

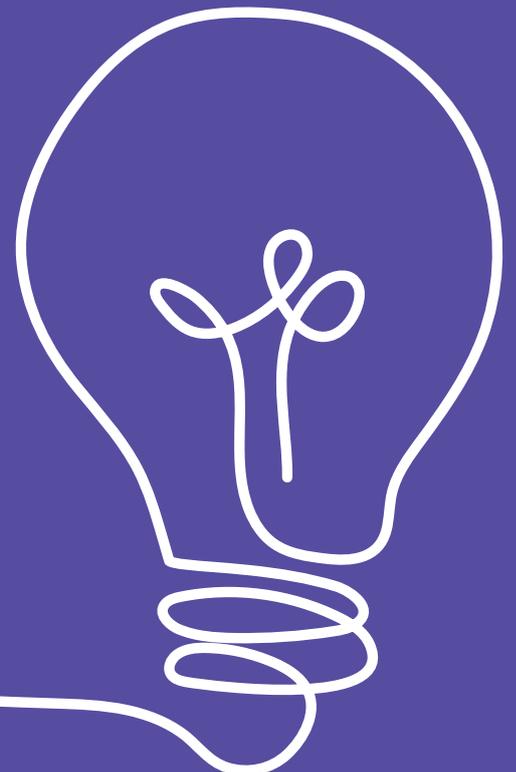
F3



**USING STATISTICAL PROCESS CHARTS (SPC)
TO VISUALISE A PATIENTS JOURNEY TO UNDERSTAND
VARIATION AND ASSIST WITH DATA QUALITY**

GREATER MANCHESTER MENTAL HEALTH NHS FOUNDATION TRUST

NORTH WEST, MENTAL HEALTH



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INNOVATION PROGRAMME
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THE INNOVATORS

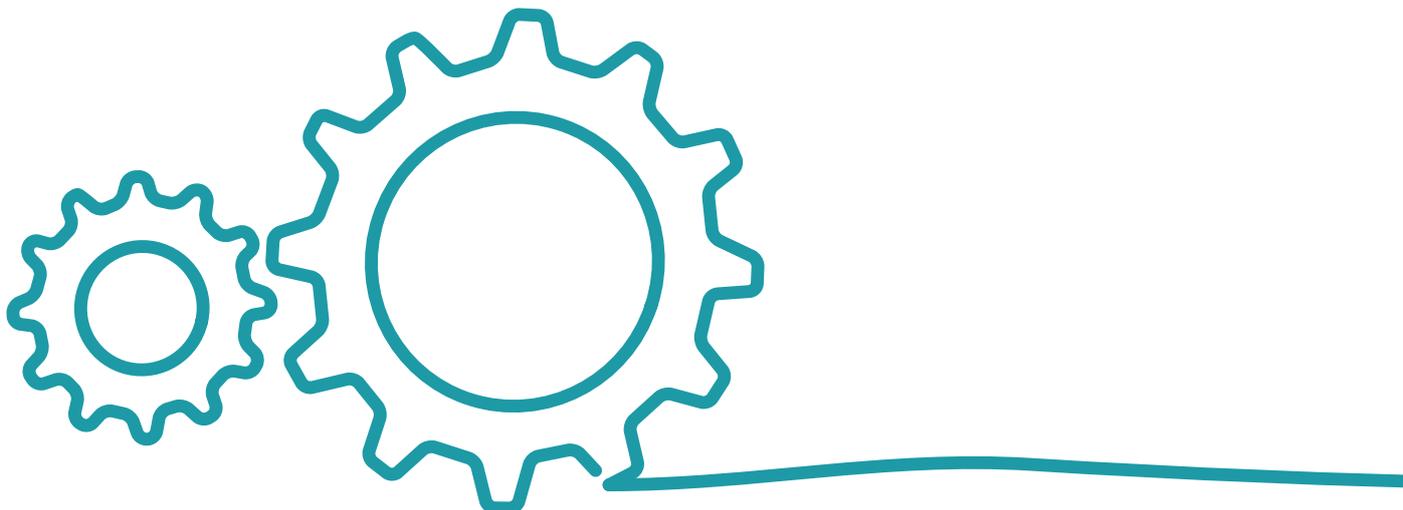
The Greater Manchester Mental Health NHS FT (GMMHFT) costing team, which includes the business intelligence analyst.

THE PROBLEM

The costing team needed to visualise large volumes of data. We wanted to do this better, because otherwise we would not see the wood for the trees! One patient record from the costing system output was 40 pages in length. This proved cumbersome when reviewing patient allocations and in answering queries from colleagues.

THE CHALLENGE

How might we visualise this data so that we can identify the normal range of costs and any outliers, to catalyse clinical change and improvements in patient services?



THE INNOVATION

Our objective was to visualise data and make it easier to observe the variation in resource costing, for example to compare patients on similar pathways, or look at differences between clinical teams. We wanted to make it as easy as possible for both costing and clinical teams to pick out interesting observations and start conversations about why these might have occurred. This will feed into conversations about clinical performance and how GMMHFT can ensure that all patients enjoy the same high quality services.

This use case demands both overview dashboards and the ability to drill down into more granular data to investigate certain items of interest. We began by studying the standard dashboards provided by Civica as part of their Costmaster cloud costing software. We consulted with NHS England to understand their preferred approach, which is Making data count, which uses statistical process control (SPC).

Our business intelligence (BI) analyst worked closely with our head of costing to develop functional, easy to view prototype SPC charts. The suite of charts plots all our costing data at a patient level in Power BI enabling us to understand resource consumption, drill down into outliers and begin to observe differences, for example comparing patients on the same pathway. We then gained knowledge from NHS England's join the dots team and their approach to Sigma 3 standard deviation that has tolerance lines between +/- three standard deviations from the mean.

Examples of intermediate stage dashboard styles shared with a clinical representative are shown in supporting evidence. A traditional view of patient cost dashboard as seen in the supporting evidence can only support a limited conversation.

The attached dashboard illustrates an excessive cost (compared to other interventions/ supplementary services such as pathology and radiology cost) at the end of the period under review in this example, which upon closer investigation revealed the issue was a prefilled syringe. We approached both the pharmacy and systems team and gained an understanding about other developments within the organisation around the electronic prescribing and medicines administration (EPMA) system to allow recording within the patient administration system (PAS) for administration of drugs which, when implemented, would assist in the administration to the patient rather than issued from pharmacy.

As our chief clinical information officer says 'Data visualisation is essential to driving the use of data, and engaging clinicians and operational colleagues in improving data quality. SPC charting is becoming a more common tool in the NHS and our head of costing and the team have shown it can be used to visualise the costing data, which can in turn help drive those critical conversations about whether the data is accurate and what it means.'

THE LESSONS LEARNT

We learned to compile our data visualisations and fine-tune them by implementing Making data count and NHS future approaches across multiple data visualisation platforms such as Tableau & PowerBI.

THE OUTPUTS

A series of dashboards that assist in validating our data quality and allow conversations to start with clinicians and other providers of data in the costing process, such as internal departments within the trust, around data quality around pharmacy issues. Also, the data visualisations could inform clinical practices about what is happening currently and help shape future decision making in relation to the patient journey through our services.

THE OUTCOMES

Our ultimate aim is always to improve service user experience. Direct benefits of the project identified so far include:

- providing clinicians with convenient access to costing data they have not previously been able to view
- improving clinicians' understanding of, and engagement with, costing data
- using costing data as part of benchmarking efforts to focus attention on areas where clinical practice is optimal and can be used to inspire improvement in areas of relative under-performance.

THE QUICK WINS

- The costing team using Making data count templates to advance quickly in the establishment of the 3-sigma approach to statistical process charts.
- Involving senior clinician representatives at early stage – we recommend speaking to the chief clinical information officer or other clinical leaders with an overview of the whole organisation.
- Being ready to secure support for the project at the highest levels and seek synergies with ongoing trust activity, in our case, the rollout of PowerBI across the trust to replace Tableau as part of the trust's digital strategy, so that organisational backing is secured.

THE REVIEWERS SAID

“THIS INNOVATION HAS CONSIDERED NATIONAL GUIDANCE AND UTILISED SPECIALIST SKILLS ACROSS BUSINESS INTELLIGENCE TEAMS AND FINANCE TO CREATE A SIMPLE AND EFFECTIVE PATIENT COST TOOL TO DRIVE SERVICE OPPORTUNITIES WHICH WILL ENGAGE CLINICIANS IN HOW TO REVIEW THE SERVICES DELIVERED.”

“THE TEAM SHOULD FEEL PROUD OF WHAT THEY HAVE ACHIEVED AND IT WILL BE INTERESTING TO SEE HOW THIS INNOVATION DEVELOPS AS IT IS EMBRACED BY THE ORGANISATION.”

“THIS INNOVATION PROVIDES A CREATIVE AND ACCESSIBLE APPROACH TO AN OVERWHELMING DATA SET. THE USE OF BUSINESS INTELLIGENCE TO UNDERSTAND, INFORM AND REVIEW BUSINESS DECISIONS ENSURES THAT RESOURCES ARE ALLOCATED EFFECTIVELY.”



WHAT YOU CAN DO NOW

SUBMIT INNOVATION

If you recognise the problem stated and have implemented your own innovation to overcome it please submit this innovation to the programme and give others more examples to learn from.

REGISTER INTEREST

If you recognise the problem stated and would like to know more details about this innovation in particular, we will be hosting showcase and workshop sessions throughout the year, so all interested staff can gain ideas and inspiration from innovators in a manageable one-to-many format.

SUBMIT PROBLEM

If you have a problem but don't currently know of a solution to it, then please submit it here and in 2022 the Forum intends to crowdsource solutions to problems that don't currently have known innovations.

LEARN MORE

If you would like to learn more about about the innovation programme please click for more details.

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IN SEPTEMBER 2021 THE FORUM LAUNCHED...

- A national Innovation Programme for NHS Finance staff to submit their innovations for peer review. Successful innovations will be published and accessible to all on the One NHS Finance website
- A 'Software Skills For Finance Staff' event series taught by NHS Finance for NHS Finance including MS Excel, PowerBI, SQL etc.
- An 'Art of the Possible' briefing which explains two new technologies AI & Blockchain and discusses the opportunity for NHS Finance
- An Automation Group to review and improve the efficiency of existing national processes and returns

WHAT YOU CAN DO NOW

- Submit your innovations for peer review
- Sign up to be an innovation peer reviewer
- Read Art of the Possible
- Sign up for Software Skills for Finance
- Register your interest in automation and all things innovative

Innovation Programme



Software Skills



Automation sign up



Be a peer reviewer



Art of the Possible



FURTHER INFORMATION

Website: FinanceInnovation.nhs.uk

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One NHS Finance brings together the Future-Focused Finance, National Finance Academy, and the Finance Innovation Forum programmes and networks to make sure that everyone working in NHS Finance has access to skills, knowledge, methods, and opportunities to influence and enhance patient services.



An NHS Finance platform for the discovery and development of problems, ideas and innovations.