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Improvement Cymru Academy Toolkit Guide

Measurement Plan

Introduction

A measurement plan is a tool that will help you to set out details of the measurements in your quality improvement project. It will provide comprehensive information about the type of measurement, the operational definition, sampling, and data collection methods.

Measurement requires careful planning and needs continuous refinement throughout quality improvement work. Different quality improvement methodologies and different organisations develop measurement plans in different ways (see resource links for more information).

Rationale

Collecting and analysing data is an important aspect of quality improvement work. We need to ensure that the data we are collecting aligns with the aim and objectives of our improvement project. A measurement plan prompts us to think about the measurements we need. It provides us with an effective tool for communicating measurement collection with our team, ensuring consistency in the data collection process and how results are visualised.

When to use a Measurement Plan

A measurement plan is used in all improvement methodologies and is an important part of a quality improvement project. It should be designed in the planning phase and be continually referred to throughout the improvement project.

How to use a Measurement plan

1. Identify the problem that you and your team are focussing on and develop a clear aim, that reflects the impact of this problem. Your aim should be customer focussed and connect to the organisation's strategic goals. Use the SMART Framework to ensure that your aim is Specific, Measurable, Achievable, Realistic and Time-Bound (SMART).

2. Decide what you are going to measure. It is a good idea to refer to your family of measures when deciding this. Assign each measure as an outcome measure (O), processes measure (P) and balancing measure (B). You may have more than

one of each of the measures. For more information on the family of measures, take a look at our toolkit guide.

You should think about including both qualitative and quantitative data. Quantitative data is information that can be measured in numerical form. Common examples of how we use quantitative data are for continuous data (data that is measured over time), e.g., number of attendances daily, weekly, or monthly and categorical data (data that can be divided into groups), e.g., reasons for delay/cancellations. Qualitative data is information that is not in numerical form. Common examples are survey answers on patient experience. You can convert qualitative data to quantitative data using a rating scale, or by theming the information to create categories that you can count.

3. It is important to look at what you are measuring and think about why it is important to your aim. When deciding what is the purpose of your measure ask yourself how does this relate to your improvement efforts and what goals are you trying to achieve? This helps you consider whether the measurement you have chosen is fit for purpose. This column provides a good reference for your team and any new members who join your team.

4. An operational definition is a description, in quantifiable terms, of what to measure and the steps to follow to measure it consistently. In simplistic terms, your project must be repeatable using the exact steps you used, if someone else were to replicate it. Think of this as a recipe, where you lay out your ingredients and measures for people to replicate your exact outcome. It looks at the: what, how, when, where and why, something is measured.

5. Data collection for improvement involves using small amounts of data that is collected and displayed frequently throughout an improvement project. This section of the measurement needs to include information about who is collecting

the data, how often and when is it being collected and where is the data coming from. You will also need to state what the sampling method is and the sample size (if this is something that you will use). When selecting a sample size, you need to ensure that it is representative of what you are measuring.

6. Deciding on what type of chart you will use will help you to consider how you will monitor the information you have collected and whether the data you have collected is appropriate and in the right format. The chart should be identifiable from your operational definition and data collection column. If you are less confident using graphs, using the elements of the measurement plan can help you decide on the right graphs to use. Run charts are used until there are 20 data points and then Statistical process control (SPC) charts are used. These charts are also known as "Shewhart charts" or simply "control chart.

Example of a measurement plan

The example here shows the steps required to build your measurement plan.

Step 1: Define your aim

SMART AIM:

To increase staff attendance at weekly endoscopy quality assurance meetings up to 80%from a baseline of 50% within 6 months

Step 2: Name of Measure

Name of measure
Percentage of staff attending the weekly quality assurance meeting (O)

Number of staff who did not attended for avoidable reasons (P)
Percentage of satisfaction with the weekly meetings from staff (B)

Step 3: Concept of being measured and why it's important to look at this?

Name of measure	Concept being measured and why it's important to look at this
Percentage of staff attending the weekly quality assurance meeting (O)	To measure how many staff attend the meeting before, during and after to identify whether there is an increase in staff attendance
Number of staff who did not attended for avoidable reasons (P)	To measure how many staff follow the correct absence procedures. Investigating if the number of people attending the meeting will increase when people understand the allowable reasons.
Usefulness of weekly meetings for staff measured through percentage of staff satisfaction (B)	To measure how useful the meetings are. If our change idea will increase the usefulness of the meeting or have a negative impact

Step 4: Operational Definitions

Name of measure	Concept being measured and why it's important to look at this	Operational definition

Percentage of staff attending the weekly quality assurance meeting (O)	To measure how many staff attend the meeting before, during and after to identify whether there is an increase in staff attendance	Register of attendance will be kept of staff who attend each meeting by admin support Results to be logged as a percentage and excel spreadsheet will automatically record the calculation to reduce variation between people Number of staff attending the weekly meeting _____ Total number of staff invited X100
Number of staff who did not attend for avoidable reasons (P)	To measure how many staff follow the correct absence procedures. Investigating if the number of people attending the meeting will increase when people understand the allowable reasons.	Register of non-attendance will be kept by admin support and will require a yes/no response as to whether the staff member has not attended for an avoidable reason. Results to be logged as a percentage and excel spreadsheet QA meeting attendance 2023.xls will automatically record the calculation to reduce variation between people

		<u>Define unavoidable reasons:</u> Staff sickness Annual leave Bereavement On training Number of non-attendees who gave a reason not defined on unavoidable reasons list
Usefulness of weekly meetings for staff measured through percentage of staff satisfaction (B)	To measure how useful the meetings are. If our change idea will increase the usefulness of the meeting or have a negative impact	Anonymised survey to be distributed after meeting to enquire if the QA meeting was useful Results to be logged as a percentage and excel spreadsheet will automatically record the calculation to reduce variation between people Total number of staff answered yes / Total number of responses X100

Step 5: Data Collection

Name of measure	Concept being measured and why it's important to look at this	Operational definition	Data collection

Percentage of staff attending the weekly quality assurance meeting (O)	To measure how many staff attend the meeting before, during and after to identify whether there is an increase in staff attendance	Register of attendance will be kept of staff who attend each meeting by admin support Results to be logged as a percentage and excel spreadsheet will automatically record the calculation to reduce variation between people Number of staff attending the weekly meeting / Total number of staff invited X100	Attendance to be logged in an excel spreadsheet titled QA meeting attendance 2023.xls Information to be logged each meeting Admin support to log attendance of staff who have attended and all staff who were invited Data to collected and reported within a week after the meeting.
Number of staff who did not attend for avoidable reasons (P)	To measure how many staff follow the correct absence procedures. Investigating if the number of people attending the meeting will	Register of attendance will be kept by admin support and will require a yes/no response as to whether the staff member has followed the correct absence procedure Results to be logged as a percentage and excel spreadsheet will automatically	Reasons of absence to be logged in an excel spreadsheet titled QA meeting attendance 2023.xls Admin support to note reason in apologies and to

	increase when people understand the allowable reasons.	record the calculation to reduce variation between people <u>Define unavoidable reasons:</u> Staff sickness Annual leave Bereavement On training	follow up on staff who did not attend and did not give apologies Gather information and report within a week of the meeting
Usefulness of weekly meetings for staff measured through percentage of staff satisfaction (B)	To measure how useful the meetings are. If our change idea will increase the usefulness of the meeting or have a negative impact	Anonymised survey to be distributed after meeting to enquire if the QA meeting was useful Results to be logged as a percentage and excel spreadsheet will automatically record the calculation to reduce variation between people Total number of staff answered yes _____ X100 Total number of responses	Anonymised survey to be distributed after meeting to enquire if the QA meeting was useful Admin support to distribute and collect surveys

Step 6: What type of chart will you use?

Name of measure	Concept being measured and why it's	Operational definition	Data collection	What type of chart will you use?

	important to look at this			
Percentage of staff attending the weekly quality assurance meeting (O)	To measure how many staff attend the meeting before, during and after to identify whether there is an increase in staff attendance	Register of attendance will be kept of staff who attend each meeting by admin support Results to be logged as a percentage and excel spreadsheet will automatically record the calculation to reduce variation between people Number of staff attending the weekly meeting ———————— X100 Total number of staff invited	Attendance to be logged in an excel spreadsheet titled QA meeting attendance 2023.xls Information to be logged each meeting Admin support to log attendance of staff who have attended and all staff who were invited Data to collected and reported within a week after the meeting.	Run Chart until there is enough data collected (20 data points). Then a SPC chart (P chart)
Number of staff who did not attend for	To measure how many staff follow the correct	Register of attendance will be kept by admin support and will require a yes/no response as to	Reasons of absence to be logged in an excel	Run Chart until there is enough information

avoidable reasons (P)	absence procedures. Investigating if the number of people attending the meeting will increase when people understand the allowable reasons.	whether the staff member has followed the correct absence procedure Results to be logged as a percentage and excel spreadsheet will automatically record the calculation to reduce variation between people <u>Define unavoidable reasons:</u> Staff sickness Annual leave Bereavement On training	spreadsheet titled QA meeting attendance 2023.xls Admin support to note reason in apologies and to follow up on staff who did not attend and did not give apologies Gather information and report within a week of the meeting	(20 data points) then a SPC chart (C chart) (assuming the number of invited people doesn't change)
Usefulness of weekly meetings for staff measured through percentage of staff satisfaction (B)	To measure how useful the meetings are. If our change idea will increase the usefulness of the meeting or have a negative impact	Anonymised survey to be distributed after meeting to enquire if the QA meeting was useful Results to be logged as a percentage and excel spreadsheet will automatically record the calculation to reduce variation between people	Anonymised survey to be distributed after meeting to enquire if the QA meeting was useful Admin support to distribute and collect surveys	Run chart until enough information (20 data points) then a SPC chart (P chart)

		Total number of staff answered yes / Total number of responses X100		

What next?

Once you have created your measurement plan it is important to ensure the team can access it during the study as a point of reference for measurement and data collection. This will ensure effective communication, consistency in data collection and reduce variation in your results.

Helpful tips

The most important thing when creating your measurement plan is to continually ask yourself why we are doing this project and relate that to the measurement plan. To begin the process of creating a measurement plan, clearly define the aims of your improvement study; your outcome measure comes from your aim. Use other improvement tools such as process mapping to help you identify the process and balancing measures. You should think about including both qualitative and quantitative data. Ensure that the measurement plan is easily accessible for all the team.

Additional resources

https://phw.nhs.wales/services-and-teams/improvement-cymru/improvement-cymru-academy/ or email us at improvementcymruacademy@wales.nhs.uk to find out about the improvement courses we offer.

Improvement Cymru: Measurement Plan Template

Name of measure	Concept being measured and why it's	Operational definition	Data collection	What type of chart will you use?

	important to look at this			
Indicate whether measure is: Outcome (O), Process (P); or Balancing (B) Assign the measure an unambiguous name or reference number.	What is the purpose of this measure? i.e. what questions do you want answered in relation to your improvement efforts? What goals are you trying to achieve?	What type of measure is it? (e.g. percentage, count, rate, days or cases between) Clear, precise definition of the measure and how it is calculated. Include numerator and denominator if it's a percentage or rate. What / who is included or excluded in the population? Utilise existing data standards/definitions where possible.	What is the data source? Who is collecting it? How often and when? Who is reporting it? How often and to whom? What is the sampling method and sample size (if used)?	Specify run chart or what type of Shewhart Chart. When will enough data points be available? What will the subgroups be (if any)?

Further reading

Shah, A. (2019). *Using Data for Improvement*. The BMJ. Accessed from: https://www.bmj.com/content/364/bmj.l189 (Accessed 9 May 2023)

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The NHS Institute UK. (2013). *Mike Davidge on Measurement for Improvement*. https://www.youtube.com/watch?v=Za1o77jAnbw (Accessed 9 May 2023)

Institute for Innovation and Improvement. *The how-to guide for measurement for improvement*. https://www.england.nhs.uk/improvement-hub/wp-content/uploads/sites/44/2017/11/How-to-Guide-for-Measurement-for-Improvement.pdf (Accessed 9 May 2023)