

Spirometry access, standardisation, and equitability is at a crisis point in New Zealand.

Minister/stakeholder:

Minister of Health, Associate Minister of Health

Contact for further discussion:

Letitia Harding, Chief Executive, Asthma and Respiratory Foundation NZ

Mobile: 027 786 8765, Email: letitia@arfnz.org.nz

PURPOSE

In October 2024, the Asthma and Respiratory Foundation NZ (ARFNZ) hosted a two-day workshop with **26 multidisciplinary health professionals from around the country to form a Spirometry Think Tank to discuss spirometry testing.**

This brief is a summary of that meeting and discusses the current **barriers to access and choice for spirometry** testing in Aotearoa New Zealand, and **potential solutions.**

Discussions around the current status of spirometry testing across New Zealand included:

- **device status, access and integration to existing systems**
- **spirometry training for health professionals**
- **examples of spirometry provision and training from around New Zealand**

The challenges involved in establishing and maintaining spirometry services were also discussed, and potential solutions to improve access and break down barriers to testing.

BACKGROUND

Spirometry is an essential, simple, non-invasive lung function test. It is used to investigate symptoms such as breathlessness, cough, and wheeze. It is critical in the diagnosis and management of common conditions such as asthma and chronic obstructive pulmonary disease (COPD) and for assessing their severity. With the availability of inexpensive portable spirometers, spirometry can be performed in hospital or community settings by health professionals who have completed a spirometry training course.

Asthma and COPD are two of the leading respiratory causes of mortality and morbidity, leading to many avoidable hospital admissions in New Zealand.¹ Spirometry is a reproducible, objective, and standardised diagnostic tool for both of these conditions.

Spirometry results can create a framework to direct treatment and assess medication efficacy.^{2,3} The New Zealand COPD Guidelines⁴ and the GOLD Report⁵ specify that spirometry is the 'gold standard' test used to diagnose COPD.

The Australian Commission on Safety and Quality in Health Care has added spirometry as the first and key step in their standard of care document regarding COPD.⁶

METHODOLOGY

A human-centred-design methodology was used, with attendees identifying key challenges to spirometry access in New Zealand, and ideas to address these challenges. These have been detailed on the following pages...

ACTIONS

This briefing outlines actions for the Ministry of Health to improve spirometry access, availability, and training across Aotearoa/New Zealand. These initiatives have been developed by the respiratory health professionals who attended the workshop (items 1 – 5).

We are asking the Ministry of Health to consider the following recommendations

Ministerial support:

Endorse and assist in funding the development of National Standards for Community Spirometry and facilitate their equitable implementation nationwide.

Pilot funding:

Using a holistic model of wellbeing such as Te Whare Tapa Whā, allocate resources to pilot a community hub model, with a focus on rural areas and regions with known health disparities. This model supports a culturally responsive approach, addressing the physical, mental, spiritual and social needs of patients within community settings. Embedding Te Whare Tapa Whā within spirometry hubs will enhance patient trust, engagement, and health outcomes.

Public awareness campaign:

Support the launch of a public health spirometry 'Know Your Breath' campaign to raise awareness of spirometry's importance, particularly for early diagnosis and preventive care and the key reasons for having a spirometry test. Support ARFNZ to produce pamphlets and resources to promote through our stakeholder channels (e.g. social media, electronic direct mail-outs) and host these on the ARFNZ website (e.g. patient information sheets covering: 'What is spirometry?', 'Why would I need a spirometry test?', 'What happens during a spirometry test?', 'How to prepare for a spirometry test', 'Are there any risks?', 'What do the results show?')

KEY CHALLENGES IDENTIFIED

The workshop highlighted **three major barriers to effective spirometry testing across the country:**

Access to spirometry training:

Geographical, access to training, financial (cost of equipment, cost of training, cost to patient), and logistical factors limit access to spirometry testing, especially in rural and underserved areas.

Potential barriers to the provision of spirometry in primary care are:

- access to provider training at the appropriate level, ensuring consistency of advice and respiratory assessment
- the cost of training, the cost of a spirometer and consumables
- ongoing calibration/validation/servicing of the machine
- time spent doing the test

The health professional provider needs to have completed a training course that meets current spirometry guidelines (TSANZ, ANZSRS, ATS, ERS) involving anatomy/physiology, guidelines, how to calibrate/validate the spirometer, acceptability and repeatability of the tests, and quality control. They need to complete a practical portfolio of work, with case studies and interpretation. Ideally the health professional will bring the working spirometer they will use in clinical practice to the training courses.

Spirometry training courses are offered in Auckland, Bay of Plenty, Waikato, and Christchurch.

The cost is around \$580 + GST. Waikato offers an online course, with the practical portfolio of work having to be completed within three months of finishing the theory component of the course (as per the recommendations of the ANZSRS position paper)⁷. The limited number of training sites is a potential barrier to having spirometry testing accessible nationwide.

The Thoracic Society of Australia and New Zealand (TSANZ) also recommends completing a refresher course every 12 months, with access to ongoing mentoring and test review. Keeping up this training

requirement can be difficult for those who are only doing a limited amount of spirometry testing, compared to those working in a specialist respiratory service.

Due to a lack of funding by Health New Zealand for provider training and equipment across health regions, many community primary healthcare practices do not offer spirometry at all, instead referring patients to the respiratory services at the nearest hospital. However, although this is included in the *Community Service specifications to Health NZ* many hospitals do not have the resources to offer spirometry to the community. This severely limits or prevents access to those services for many people in New Zealand – particularly for those living in outlying or rural areas. Due to the lack of a national best practice training programme, community tests are often performed by untrained staff which may result in misleading results, erroneous interpretation, and possible inappropriate referrals to regional centres, resulting in delays and inefficiencies for patients requiring more specialised testing.

For those patients with deteriorating health, mobility issues and/or are elderly, they may then face long wait times for an appointment, as well as logistical difficulties having to get to and from the hospital.

Some primary healthcare practices and private providers offer spirometry but there will be a cost to the patient if the testing is not funded by Health New Zealand. This could range from \$20 to \$140 and is barrier to those who simply cannot afford it.⁸

Systemic disconnect

Fragmentation of health pathways and referral processes creates inconsistencies across regions.

- Time spent around having the test varies – workforce available, waiting times, travel times, actual test-time.
- Access to services is not equitable. There are big regional differences as to what services are available.

The result of this systemic disconnect is that many patients are confronted by barriers that prevent them from having a spirometry test, often resulting in “no-shows” e.g. geographical barriers to access a spirometry service provider close to them versus long-travel times, and cost-barriers which can

include the cost to travel for a test (fuel, bus etc), and having to take time off work to do the test.⁹

Low awareness and understanding

Both patients and clinicians can lack a clear understanding of spirometry’s value, leading to underuse of this critical diagnostic tool. Undervaluing or not understanding the importance of spirometry by clinicians can have implications for both asthma and COPD diagnosis, as evidence has shown that symptom-based diagnoses are often inaccurate and can lead to both underdiagnosis and overdiagnosis of both conditions. This can lead to further harm and complications from both untreated disease and over-treatment of non-existent disease and the side effects and costs of these treatments. Interstitial and occupational lung diseases are often missed or diagnosed late when objective testing is not

performed, often resulting in progressive disease.

Underuse of spirometry can result from confidence gaps in spirometry usage and result interpretation; time constraints explaining and performing the procedure; lack of trained staff, or if staff are trained then they are not available at the time the patient is present; high staff turnover resulting in the need for ongoing training and succession planning; the costs of equipment and ongoing calibration validation and servicing.

Emphasis also needs to be placed on increasing patients’ health literacy when it comes to spirometry: why the test is necessary, what is involved, and how the results from the testing can help with a more accurate diagnosis and therefore the correct treatment for their condition.

KEY INITIATIVES DEVELOPED BY ATTENDEES

The Spirometry Think Tank Group produced five innovative ideas to address the identified barriers. These below five have been prioritised for their potential to create the most impact:

Community spirometry hubs

Objective: Establish local hubs for spirometry testing, particularly in underserved areas, using a holistic model of health such as *Te Whare Tapa Whā* as a guiding framework.

Actions:

Mobile clinics to bring spirometry services to remote communities: Establish mobile spirometry units staffed with trained healthcare professionals in delivering spirometry assessment services who can travel to rural and remote areas. Mobile spirometry clinics would increase accessibility, particularly for populations with limited access to regional and local healthcare services. They will be able to provide immediate respiratory assessments and tailored interventions close to home, supporting the patient’s physical health (te taha tinana). These could be combined with other community public health initiatives, ranging from simple blood pressure checks and smoking advice, through to more comprehensive health checks (vision, hearing etc).

Community-based hubs integrated with other health tertiary hospital services, with funding and resources:

Establish community spirometry hubs within existing health facilities, such as local primary care practices, community health centres, or iwi hauora services, to create a “one-stop shop” for comprehensive care. Collaborate with other health services, including mental health, spiritual support, and family health services, to meet the interconnected needs of patients. These hubs will support taha hinengaro (mental health) by offering integrated care within a familiar community context. Practices that respect taha wairua (spiritual wellbeing), such as welcoming environments that allow whanaungatanga (building relationships) and manaakitanga (caring for others) will also be incorporated.

Patients will be encouraged to bring whānau to appointments, strengthening taha whānau (family wellbeing) by allowing families to support and engage in healthcare together.

Standards for community spirometry

Objective: Implement national standards for spirometry services to ensure uniformity in testing quality and access, based on international spirometry standards: *Standardization of Spirometry 2019 Update. An Official American Thoracic Society and European Respiratory Society Technical Statement*

Actions: Develop consistent referral and testing pathways across all regions.

Create a standardised pathway for community healthcare providers to becoming competent in spirometry, e.g. an accredited course *TSANZ Standards for Spirometry Training Courses*

- Create a national registry of certified spirometry providers to streamline self-referrals and bookings.
- Provide ongoing regional or community-based training and recertification. e.g. *Assessing spirometry competence through certification in community-based healthcare settings in Australia and New Zealand: A position paper of the Australian and New Zealand Society of Respiratory Science*

Increased awareness and advocacy for spirometry

Objective: Elevate the profile of spirometry among senior decision-makers, healthcare funders, and patients to secure better investment.

Actions:

- Launch public awareness campaigns to educate both patients and clinicians about the benefits of spirometry to reduce no-shows.
- Develop educational materials to support improved awareness and understanding of respiratory care.

Co-design spirometry services with experts and communities

Objective: Engage clinicians and patients in a co-design process to create a more equitable and patient-centred spirometry service.

Actions:

- Involve consumers, respiratory clinicians, primary care providers, and other experts in service design.
- Identify and replicate successful models from regions where spirometry access is well-managed.
- Include underrepresented communities in the planning process to ensure the system meets diverse needs.

Interactive map of known spirometry testing services, contact details and “how to refer” pathways around the country

Objective: To improve connectivity and transparency on the current services available, including cost, referral process and current wait times.

Actions:

- ARFNZ can host and promote the map on the ARFNZ website.
- Those listed services to have regular monthly meetings via Zoom to knowledge-share, and maintain up-to-date details and referral pathways.
- Encourage the use of reference centres for advice and specialist testing but use of referral criteria and pathways.

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