

# Implementing a Population Health Information Framework within Primary Care

**Ken Leech**

*Procon Limited*

*PO Box 128542, Remuera, Auckland, New Zealand*

*ken@procon.co.nz*

## **Abstract**

*Primary Health Organisations (PHOs) have often found it difficult to produce information to support the achievement of their population health goals. There have been many barriers to success. These barriers include a lack of understanding of how population health translates to general practice, the lack of standards, and difficulty in collecting and reporting on population health data.*

*Northland's PHOs and Whanganui Regional PHO have taken a structured approach to resolving these issues. This approach has resulted in the PHOs agreeing population health goals, defining standards for population health information, implementing tools to support general practice to systematically and consistently record population health information, and finally providing a reporting framework to measure progress in achieving population health goals.*

*This paper outlines the process followed by the PHOs over a period of two years to develop and implement a population health information framework. Although implementation is not yet complete, signs are encouraging that these PHOs will soon be able to produce meaningful information in support of their population health goals.*

## **1. Introduction**

Primary Health Organisations (PHOs) have a responsibility for improving the health of their enrolled population [1]. Since the publication of the Primary Health Care Strategy 2001 [2], PHOs have faced a number of barriers to providing meaningful and accurate information to support population health. This paper looks at these barriers and the experience of the Northland PHOs and Whanganui Regional Primary Health Organisation in addressing these barriers and progressing population health within their populations..

## **2. The barriers**

There are many significant informatics barriers to PHOs reporting on their population health goals. A number of the historical barriers – multiple practice management systems, poor use of practice management systems, no communications capability – have largely been addressed over the last 10 years. Most of general practice now uses a single practice management system and it is unusual to find a practice that does not have broadband access to the Internet. The majority of general practice now uses their practice management system for full clinical notes.

Now that some of these fundamental infrastructure barriers have been addressed, new and equally confounding barriers have come to light.

### **2.1. Understanding population health**

It seems that even experts in population health struggle to agree on a definition of population health. Indeed international literature has reiterated that there is not a universally accepted working definition of population health (see, for example, [3-4]). The author's own experience is that the traditional definitions of population health are difficult to translate into a "population health approach" (as confirmed in [5]) that "explicitly [takes] account of all the influences on health (the determinants of health) and how they can be tackled to reduce inequalities and improve the overall health

of the population”. Although PHOs are much more than the delivery of general practice, PHOs have found it difficult to translate population health into a general practice context that has historically focussed on 15 minute consults to treat someone who is sick. The author has come across GPs who say “what has population health got to do with me”? It is a common misconception that population health means statistical reporting with little relevance to the day to day delivery of primary care services.

## **2.2. Poor data quantity and quality**

One of the great strengths of practice management systems used in New Zealand may also be the greatest curse to the health informaticist. The ability for general practitioners to customise their practice management systems to suit their workflow, their personal preferences, and their passions has may have been a significant factor in New Zealand being a word leader in the use of practice management systems within primary care. This flexibility however, has also made it very difficult to reliably collect, collate and report on population health data within primary care. By way of example, a PHO can find over 30 different mechanisms used by their members to record smoking status. Similarly there are few standards for the recording of other risk factors and diagnoses required for good population health reporting.

## **2.3. Difficulty in collection**

PHOs have found it difficult to collect population health data from general practice for a number of reasons. Firstly and perhaps most importantly, it has been essential to protect the privacy of both the patient and the provider. Without adequate consideration of privacy issues general practice is rightly wary of any attempt to collect population health data.

Other contributing factors include difficulties providing Internet connectivity in rural locations, and the lack of I.T. and health informatics skills within smaller PHOs.

## **2.4. Lack of resources within PHOs**

With the exception of larger PHOs, most PHOs are unable to afford the resources required to adequately analyse and report on population health data. Reports that are produced can easily be of poor quality and they fail to pass the “so what” test and thus reports tend to be “interesting but not particularly useful”.

## **3. Addressing the barriers**

Within Northland’s PHOs and Whanganui Regional PHO, these barriers have been addressed in a structured manner by progressing the following steps:

1. Agreeing population health goals.
2. Agreeing standards for the population health data required to report on these goals.
3. Providing general practice with tools that encourage the systematic and consistent recording of this population health data.
4. Providing general practice with tools that make use of population health data in actionable and meaningful ways.
5. Providing the PHO with tools to support general practice in achieving population health goals.
6. Providing the PHO, and where appropriate the DHB, with tools to report on progress in achieving population health goals.

It is important to note the order of these steps – each step depends on successful completion of the preceding step.

### **3.1. Agreeing population health goals**

Northland’s PHO and Whanganui Regional PHO separately reviewed the 12 population health goals defined within the Primary Health Care Strategy and asked the questions:

- what role does general practice play, if any, in achieving the population health goal?
- is this role well accepted within general practice?
- are services currently available within the community to support the achievement of the population health goal?

- what information should be systematically and consistently recorded and reported to measure progress?
- is the population health goal a priority for the region?

The answers to these questions were reviewed by the PHOs' clinical governance committees. As a result, the PHOs agreed a list of population health goals that would be a priority. By way of example, both PHOs agreed that general practice did not have a significant role to play in the goal "Improve the health status of people with severe mental illness". Similarly, it was recognised that if the PHO was to "Reduce the incidence and impact of cardiovascular disease" and thus assess the CVD risk of patients, then the PHO needed to find ways of funding the management of patients with a high CVD risk.

Population health goals were then translated into population health activity that impacts every day general practice. For example, the goal "reduce the incidence and impact of diabetes" easily translates into ensuring that all eligible patients are screened for diabetes and that patients with a diagnosis of diabetes are formally reviewed every year. These are activities that general practice can understand, identify with, and act on.

### **3.2. Agreeing standards**

Having agreed an initial set of population health goals, the PHOs agreed on the "minimum data set" that needed to be systematically and consistently recorded by general practice. To do this, the PHOs asked the question of its GPs "what information would it be reasonable to expect a GP to consistently and systematically know about every patient" based on the agreed population health goals. This was surprisingly easy to agree although each PHO came up with slightly different results. The PHOs agreed that they should always record blood pressure, BMI, whether diet and/or exercise advice had been given, CVD risk, whether the patient has been screened for diabetes, whether the patient has had a Glucose Tolerance Test, smoking status, alcohol consumption, childhood immunisation status, influenza vaccination status, whether the patient was up to date with mammography, whether the patient was up to date with cervical screening, and whether adolescent health screening and been undertaken.

There were minor variations between the PHOs. For example, Northland's PHOs added whether a skin check had been done due to the high risk of melanomas in Northland, and Whanganui considered (but ultimately rejected in the short term) osteoporosis screening. Some areas were "put in the too hard basket" such as sexual health screening, mental health screening, and colorectal cancer screening. Others were rejected because of the lack of accepted guidelines relevant to the population health goal.

For each of these, rules were agreed on patient eligibility (e.g. which patients should be screened for diabetes) and how often this information should be recorded or activity done (e.g. how often should alcohol consumption be recorded).

The PHOs then agreed data coding standards for each measure where no existing or obvious standard was in place. For example, standards were agreed on how to record smoking status and alcohol consumption.

A list of "Conditions of Interest" was agreed, defining 19 diseases and 5 family history risk factors that GPs should consistently record for all of their patients.

### **3.3. Encouraging systematic and consistent recording of population health data within general practice**

Having agreed on the information that should be systematically and consistently recorded, the PHOs commissioned the customisation of a tool known as "Patient Dashboard", an optional extension to the Medtech Practice Management System. The Patient Dashboard is displayed to the GP and nurse whenever they select a new patient as the first thing that they see. It is designed as "patient at a glance" and uses a system of traffic lights to indicate missing data, out of date data and activities overdue or unrecorded. It also lists the "conditions of interest" recorded against the patient. Where data is missing or needs to be updated, it provides a quick path (single click) to the correct place within Medtech where the issue can be resolved including some forms that have been specially designed to standardise the recording of data (such as smoking status and alcohol consumption). The fundamental design principle was that it must first be clinically valuable tool for the GP and nurse. Then secondarily, to encourage the systematic and consistent recording of population health data. By way of example, Patient Dashboard includes a form affectionately known as "READ coding for dummies" that allows any of the 23 conditions of interest to be coded for a patient by selecting a checkbox; no READ codes required and no debate over which READ code to use for "depression".

### **3.4. Providing tools that make use of population health data in actionable and meaningful ways**

Patient Dashboard is an opportunistic tool – used as and when a patient presents at general practice. To really unleash the value from population health data, general practice identified the need for a tool that would find patients who were not presenting but none-the-less required further intervention. For example, having identified patients at high risk of CVD, we needed to find those patients who were not on appropriate medication. The tool also needed to then support the practice with the business processes of contacting the patient and suggesting that they make an appointment. The PHOs evaluated population health tools and selected “Dr Info” on the basis that it provided general practice with a “return on investment” for the effort of consistently and systematically recording population health data. With Dr Info, practices are able to easily identify patients that require intervention in line with population health goals, and then use a built-in function to send a letter to these patients informing them of the intervention required, without any requirement to print, fold, stuff, and post the correspondence. All information provided by Dr Info is actionable by the practice. Dr Info also addresses the need to preserve patient privacy as no identifiable information is made available to anyone other than the practice itself. The PHO can only access aggregated data.

### **3.5. Supporting general practice in achieving population health goals**

As part of a population health strategy, the PHOs will support practices using a coordinated approach that includes continuing medical education, peer-level comparison reporting, and providing direct support to practices that are struggling to progress the population health goals.

### **3.6. Reporting on progress in achieving population health goals.**

The PHOs are currently formulating a population health reporting framework that will allow the PHO to produce meaningful and actionable reports on the extent to which population health goals are being achieved. The objective of the framework is to ensure that meaningful information is produced that is actionable by the PHO and its practices (as opposed to reports that are “interesting but useless”. For each population health goal, the PHO will answer three questions:

1. Have we identified the patients requiring intervention (e.g. what percentage of our enrolled population has smoking status recorded?).
2. Is the desired intervention is being provided (e.g. of our enrolled population who smoke, are we providing cessation advice and/or referral?).
3. Is the desired outcome is being achieved (e.g. are we reducing the number of people who smoke over time?).

For each of these questions, we will also report on the extent to which these are being achieved in the Maori population versus the non-Maori population and thus determine whether inequalities are being addressed. Reports will also be produced at practice level for the purpose of peer review.

## **4. The Current State and the Future**

Although the implementation of this framework is not complete, there is positive progress being made. Population health goals have been agreed, standards for population health data have been agreed, and Patient Dashboard is now implemented within nearly 100% of the practices in Northland with extremely positive feedback. There is every reason to believe that this will translate into a significant increase in the quantity and quality of population health information recorded although this has yet to be measured.

Dr Info is in its early stages of implementation within Whanganui Regional PHO and is about to be implemented within the Northland PHOs. Dr Info has similarly been well received where it has been implemented and is already beginning to produce useful information.

The major outstanding piece of work, which is now underway, is the design of the population health reports that will truly test whether the overall framework for population health has been successful. At the very least, we are confident that significant value is being added to patients, to general practice, and the PHO.

## 5. Acknowledgements

Northland:

- Members of the Northland PHOs Information Governance Group
- Chris Farrelly, CEO Manaia Health PHO
- Dr Andrew Miller, Chair Clinical Governance Group, Manaia Health PHO

Wanganui Regional PHO:

- Members of the Whanganui Regional PHO Information Governance Group
- Janine Ryder and Julie Nitschke, Whanganui Regional PHO
- Dr John McMenamin, Chair Clinical Governance Group, Whanganui Regional PHO

## 6. References

- [1] Ministry of Health. PHO - DHB Agreement v18. Wellington: Ministry of Health; 2008 18 December 2008.
- [2] Ministry of Health. Primary Health Care Strategy. Wellington: Ministry of Health; 2001
- [3] Kindig D, Stoddart G. What is population health? American Journal of Public Health. 2003; 93: p. 380 - 383
- [4] Friedman D, Starfield B. Models of population health: their value for US public health practice, policy and research. American Journal of Public Health. 2003; 93(3): p. 366 - 369.
- [5] Winnard D, Crampton P, Cumming J, Shridan N, Neuwelt P, Arrol B, Dowell T, Metheson D, Head V. Population Health – Meaning in Aotearoa? June 2008