



# Telemonitoring in general practice

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# Introduction

Chronic conditions account for 60-70 per cent of all deaths worldwide and are the leading cause of inequality in health outcomes across social groups. As the prevalence of chronic illness continues to increase with our aging population, remote home telehealth monitoring is emerging as a possible means of delivering care in a more cost effective and patient-centred way, while overcoming problems of inaccessibility (Waitemata DHB, n.d.).

A Waitemata DHB review (n.d.) of a remote home monitoring trial that ran from 2010-2012 demonstrated:

- patients feel looked after and safe
- patients become more knowledgeable about their condition and are better able to self-manage
- patients can access care more easily, and in a more timely way
- families are more included in care
- clinical staff involved are not only able to share roles more widely, but also feel the service adds value to patient care.

There is debate and ongoing research needed to demonstrate the impact of telemonitoring on hard outcomes like morbidity and mortality. Wherever a programme needs significant resources, a focused and deliberate pro-equity approach is needed to avoid increasing inequity of access to the poor and marginalised. Internationally, home monitoring devices have proven effective at reducing ED visits, hospital admissions and mortality, while improving experiences of care and confidence in self-management of chronic disease (Martin-Lesende et al., 2017).

A meta-analysis of 15 systematic reviews of telemonitoring among heart failure patients showed that home telemonitoring interventions reduce the relative risk of all-cause mortality (0.60 to 0.85) and heart failure-related hospitalizations (0.64 to 0.86) compared with usual care (Kitsiou et al., 2015).

In 2021 Pinnacle completed its own telemonitoring pilot, aimed at exploring the use of remote monitoring. Overall both patients and clinicians found the service to be valuable, while the findings suggest telemonitoring has the most impact for patients with severe illness.

At-home telemonitoring readings alerted clinicians to changes in a patient's condition earlier, with one GP noting that the biggest impact was seen when earlier intervention prevented hospitalisation or a more severe case of hospitalisation.

The aim of this document is to share our key learnings and help you implement a telemonitoring service in your practice if you choose to do so.

- How telehealth monitoring may work for your practice, including specific requirements and processes.
- A break down of options for telemonitoring implementation.
- A list of potential partners that can help with implementation if you choose to proceed.

We hope you find it useful.

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# Key learnings

The key learnings from Pinnacle's 2021 telemonitoring pilot include the following points.

- Preparation and implementation of a telemonitoring programme needs to be timed to avoid busy times of the year.
- Practices can identify a broad range of people who will benefit from telemonitoring, and determine who uses these tools.
- Practices can establish a workable care plan with patients based on their individual needs.
- Technological difficulties, at onboarding and ongoing, need to be planned for and dedicated time and expertise is essential.

## How telemonitoring works

In a typical telemonitoring situation patients measure relevant biometric data from home daily, such as their weight, blood pressure or blood glucose, and monitor their symptoms by answering a series of pre-programmed questions.

This information is entered into a telehealth device and either sent electronically to the care team for review or simply sent by portal message or shared through regular proactive calling to the patient by the practice team.

If recordings fall outside an individual's target parameters, or no data is received, the practice team contact the patient (through electronic messaging, telephone call or video conference) to advise on an appropriate course of action and provide self-management education.

The idea is that self-monitoring, along with educative feedback from the care team, will teach patients and their families to self-manage their long-term conditions. This ultimately enhances their quality of life, reduces the burden on health care professionals, and enables frail elderly patients to manage independently in their homes for longer.

Home telemonitoring also aims to reduce hospital admissions for acute exacerbations of chronic illness by detecting and treating signs of clinical deterioration at an early stage, before a downward spiral necessitates a visit to ED or hospital admission.

It is not clear if hospital admissions and exacerbations are reduced, but research supports the contention that patients and staff benefit from being involved in telemonitoring through improved relationships and communication, improved understanding, and self-confidence in home management.

# Core elements

## Outcome goals

- It's important to be clear as a team about what your outcome goals are, and be clear with your patients about what they can expect from telemonitoring.
- Telemonitoring could be a temporary arrangement to increase monitoring following a significant event or after a condition is first diagnosed, or be part of a longer-term plan for the patient.

## Key enablers

- Having a dedicated staff member who is leading the telemonitoring service is essential to success. This person may need assistance from a technical person to support the use of equipment and troubleshoot issues if they do not have that expertise themselves.
- Adequate internet and/or communication services need to be in place at the clinic and the patient's home. Again, this can be complicated, and a technical expert may be needed.
- An effective asset management system needs to be in place to ensure that you know where all the equipment is at any one time.
- Clear instructions for use of the equipment, cleaning, operational instructions, storage and return should be available to all participants.

## Patient selection

- Only choose patients (or patients with carers) who perceive at the outset that home telemonitoring is useful to them and that the technology is easy to use. These are significant predictors of telemonitoring effectiveness for frail elderly and their carers.
- Patients who are unable to properly engage with the programme should be returned to standard care, to allow others the opportunity to benefit from using the telemonitoring equipment.
- You may consider this care most suited for patients at high risk of repeat appointments or re-admission – the so-called 'frequent fliers'.
- Home telemonitoring is unlikely to produce improved health outcomes for stable patients who have alternative high quality care available to them, such as an easily accessible outpatient programme.
- In New Zealand, the most striking stories of personal and family telehealth engagement have come from the rural community, which has traditionally been underserved by health services.

## Equipment

- Patient engagement with a telemonitoring programme is highly dependent on the usability (user friendliness) of the electronic devices involved, which may include smartphones, tablets and wearable devices.
- Devices need to be pleasant, easy to use, portable and robust.
- It is often an advantage for devices to be wireless and to automatically upload readings on the patient's behalf, although this adds technical complexity.
- Telemonitoring equipment can be supplied through your normal medical equipment supplier.

# Monitoring options

## Clinic led monitoring

Simply arranging a daily, twice weekly, or weekly phone call with a patient to check in may be enough, depending on their circumstances. The patient can keep a simple written diary of results and relay them orally during the phone call, or send regular readings via the patient portal, email or text message to the practice team.

## Support service monitoring

Organisations like Tunstall Healthcare can provide a variety of monitoring services and support.

- Patients are provided with the vital sign devices that are required to manage their condition.
- Patients participate in daily health interviews where they are asked to use the devices to take their vital readings, which are sent from Tunstall's myMobile app to their integrated care platform (ICP) via Bluetooth as soon as the readings are taken. Patients can use their own smartphone or mobile device to access the myMobile app.
- Clinicians can access patient results through the ICP, which will also trigger alerts to them for any readings that fall outside agreed acceptable parameters.

# Setting up in practice

Internal resourcing is required to establish and run a telemonitoring service in your practice.

- A GP champion who can provide clinical oversight and support the flow of work to support the safe and effective monitoring of patients.
- At least one nurse or health care assistant (HCA) trained to support the onboarding of patients and set them up with telemonitoring equipment.

Pinnacle's trial with Tunstall involved comprehensive training to ensure clinician confidence when introducing the service, including webinars, in-service programmes and physical training. When considering resourcing to run a telemonitoring service, the pre-implementation training needs to be accounted for.

# Stopping the programme and withdrawing equipment

Patients can be taken off home telemonitoring once their condition is stable, and education or self-management confidence has been achieved. Generally, this would be expected to take around 12 months, subject to their individual circumstances. Patient engagement with telemonitoring may drop off over time as their self-management improves, and their perceived usefulness of telemonitoring to manage their health decreases.

# Funding

Telemonitoring services require a lot of investment. Regional funding programmes may be available via Te Whatu Ora. In the absence of funding, it is reasonable to set up a telemonitoring service where patients pay for deliverables. There are two options for this: a subscription model, or fee for service. Pinnacle can provide support for business modelling.

# Further information and support

## Service partners

Service partners will be instrumental in supporting you to prepare and implement a telemonitoring service into your practice. Some options are listed below.

### mmHG

<https://mmhg.ca/>

- Physical led; university based digital health company.
- Sphygmo app – BP/HR/Glucose/Wt/pOx/resp rate/Temp.

### Tunstall Healthcare

<https://www.tunstallhealthcare.com.au/>

- Experts in remote patient monitoring.
- Experienced at multiple types of implementations – rural or systematic, for example.
- Excellent nursing oversight and education.
- Easy to use software interface that is universally accessed.
- Contact: Kathryn O’Neill, Clinical Services Manager, 0800 488 678.

### Evolve

<https://evolvemed.co.nz/>

- Consulting service for clinical assessment and recommendations.
- Works with partners and practices to create solutions:
  - workflow
  - models of care
  - education guidelines
  - facilities, troubleshooting and work arounds.
- Contact: Erik McClain, Chief Executive, 07 808 4089.

### NZ Telehealth

<https://www.telehealth.org.nz>

- An excellent resource guide for telehealth monitoring.
- Including webinars and the National Telehealth register, this website is worth referring to when considering implementation.

## Pinnacle

Pinnacle can provide advice and support to help practices implement a telemonitoring service, including business modelling.

Please contact your Pinnacle practice development facilitator for more information.

# References

Kitsiou, S., Paré, G., & Jaana, M. (2015). Effects of Home Telemonitoring Interventions on Patients With Chronic Heart Failure: An Overview of Systematic Reviews. *Journal of Medical Internet Research*, 17(3). <https://doi.org/10.2196/jmir.4174>

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