Handy guide to Measurement for Improvement

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The Mental Health Access Improvement Support Team (MHAIST) supports NHS boards to improve the quality and accessibility of Psychological Therapy (PT) and Child and Adolescent Mental Health Services (CAMHS).

MHAIST has developed resources that can be used to identify enablers and barriers in your services, which in turn can help identify improvement opportunities.

We have developed the following handy guides:

1. Handy guide to calculating new to follow-up ratios
2. Handy guide to Measurement for Improvement
3. Handy guide to mental health waste spotters
4. Handy guide to process mapping
5. Handy guide to the Model for Improvement
Introduction

The aim of improvement in CAMHS and PT services is to improve outcomes for people using these services. This might involve reducing the amount of time it takes to receive treatment, developing reliable processes so that patients receive the same quality of care, ensuring that the patient receives the correct treatment type or making the available services more visible for patients to know what is available.

To help achieve improvement, MHAIST is using the Model for Improvement to support improvement projects across the country. To help shape, understand and share the story of these improvement projects, this resource helps answer question 2 of the Model for Improvement – "How will we know that a change is an improvement?".

The best way to answer this question is to use Measurement for Improvement to guide you throughout an improvement project. This involves using the data and information in your units and departments in different ways to guide you through an improvement project.
What is Measurement for Improvement?

There are three different types of measurements which are commonly used to support improvement and it can be helpful to understand the differences between what they achieve and how they use data.

1. **Measurement for Judgement** – Data is commonly gathered at set times from departments to support improvement plans or inspections. This helps local NHS boards and organisations like Information Services Division (ISD) to assess school performance. The data is compared against set criteria like improvement plan targets or Local Delivery Plan (LDP) targets.

2. **Measurement for Research** – The data to be gathered is defined at the start of the project and is tightly controlled by researchers. Those collecting data can rarely learn from it in real-time as it may introduce bias into the findings. Seeking ways to find a new “universal truth” can be slow and costly. Because funding is often one-off, researchers track as much as they can, “just in case”.

3. **Measurement for Improvement** – Data for improvement is gathered, reviewed and acted on in real-time (daily, weekly or monthly) by teams working on improvement projects. The data to be gathered is defined by these teams and is primarily used to help them learn about the issue they are working on and to assess what impact any changes are having. The data gathered is only what is required to learn from – there is no ‘just in case’ data collection. Often data for improvement is not part of a formally reported dataset, but is used locally to inform and drive improvement.

While all these forms of measurement are essential for improvement, it is the third category, Measurement for Improvement, that MHAIST focuses on. This is because there are benefits of using this type of measurement at every stage of an improvement project.

When planning improvement work, Measurement for Improvement helps you decide:

- what “better” looks like
- how you will recognise better when you see it, and
- how you will know if the changes you are making are helping you improve.
Once you have begun improvement work, Measurement for Improvement helps you answer the following questions:

- Are we on track to achieve our improvement aim?
- What changes are having a positive impact?
- What changes are having a negative impact?
- Are we reliably and consistently doing the things we need to do?
- What does our improvement story look like over time?

Some of the wider benefits of this type of measurement are as follows.

1. It is defined by those who are most affected by an improvement issue – the staff, service users and carers. This means the data can be used to tell the story for a whole department, a specific team or even a group of patients.
2. It is focused on helping staff, patients and carers learn about what works and what doesn’t in their service, helping you to do more of what works and less of what doesn’t.
3. It provides real-time feedback – effective measurement is gathered and analysed regularly, helping get a clearer idea of the impact changes are having while they are happening.
4. It is used to support learning, not judgement. Measurement is used to guide progress towards an improvement aim, not to decide who is doing well and who is not.
5. Measures chosen are specific to each context and local service.
6. Collecting data can be straightforward enough for patients to track and learn about their own journey.

*Fundamental aspect is:*

Real-time analysis and adaptation leading to improvement as you go
Different types of measures

There are three types of measures that can be used to support your improvement projects.

**Outcome measures** reflect the impact of changes on a patient, a group of patients, carers or staff. An outcome measure shows you if you are on track to achieve your improvement aim, and what changes have a positive impact such as reduced time from referral to treatment or a reduction in Did Not Attend (DNA) rates.

Improvement measures allow us to look at our existing data, for example patient progress data, and encourages us to ask: “What are we doing about it?”

Examples are improved quality of care for patients or groups of patients, increased attendance/decreasing non-attendance, improved outcomes for patients or reduced time between referral and receiving first treatment. Think creatively about what you track. For instance, an improved outcome may be evidenced from a reduction in negative factors.

**Process measures** relate to the changes put in place to achieve your aim. These measures help you understand if you are carrying out interventions as often or reliably as you planned to, whether you are doing them consistently for all relevant patients, and if there are any barriers to address. It may be that the theory is incorrect, that is the process does not achieve the outcome as expected or things are not happening as reliably as thought.

If we don’t deliver the interventions necessary why would we expect to see the outcome we hope for?

*Insanity: doing the same thing over and over and expecting different results.*

Albert Einstein
By understanding what you did, when you did it and how effectively you did it, you get a much better understanding of what approaches work, and which don’t. Are the things you think are happening actually happening? Only by observing and measuring will you be able to answer this question.

Examples include:

- time spent on a particular task
- the proportion of days you did daily numeracy (of all those you planned to do)
- percentage of patients receiving Did Not Attend (DNA)/Could Not Attend (CNA) information with their initial invitation letter of those who should have received it
- the percentage of referrals which are returned to referrers asking for more information before the patient can be accepted into the service or signposted to more appropriate services
- the percentage of patients being offered the opportunity to complete session by session feedback, or
- the number of times patients are successfully transferred between services.

Balancing measures show whether unintended consequences have been introduced elsewhere in the system. For example, you may not know what your balancing measures will be before you begin your improvement. The complexity of the work may mean the knock-on effect happens elsewhere, for this reason make sure you are sharing what you are doing and keep communication open. If other people identify a change – be it positive or negative – you can address and monitor it early.
Developing a family of measures

To really make measurement work for us we need to develop a family of outcome, process and balance measures. Most successful projects have between three to eight measures.

- If we only develop an outcome measure, we won’t know for sure if the activities and processes we think helped us improve were delivered, or have evidence to reflect on what got in the way.
- If we only develop process measures then we will never know if what we are doing is having a positive impact.
- Without balancing measures we risk not seeing the wider system we work within, the “bigger picture” beyond the changes we make.

Developing a family of measures helps us understand all aspects of our improvement work. A good family of measures should have at least one outcome measure and a mix of process and balance measures. Measurement is important but don’t overdo it. We want just enough measures to help us learn, and we want that data to be available easily without it getting in the way of our day-to-day work.

You may find you have to test your way to measurement: new pieces of work may not have obvious components to measure, or it might not be clear how you would go about collecting the data. Developing knowledge about how, when and what to measure is just as much a part of testing as trialling a classroom intervention. Use the PDSA cycle to help develop data gathering and recording processes.
How to select the right measures for your project

Once you’ve decided to develop your measures it can be really helpful to use the steps outlined in the measurement journey diagram below. This section of the paper talks through each stage.

A measurement journey


- **Aim** – your improvement aim is the starting point for developing helpful measures. A good aim will focus you on the ‘What, how much and by when?’ of your improvement project. From an aim statement you can define the types of outcomes you want to achieve and begin to think about the processes you will need to put in place to achieve this.

- **Concept** – what big ideas do you want to develop measures for? The best way to identify these big ideas is to review your change ideas – you may have recorded these in your driver diagram or Quality Improvement planning document. For example, a concept for an outcome measure could be “increase in referral rates”. The best way to find concepts for outcome measures is by looking at your improvement aim. A concept for a process measure could be “patients who received a complete intervention” or “time spent doing an intervention”. Such measurement concepts are often too vague in themselves to actually be counted or measured.

- **Measure** – how do we turn these concepts into measures? Each of the concepts needs to be turned into something you can count and record as a number, percentage or rate. It is worthwhile making sure you spend some time on this
step. Taking the example above this would be “percentage (or number) of patients who received the intervention”, or “time spent in minutes”. Using discussions with colleagues and subject matter experts who have done, or are doing, similar work can really help pin this down.

- **Operational definition** – a crucial step when developing measures is ensuring that everybody involved in your improvement work is using the same definition for each measure and gathers the data in the same way: this is called an operational definition.

Without a clear operational definition used consistently by everyone involved in your project you will not be able to get an accurate understanding of your improvement project. A good operational definition will include what data is to be used, for example do you need to calculate percentages and rates, and when the data is to be gathered (for example, at a set timescale or when specific activities take place). If results depend on something being “appropriate” or “complete” it is useful to list criteria or a required checklist of what that really means. Subject matter expertise and discussion is vital to draft, and agree, definition statements.

- **A data collection plan** is important before you start collecting data, although you can use PDSA cycles to refine the process(es). For each measure, decide who will collect data, what data they will collect, where they will collect it, when and how often. It can be helpful to think about whether the data already exists, for example attendance is already tracked on a patient management system. Use existing data to help simplify the process if you can. Before finalising you might want to try collecting some data to find out what is possible, again you can use PDSA cycles to refine what you will measure.

Will you count every event or take a sample? Samples are often sufficient. The more frequently collection occurs the faster it is possible to demonstrate improvement but remember small samples are more sensitive to random variation.

Finally, how are you going to store the data? Over time storing it on a computer can be helpful but in the early stages just getting started using paper and pen may be sufficient.
• **Data collection** – with all the steps above completed you then need to collect the required data.

• **Analysis** – in parallel with the data collection plan you need to consider how the team will analyse their data and present it in ways that people can connect with, so that action can be taken. Is someone on the team confident and willing to do the analyses and prepare the charts? Who will receive and review the results? How often? Visual display of quantitative data is important. Graphs are almost always easier for people to engage with than tables of numbers when assessing the impact of improvement efforts. This is because they make patterns much clearer. However, generating familiarity with the charts chosen can take time and it is advisable to try and adopt a basic design that people can become used to looking at week-on-week. An important consideration for the improvement team is agreeing how and how often you will review the data and test out changes so that you can improve on the current data. Having an external person do the analysis may be helpful to get you started but should not be continued long term as the data has to belong to the team doing the improvement work.

Do not discount the merit of qualitative data alongside quantitative; observations from people can reinforce and bring to life numerical data. It is also possible to convert non-numeric, observational information into quantitative. For instance, personal experience can be tracked on a scale and then allocated a corresponding number of points.
What do measures look like?

Using run charts to understand improvement

One of the most useful aspects of Measurement for Improvement is that data is gathered and used in real-time. While other forms of measurement are extremely useful in many ways, they often focus on measures gathered at specific points in time and this can limit your ability to understand your changes while you are making them. Measurement for Improvement involves gathering measures as often as you can: the more often you gather and use measures, the more often you can reflect to learn and understand the impact of your work.

With Measurement for Improvement effort is also focused on presenting measures in simple formats so that you can easily understand, and easily share, your improvement story. This is done by using run charts, a simple and effective way to collect and use your data. These charts show every data point that you have measured and, if updated regularly, can help tell you if you are improving, what changes are having an impact and if your improvement is sustainable.