

Case study: Harnessing data for local quality improvement in asthma



Te Awakairangi Health
NETWORK

About this case study

This case study describes a project run by Te Awakairangi Health Network (TeAHN) to use local data relating to asthma to:

- identify practice variation
- explore the local drivers contributing to variation
- support quality improvement.

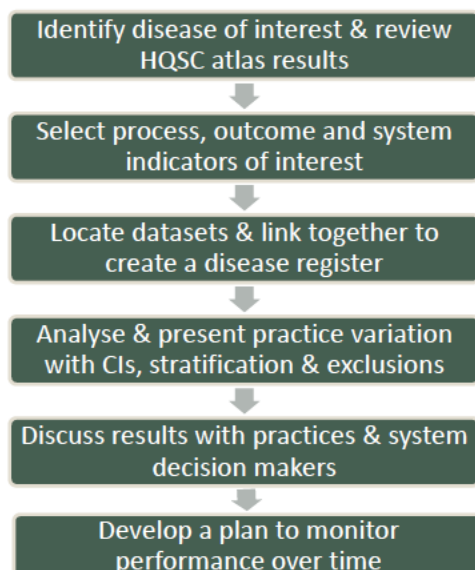
Data from the Commission's Atlas of Healthcare Variation gave TeAHN a starting point for conducting local analysis, with an equity focus, and considering system-level factors that contribute to observed variation.

About TeAHN

TeAHN is the primary health organisation (PHO) in the Hutt Valley. It plans, funds and provides primary health care services to its enrolled population of 117,200, which covers around 80 percent of the enrolled population for Hutt Valley District Health Board (DHB). TeAHN includes 23 general practices operating from 25 clinic sites.

Process for choosing and analysing asthma data

The diagram below shows the process TeAHN undertook to select asthma as a topic for analysis, analyse data and engage with providers.



TeAHN chose asthma in children as a focus topic because Atlas data showed Hutt Valley DHB as having one of the highest asthma hospital admission rates.

About asthma

Internationally, New Zealand has a high prevalence of asthma. One in seven children (14 percent, 107,000 children) aged 2–14 years and one in nine adults (11 percent, 389,000 adults) report taking current asthma medication. Data from the Organisation for Economic Co-operation and Development (OECD) indicates New Zealand has the fourth highest hospital admission rate for asthma of OECD countries.

What the Atlas shows

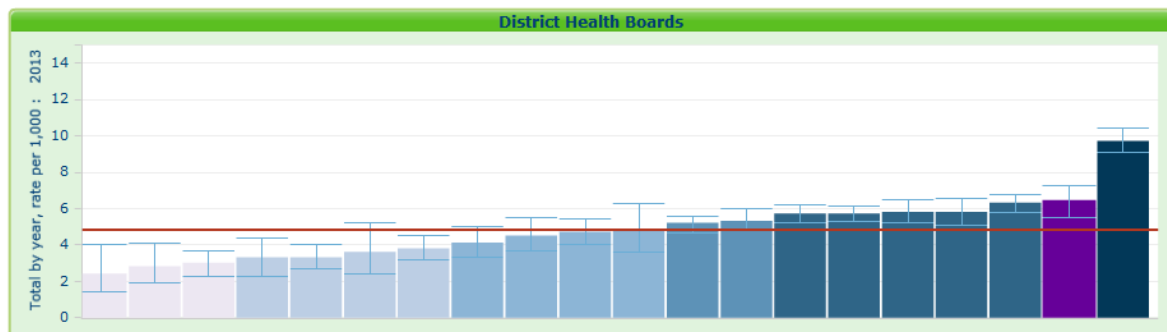
The Atlas presents data by DHB for the following indicators:

- Childhood admissions due to asthma or wheeze
- Adult admissions due to asthma
- People dispensed one or more preventer medication in a year
- People dispensed one or more reliever medication in a year
- Reliever: preventer ratio
- People with a hospital admission for asthma who were not dispensed a reliever or preventer medication in the year following admission
- Self-reported prevalence (using New Zealand Health Survey results).

Atlas results for Hutt Valley DHB

In two of the three years' data presented in the Atlas, Hutt Valley DHB had significantly higher rates of admissions for children due to asthma or wheeze (Figure 1).

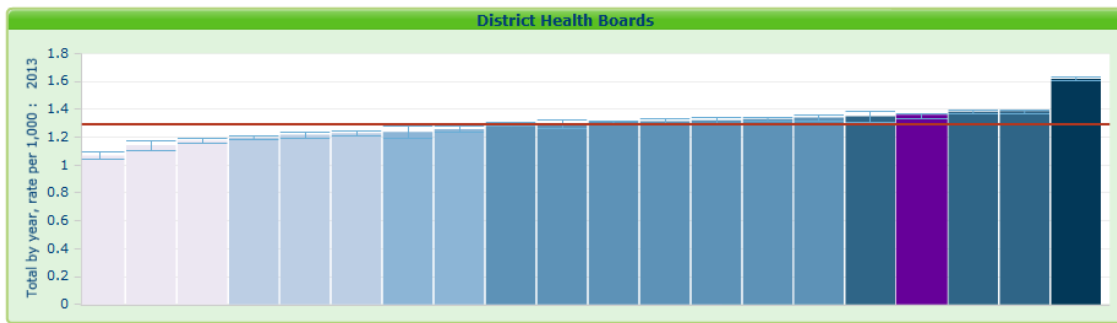
Figure 1: Childhood admissions due to asthma or wheeze, 2013



Note: Hutt Valley DHB is shown in purple. The red line represents the mean for New Zealand.

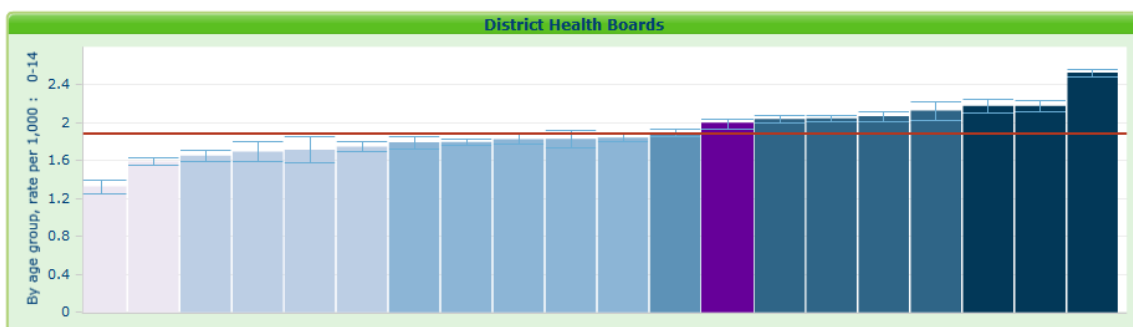
The ratio of reliever (short-acting beta-adrenoceptor agonists (SABA)) to preventer (inhaled corticosteroid, long-acting beta-adrenoceptor agonists, leukotriene antagonists and mast cell stabilisers) dispensing is a suggested measure of asthma management. Good asthma control should be associated with little use of reliever medication, therefore this ratio should be low, ie, few if any relievers dispensed and regular dispensing of preventers. Figures 2 and 3 show Hutt Valley DHB has a worse than average ratio, both overall and for children.

Figure 2: Reliever to preventer medication ratio, 2013



Note: Hutt Valley DHB is shown in purple. The red line represents the mean for New Zealand.

Figure 3: Reliever to preventer ratio, children 0–14 years, 2013



Note: Hutt Valley DHB is shown in purple. The red line represents the mean for New Zealand.

Local data

Primary care data was linked to National Health Index (NHI) numbers, including the following data sets:

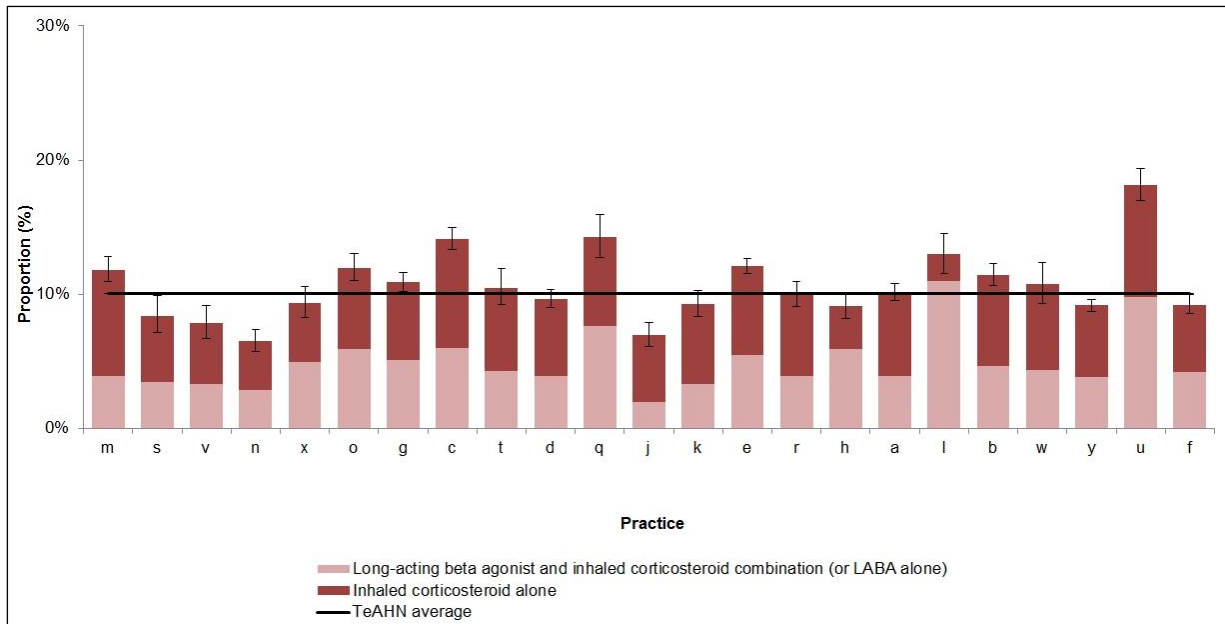
- PHO enrolments register for patient demographics
- Hospital admissions (National Minimum Dataset) and emergency department (ED) presentations (National Non-Admitted Patients Collection)
- Primary care funding, nurse/doctor ratios, etc.

The Pharmaceutical Collection for dispensing was examined for TeAHN data using encrypted NHIs. The number of unique individuals prescribed an asthma medication by a GP was assigned to the practice where that GP normally works (locums and registrars excluded).

Analysis

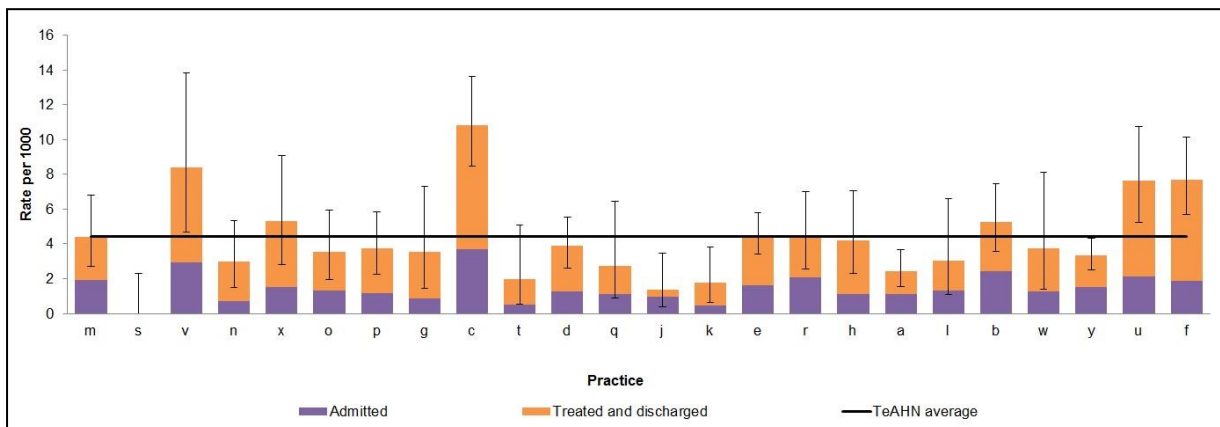
Additional local analysis looked at the coverage of preventer medication as a percentage of practice population. There was fairly wide variation by practice (Figure 4).

Figure 4: Proportion of practice population dispensed one or more preventers, with medication type, 2014 (pharmaceutical dispensing data from community pharmacies)



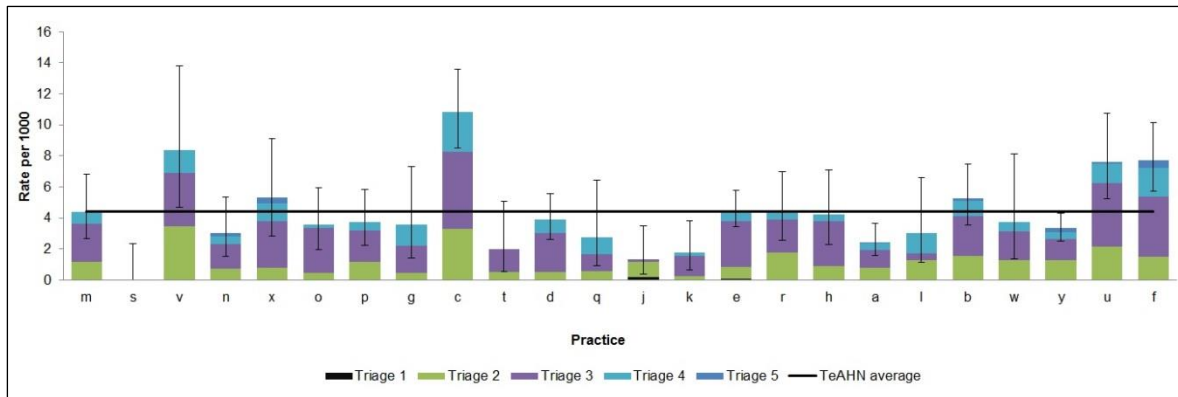
ED presentations and admission rates for asthma in Hutt Hospital by practice were analysed (Figure 5). Three practices had above average admission rates compared with the TeAHN mean and four practices had significantly lower admission rates.

Figure 5: People who presented with asthma to ED at Hutt Hospital by admission rate, TeAHN enrolled, all ages, October 2013 to September 2014



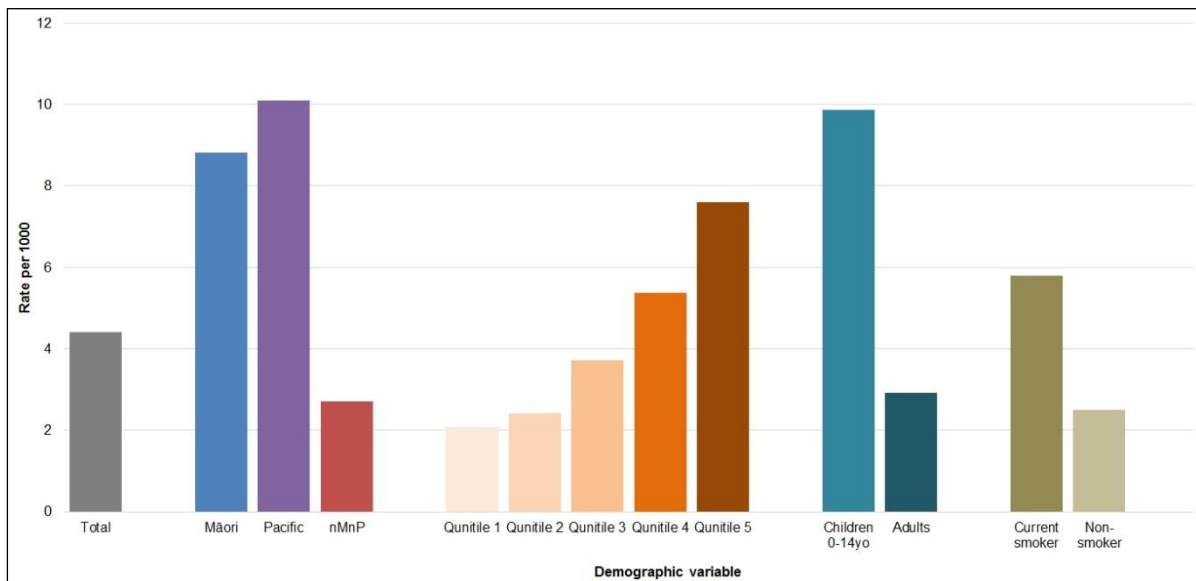
ED presentations by triage category were analysed to see if there were differences in the severity of presentation by practice (Figure 6).

Figure 6: People who presented with asthma to ED at Hutt Hospital by triage category, TeAHN enrolled, all ages, October 2013 to September 2014



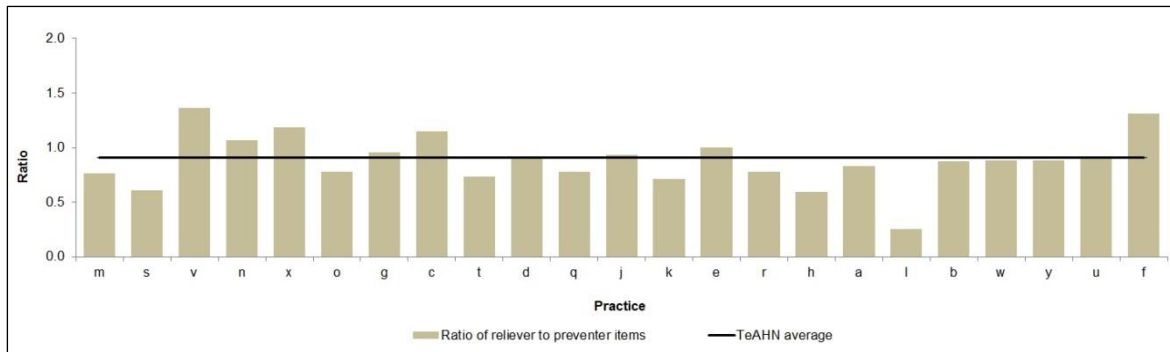
The demographic profile of people presenting to ED was analysed by ethnicity, deprivation quintile (5 being the highest, most deprived), age and smoking status. As Figure 7 shows, Māori, Pacific peoples, highest deprivation quintile, children and current smoking status all correlated with higher ED presentation rates.

Figure 7: People who presented with asthma to ED at Hutt Hospital by ethnicity, deprivation quintile, age and smoking status, TeAHN enrolled, October 2013 to September 2014



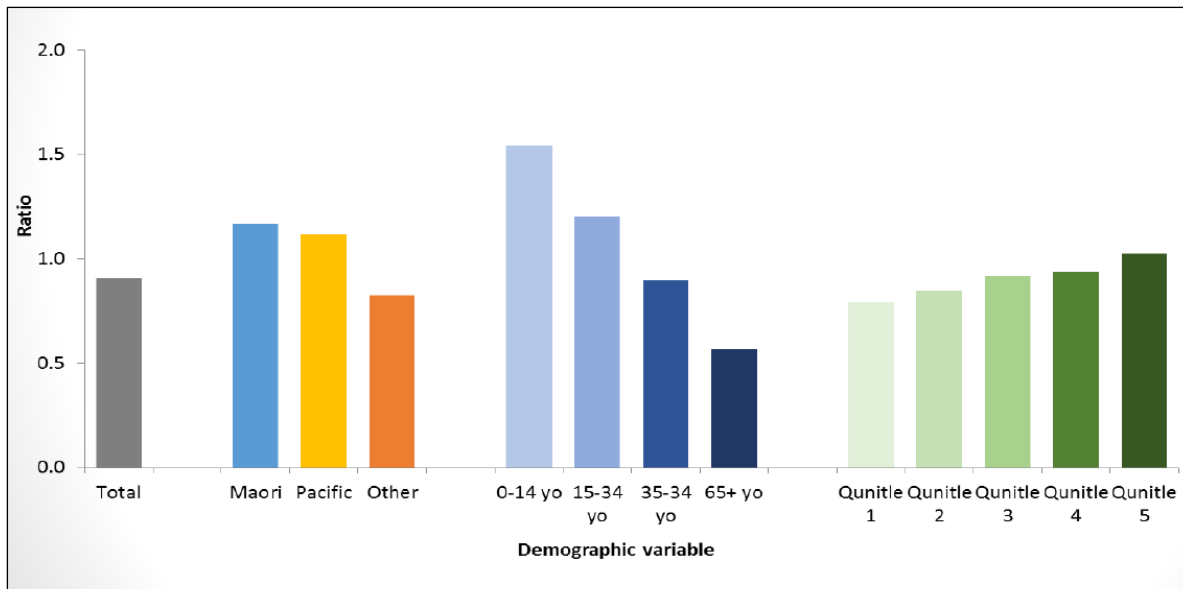
The ratio of reliever to preventer items dispensed by practice was analysed and showed wide variation (Figure 8). This measure counts each repeat prescription as a new item. More than one inhaler collected on a visit is also considered as one item.

Figure 8: Ratio of reliever to preventer items dispensed, TeAHN enrolled, 2014 (pharmaceutical dispensing data from community pharmacies)



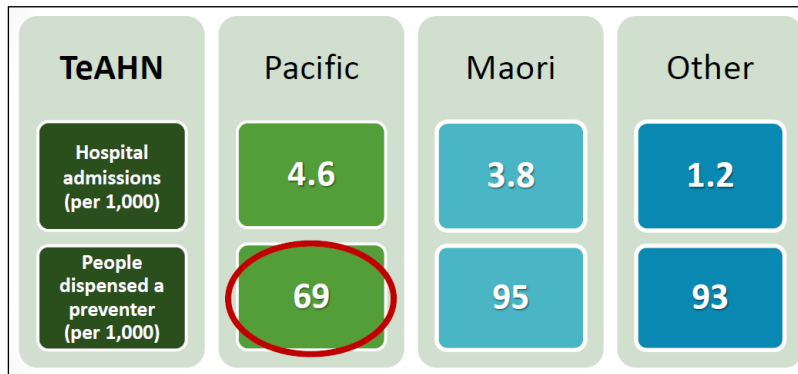
The ratio by ethnicity, age and deprivation quintile was analysed. It showed those identifying as Māori or Pacific peoples, and those of younger age and higher deprivation quintile had a higher (less optimal) ratio (Figure 9).

Figure 9: Ratio of reliever to preventer items dispensed, TeAHN enrolled, 2014 (pharmaceutical dispensing data from community pharmacies)



Comparison of hospital admissions with the preventer dispensing by ethnicity in TeAHN's population suggested Pacific peoples have the highest admission rate and the lowest preventer medication coverage (Figure 10).

Figure 10: Hospital admissions and dispensing of preventers by ethnicity, TeAHN enrolled



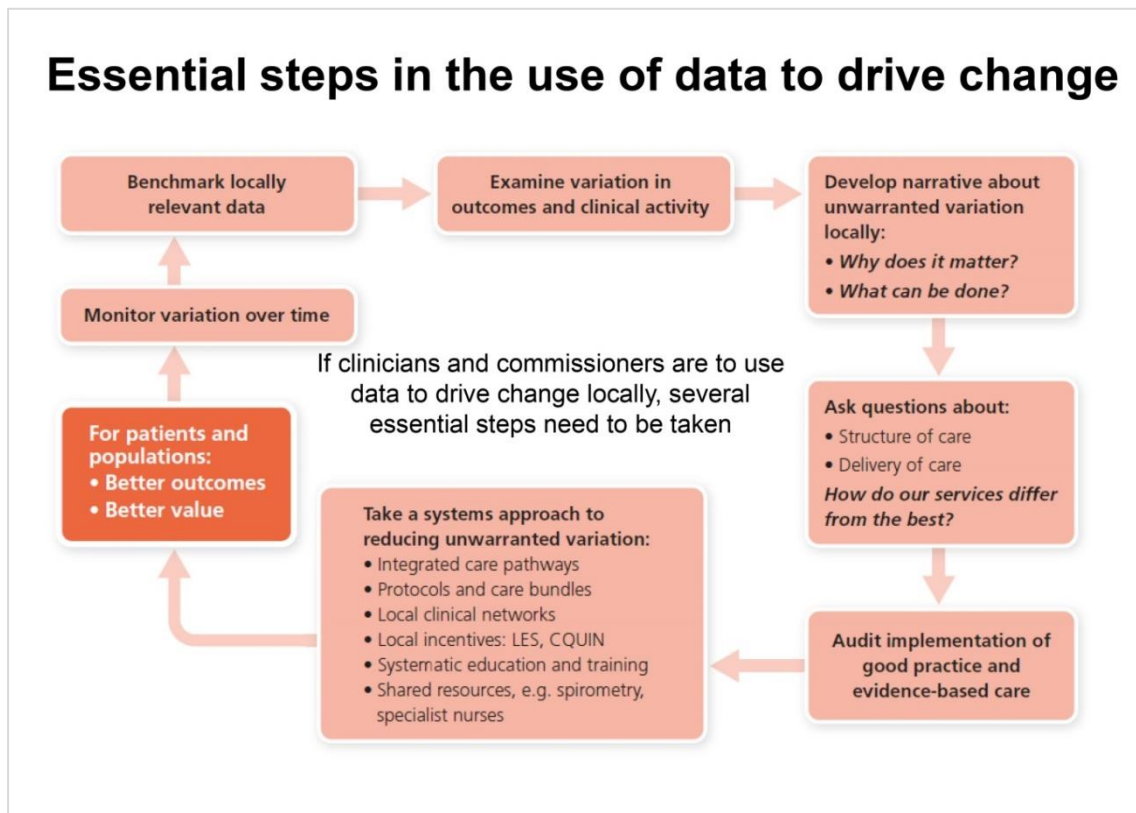
Actions

The results of the analyses were discussed within TeAHN. A report was produced for each practice, highlighting ways in which the practice could improve the quality of asthma management, and including a framework for action and a recommended plan for monitoring performance over time.

Examples of possible actions included:

- proactively inviting patients post-hospital admission for a free funded visit
- maximising the use of Tu Kotahi Māori Asthma Trust for children
- running nurse-led clinics on asthma management.

The framework, included to help practices and the wider system decide what actions to take, looked like this:



Source: NHS Rightcare. See: www.slideshare.net/fullscreen/rightcare/nhs-atlas-of-variation-for-people-with-respiratory-disease/23

Local variation analysis was used to explore potential areas for quality improvement, particularly in relation to equity in medication dispensing. The observed variation will be used to encourage local providers to ask what might be causing variation.

The information resulting from the project will be used to engage and inform practices and practitioners, as TeAHN implements its new long-term conditions programme.

Summary of learnings

TeAHN recognises the importance of providing systematic analyses to its practices and providers.

Analyses can inform long-term condition practice plans, in quarterly reporting cycles.

Within TeAHN, the engagement of the following people was vital for success of the project:

- an organisational lead
- analytical capacity
- clinical involvement.

Acknowledgement

The Health Quality & Safety Commission thanks TeAHN for sharing this case study. It was prepared by Dr Andrea McDonald, who was involved in the work.