MEASURING YOUR PROGRESS THROUGH DATA

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QI and Measurement

How do you know if the changes you are making are leading to improvement? The only way is to measure. Successful measurement is a cornerstone of QI. Measurement allows a team to demonstrate current performance, set goals and monitor the effects of changes made. It also enables teams to:

- identify performance gaps and safety issues
- understand patterns and trends
- make decisions and undertake planning
- understand unintended consequences

In addition, measurement allows for benchmarking against others, which is often a great motivator for change.

Measuring your improvement progress over time will motivate your team and inspire other improvement work.

As you start the QI journey, it is important to understand that not all measurement is the same. You will typically need to conduct measurement at different times in an improvement project and at different levels. For QI, there are essentially three basic levels of measurement:

1. Measures that provide consistent measurement over time for your chosen improvement area (sometimes referred to as a topic), such as cervical cancer screening
2. Measures that answer the second question in The 3 Fundamental Questions in the Model for Improvement, i.e. "How will we know that a change is an improvement?"
3. PDSA cycle level measures that help you assess the idea being tested in each PDSA cycle.

Measurement does not need to be difficult or time-consuming. The key is to pick the right measures so that you can see results quickly and are able to adapt your actions accordingly, putting less strain on your resources and a greater focus on outcomes.

A set of measures (also known as quality indicators) for cancer screening have been developed for you to use to monitor improvement in each of the three topic areas. These measures are explained later in this section.

Introduction to Data and Measurement for QI

Measurement is a fundamental part of QI and business in general. To produce sound and reliable measurement you will need well defined measures and good data quality.

Data is talked a lot about in QI. "Data" is information in raw or unorganised form (such as alphabets, numbers or symbols) that refer to, or represent, conditions, ideas, or objects. Data are transformed into measures using a set of rules and often these rules will not be visible as they are coded into software. For example, the proportion (or percentage) of women who have received a cervical screen is an existing measure within a lot of clinical software. The result produced by the software is filtered in a number of ways, such as:

- Including only women within the age range that is recommended
- Excluding women with a coded condition of Hysterectomy, or where the Health Service has ticked the check box to exclude
- Whether the woman is considered a "Regular Client" and/or an "Active" client can often play a part in measurement.

In some cases, the "rules" can be quite complex and if you refer to the user guides of the software, you will be able to find these rules explained. In this toolkit, we mostly refer to Pen CAT software as a tool to help with measurement and data cleaning. Licensing for Pen CAT software is available through your PHN.

Measurement can only be reliable if your Health Service has good quality data. In this section, we'll work through how your Health Service can ensure that it has good quality data, and then we'll talk about how to produce measurement for QI.

Data cleaning or cleansing

Data cleaning or cleansing refers to a process where staff at a Health Service specifically work on ensuing that the data within the clinical information system are complete, correct and coded properly.

Data quality in this context refers to the completeness, accuracy and consistent coding of data in the clinical information system.

This process will look for instances where data are missing or inaccurate, and add missing data or correct (or remove) corrupt or inaccurate data from the clinical information database. If the data collection, recording and maintenance process at your Health Service is not robust, poor collection and/or recording will continue and specific data cleaning efforts will be needed to correct poor work practices over time.

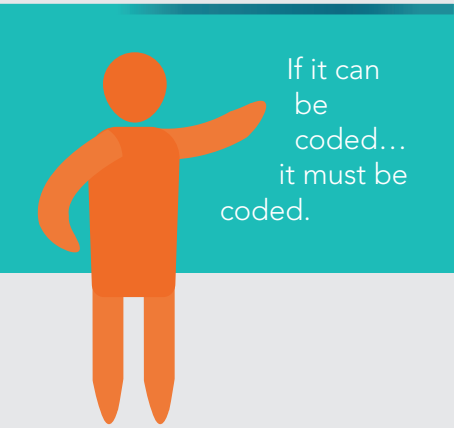
Your team is critical to ensuring that your Health Service's data are clean. Your Health Service should have an agreed approach to the collection and recording of data including:

- A process to ensure that patient demographic, contact and billing details are complete and current
- An agreed approach to coding conditions and ensuing that the patient's clinical record is complete
- Ensuing that all pathology providers are supplying results electronically in an atomic format such as HL7 (not a letter scanned as a PDF)
- A clear understanding of each team member's responsibility to ensure the data collection, recording and maintenance process remains robust.

If your Health Service does not have a robust data collection, recording and maintenance process, then you will never have clean data.

Data collection and recording processes will vary between Health Services depending on the staff profile and size of the Health Service. However, each staff member should have a clear understanding of their responsibility so that when each patient interacts with a staff member, they can do their part in the data collection, recording and maintenance process. Specific data collection, recording and maintenance responsibilities for employment roles should be included in all position descriptions.

Coding data



Coding data wherever the system allows for such is paramount. If you do not code, for example conditions or allergies, then data will not be considered "clean" and the clinical information system cannot function in the way it is intended. For example, when uploading a Shared Health Summary, if conditions and allergies are not coded, they will not be included in the upload.

Data cleaning specific to cancer screening

Identifying people for cancer screening and communicating with them relies on:

- accurate patient contact and demographic information, such as sex, ethnicity, date of birth, address, mobile phone number
- coded conditions so that the software can exclude people with certain conditions, for example exclusions for FOBT include bowel cancer, cancer of the colon, carcinoma of the colon and 20 other coded conditions
- Test results recorded, and data (any text) recorded in the result area of the test record.

For effective cancer screening all of these data elements must be accurate and recorded in the correct place within the clinical information system.

Please refer to the Appendix 8 for specific detail on how to approach data cleaning for cancer screening.

Recommended approach to sustainable quality data

1. Implement a sustainable data collection, recording and maintenance process

    1.1. Using Pen CAT, gain an understanding of how clean and complete your clinical database is and understand where the gaps are

    1.2. Work with your team and discuss any missing or inaccurate data you've found and then identify gaps in the collection, recording and maintenance process

    1.3. Use the Model for Improvement to improve your processes. You could also process map the patient journey through your Health Service, specifically as it relates to data collection, recording and maintenance

    1.4. Make sure that your clinical software system is configured appropriately and that you are receiving pathology electronically in HL7 format wherever possible. You will need to contact pathology providers and check the delivery preferences that are set for your Health Service. All software is different so please consult your vendor for assistance or PHN practice support staff

1.5. Ensure that you include a regular audit as part of the process, so you can monitor data quality over time

1.6. When the process is sound, document the process and include roles and responsibilities in relevant position descriptions

2. Agree on an archiving approach that is suitable for your Health Service. Ensure that someone is responsible for archiving on a regular basis

3. Work with your team on retrospective data cleaning

3.1. Determine your strategy to approach data cleaning. If you now have a sound data collection, recording and maintenance process in place, your data will become clean over time. You'll need to determine where to start on data cleaning and how much effort to commit, given your improved collection process will overtake the need for data cleaning at some point

3.2. Focus on cleaning data required for identifying patients who have not been screened for cancer. Refer to Appendix 8 for tips on how to do this

Audit Process

Your Health Service should have a regular audit process in place to assess the completeness and accuracy of data. This should be done at least quarterly to monitor your process to ensure that it remains robust and reliable. If not, your data quality will reduce over time and your hard work in this area will be wasted.

Please refer to Appendix 8 for information on how to use Pen CAT as an audit tool as part of this process.

An "audit" in this context is the process of evaluation or analysis in the clinical information system to assess its accuracy and completeness. Pen CAT can assist with this process, however, Pen CAT cannot determine whether some data are correct, such as ethnicity, phone number, address. Some data are sensitive to change over time and therefore, your audit process should include testing the accuracy of data that Pen CAT cannot help with. This does not need to be an onerous process and can simply be calling 20 patients that have recently visited the Health Service (as their data should be up-to-date) and asking them to confirm a few details. If you find any gaps, then it's likely that your data maintenance process is not effective and correction is required.

How to measure your progress

Now you have confidence in your Health Service's data quality, you can have confidence in the measurement produced from the data.

You can start measuring straight away. Just be aware that as your data quality improves over time, there may be changes to the measurement results that are due to data cleaning and not your improvement work.

This toolkit provides measurement for bowel, breast and cervical cancer screening. The first step however is to determine your Health Service's cancer screening population.

Determine your Health Service's cancer screening population

It is important that you take time to determine your Health Service's screening population. The approach is likely to vary between Health Services due to local context and is an important step.

There is a "Regular Patient" concept used widely, including the Indigenous National Key Performance Indicators (nKPIs) and in Pen CAT. The Regular Patient (or client) is generally defined as a person that visits the Health Service 3 or more times in any 2 year period. This concept is useful to filter on patients that are regularly visiting the Health Service, however, may not be suitable for cancer screening. For example, younger women are not likely to qualify as a Regular Client and therefore if you filter using this definition, then you may exclude patients that should be included.

In some Health Services, such as major rural services or Health Services in popular holiday destinations, it may be appropriate to limit the population by post codes that your Health Service would primarily service. Some Health Services have a policy to mark people that are not considered part of the Health Service's population through location as inactive as they complete their visit.

Archiving is important, and your Health Service should have an agreed approach to archiving patients that have not visited the Health Service within a specific period of time. If your archiving period reflects your answer to "Which patients are considered the Health Service's responsibility for cancer screening?", then the approach is simple, you will include all active patients in the searches.

Working with your team, decide how your Health Service will determine the screening population for bowel cancer, breast cancer and cervical cancer. Once you have done this, you can use your Health Service Population in search criteria in Pen CAT and save a search for bowel cancer screening, breast cancer screening and cervical cancer screening. By saving these searches they remain consistent over time and you can reliably measure your Health Service's progress in each cancer screening area.

Pen CAT Search Criteria

To start your cancer screening measurement journey, you will need to establish these three Pen CAT searches and save these so that they can be used routinely and remain consistent across the journey.

These searches will measure the high-level cancer screening measures recommended and will be based on your Health Service's definition of the cancer screening population.

Please refer to Appendix 8 on how to set and save these searches.

Cancer Screening Measures

The following measures all use the defined term "Health Service Population". This means the population of patients (relevant to your chosen cancer screening topic/s) recorded on your clinical information system as defined by your Health Service. Refer to the earlier step. Please bear in mind the Pen CAT - Data Set Reports for screening are already filtered for age, sex and to remove exclusions.

Bowel Cancer Screening Measure

DESCRIPTION	The proportion of Health Service Population patients, aged between 50 and 74, who have: 1. had a FOBT recorded in the previous 2 years, OR 2. who have had a colonoscopy examination in the previous 2 years (bowel cancer screening)
DENOMINATOR (A)	The number of Health Service Population patients, aged between 50 and 74
NUMERATOR (B)	The number of Health Service Population patients, aged between 50 and 74, who have: 1. had a FOBT recorded in the previous 2 years, OR 2. who have had a colonoscopy examination in the previous 2 years (bowel cancer screening)
CALCULATION	B divided by A will calculate the proportion (percentage) of Health Service Population patients, aged between 50 and 74, who have had a FOBT recorded in the previous 2 years OR who have had a colonoscopy examination in the previous 2 years (bowel cancer screening). In Pen CAT, once you have filtered for your Health Service Population and recalculated (or used the saved search), make sure "Show Percentage" is unchecked and then use the results displayed as follows: • A = Recorded 0-2yrs + Recorded >2-3yrs + Recorded >3-4yrs + Recorded >4yrs + Not Recorded • B = Recorded 0-2yrs

Breast Cancer Screening Measure

DESCRIPTION	The proportion of Health Service Population women, aged 50 to 74 years, who have had a bilateral breast screen mammogram within the previous 2 years (breast cancer screening)
DENOMINATOR (A)	The number of Health Service Population women, aged 50 to 74 years
NUMERATOR (B)	The number of Health Service Population women, aged 50 to 74 years, who have had a bilateral breast screen mammogram within the previous 2 years (breast cancer screening)
CALCULATION	B divided by A will calculate the proportion (percentage) of Health Service Population women, aged between 50 and 74, who have had a bilateral breast screen mammogram within the previous 2 years (breast cancer screening). In Pen CAT, once you have filtered for your Health Service Population and recalculated (or used the saved search), make sure "Show Percentage" is unchecked and then use the results displayed as follows: • A = Recorded 0-2 years + Recorded >2-3 years + Recorded >3-4 years + Recorded >4 years + Not Recorded • B = Recorded 0-2 years

Cervical Cancer Screening Measure

DESCRIPTION	The proportion of Health Service Population women, aged between 25 and 70 years (inclusive), who have not had a hysterectomy or are otherwise excluded, and who have had a Pap test within the previous two years or a HPV test within the previous 5 years (cervical cancer screening)
DENOMINATOR (A)	The number of Health Service Population women, aged between 25 and 70 years (inclusive), who have not had a hysterectomy or are otherwise excluded
NUMERATOR (B)	The number of Health Service Population women, aged between 25 and 70 years (inclusive), who have not had a hysterectomy or are otherwise excluded, and who have had a Pap test within the previous two years or a HPV test within the previous 5 years cervical (cancer screening)
CALCULATION	B divided by A will calculate the proportion (percentage) of Health Service Population women, 25 and 70 years (inclusive), who have not had a hysterectomy or are otherwise excluded, and who have had a Pap test within the previous two years or a HPV test within the previous 5 years cervical (cancer screening). In Pen CAT, once you have filtered for your Health Service Population and recalculated (or used the saved search), make sure "Show Percentage" is unchecked and then use the results displayed as follows: • A = HPV <= 5yrs + Pap <= 2 yrs + HPV>5yrs or Pap>2yrs (no HPV) + Not Recorded • B = HPV <= 5yrs + Pap <= 2 yrs