invercargill, with national headquarters in Wellington. Provides a range of services including sexual and reproductive health information, clinical services, education and training and research.
4.	Laura Fergusson Trust, Canterbury	The Laura Fergusson Trust Canterbury is a leading provider of long-term residential and short-term rehabilitation solutions. The facility in Christchurch offers a full continuum of services focused around each individual; working to enhance inclusion, involvement and independence. The Trust also provides supported housing options for people with a long term disability.
5.	Life Unlimited	Based in Hamilton, Life Unlimited is a charitable trust that seeks to support people to be in control of their own lives and strives to meet the cultural needs of people with disabilities, Services provided via government contracts, community programmes and partnerships include the Needs Assessment Service Coordination (NASC), national hearing therapy service, Life Unlimited Stores, and community services.
6.	Nurse Maude	Headquarters in Christchurch. Provides nursing, homecare, and support so people can stay in their own homes and communities and inpatient care in its hospital and hospice. Nurse Maude works in partnership with other Canterbury Region health providers.
7.	Pacific Island Advisory and Cultural Trust	Based in Invercargill, the Trust's aim is to support the Pasifika community to live and practice their own culture/traditions in a safe environment. Activities include health clinic, social services, health promotion, community nurses, and community based programmes.

	NGO	Location / Services
8.	Quitline	National Office in Wellington. The Quit Group (which operates as Quitline) is an incorporated charitable trust that grew out of the national Quitline, established in 1999. The group is committed to helping all New Zealanders quit smoking, with a particular focus on Māori, Pacific peoples and pregnant woman. Free services are funded by the Ministry of Health. Smokers can access support via telephone, online and text..
9.	Relationships Aotearoa	National Office in Wellington. Relationships Aotearoa is New Zealand's largest provider of professional counselling and relationship education, with expertise in couple counselling, provision of individual and family therapy, assisting those affected by violence and abuse, working with Maori, youth at risk, and workplace issues.
10.	Royal New Zealand Plunket Society	National Office in Wellington. New Zealand's largest provider of support services for the development, health and wellbeing of children under 5. Plunket works together with families and communities, to ensure the best start for every child.
11.	St John	National Office in Auckland. St John's core activity is providing ambulance services throughout New Zealand. St John runs hospital volunteer programmes called FEDs and Hospital Friends, providing comfort and support to patients, their whanau and friends. It supports independent living via its medical alarm, Caring Caller and Health Shuttles services.

Appendix B: PHO and NGO responses to barriers

The following figures show responses to barriers for those PHOs and NGOs completing this survey question.

= Yes, this is a barrier to uptake.

Figure 15: Barriers to uptake - individual PHO responses

	PHOs														
Barriers to uptake	Compass	Hauraki PHO	Health Hawkes Bay Ltd	Kimi Hauora Wairau (Marlborough PHO Trust)	Midlands Health Network	Nga Mataapuna Oranga Ltd	Ngati Porou Hauora	Ora Toa PHO Ltd	ProCare Networks Ltd	Ropata Medical Centre	Te Awakairangi Health Network	Te Tai Tokerau PHO Ltd	Well Health Trust	West Coast PHO	Whanganui Regional Network
Clinical support and accountability?	■	■	■	■					■	■			■		
Patient acceptance?	■	■	■	■		■				■		■	■	■	
Infrastructure investment	■	■	■	■	■			■		■	■	■	■	■	
Appropriate re-imbursement models?	■	■	■	■		■			■		■	■	■		
Standards / protocols / guidelines?		■	■	■						■	■	■	■		
Senior mgmt & planning/ funding acceptance of the value proposition?	■	■	■	■								■	■		
Adequate technical support?		■		■		■				■	■		■		
VC interconnectivity with other networks?		■		■		■								■	
Inadequate or inconsistent video or audio quality?		■		■	■	■						■	■		
Other? (please describe)		(1)				(2)						(3)			(4)

(1) We await systems compatability with the DHB and funding of the Alliance Plan.

(2) VC interconnectivity is biggest issue with too many telcos in the market blocking each other from their clients systems
(3) Quality of bridge calls greatly reduced
(4) Broadband speed in rural areas can be limited.

Figure 16: Barriers to uptake - individual NGO responses

	NGOs							
Barriers to uptake	Care NZ	Family Planning NZ	Laura Fergusson Trust	Life Unlimited	Nurse Maude	Quitline	Royal NZ Plunket Society	St John
Clinical support and concerns about clinical accountability?	■	■		■		■		
Patient acceptance?				■				
Infrastructure investment?	■	■	■	■	■	■	■	■
Appropriate re-imbursement models?		■	■		■			■
Standards or protocols/guidelines for care pathways?		■	■	■		■		
Senior management and planning/funding acceptance of the value proposition?					■			
Adequate technical support?		■		■	■	■		
VC interconnectivity with other networks?	■	■						■
Inadequate or inconsistent video or audio quality?		■					■	
Other? (please describe)								(5)

(5) For Quitline, its telehealth service is primarily with the individual clients, so their access to communications is key. For health sector interface, investment in referral systems and integration on NHI number (patient ID) would be highly desirable. The immediacy of telehealth benefits is offset by paper based NRT prescriptions from our telehealth service. It would be advantageous if the patient experience could be augmented by electronic NRT prescriptions (Quitcards).

Appendix C: Survey questionnaire

1 Governance – does your organisation have:

a. any telehealth strategies or policies? *If yes, can you provide the documents?*
b. an appointed clinical telehealth leader? *If yes, please provide name and contact details*.
c. an appointed telehealth facilitator / programme manager? *If yes, can you provide the job descriptions?*
d. a governance group (for example an Information Services Governance Group?) *If yes, is the approval of this group required for the purchase of new VC equipment or the use of other telehealth tools such as text messaging?*
e. protocols and guidelines for using telehealth tools? *If yes, can you provide the documents?*

2. Videoconferencing (VC) - are you using it for:

a. Administrative and management meetings?
b. Clinical Education?
c. Services involving direct contact between clinicians and patients? *If yes, please complete Question 3.*
d. Participating in Multi-Disciplinary Team Meetings with secondary care or other primary/community services. *If yes, please mention types of meetings.*
e. Other uses that are directly related to delivery of health services? *If yes, please describe.*

3. Clinical activity. If you are using videoconferencing for clinician – patient consultations:

a. Do you have a method of being re-imbursed for telehealth-related interactions (scheduled or unscheduled)?
b. Are you aware of any new services to be added in the next 12 months? If so, please list here.

4. Technical Infrastructure. If your organisation is using videoconferencing (VC):

a. Please identify types and numbers of units. • Hardware-based units (number and type) • Software-based units (number and type) • Mobile carts (number and type) • Mobile devices equipped with VC client (number and type)

b. Who is your VC network provider (or providers)?
c. Do your VC systems meet current international and NZ HISO standards for Interoperability?
d. Does your available VC capacity meet the current demands from your organisation? *If no, do you have an investment plan for the current unmet demand and future growth?*
e. Who provides Help Desk and technical support for your VC users?
f. If you are providing telehealth services, can you identify the geographic sites that you interact with for patient consultations, ward rounds, MDMs etc.

5. Other telehealth technologies and services: - are you providing or planning to provide:

a. telemonitoring for remote support of patients? For example those with chronic conditions? *If planning or providing, please describe*
b. mHealth / smartphone applications for health and wellness remote patient support? *If providing or planning, please describe*
c. links with hospital specialists? *If providing or planning, please describe*
d. other, such as email consultations? *If providing or planning, please describe*

6. Telehealth Benefits. If you are providing telehealth services:

a. Have you conducted formal / structured evaluation(s)? *If yes, can you make these available?*
b. If evaluations aren't available, do you have any anecdotal examples or observations about the benefits?

7. Barriers to uptake:

a. The NZ Telehealth Forum is working to overcome telehealth barriers. Are any of the following barriers to uptake for existing or possible services? (please tick)

- ☐ Clinical support and concerns about clinical accountability?
- ☐ Patient acceptance?
- ☐ Infrastructure investment, e.g. for facilities, technology, support staff?
- ☐ Appropriate re-imbursement models at individual or organisational level?
- ☐ Standards or protocols / guidelines for care pathways?
- ☐ Senior management and planning/funding acceptance (or understanding) of the telehealth value proposition?
- ☐ Adequate technical support?
- ☐ VC interconnectivity with other networks?
- ☐ Inadequate or inconsistent video or audio quality?
- ☐ Other? (Please describe)

8. NHITB and NZ Telehealth Forum support.

a. What type of support would be helpful to your organisation? (please tick)

- ☐ Generic guidelines?
- ☐ Awareness raising presentations for your organisation?
- ☐ Presentations at events held by industry and sector groups?
- ☐ Case studies?
- ☐ Advice specific to your organisational needs?
- ☐ Advocacy at local, regional and national levels?
- ☐ Other? (Please describe)