

Improving patient care by improving data visualisation and safety support mechanisms: interim assessment.

Judith Smith¹, Sarahjane Jones²

¹University Hospitals Coventry and Warwickshire NHS Trust; ² Birmingham City University

Abstract

Poor patient safety significantly affects the patient experience and can be life changing for those involved. Safety measurement has been slow to deliver demonstrable improvements in patient safety since the extent of fatal adverse events was established in the 1999 report 'To err is human'.¹ The QUESTT tool supports more effective safety performance measurement that rewards success and supports underperformance to deliver improvements.

Introduction

The extent of medical error and unsafe care was first quantified in the 1999 'To err is human' report¹, in which medical error was implicated in the deaths of as many as 98,000 patients per year in the US, equating it to the 8th leading cause of death. Subsequent studies confirm this as a global problem.^{1,2,3} This revelation resulted in recommendations to address the seriousness of medical error,⁴ such as the implementation of incident reporting systems to capture better data and improve learning. Despite these efforts, poor patient safety persists and there is little evidence to support demonstrable improvements. In 2013, the Francis Report⁵ highlighted damning failures that resulted in the unnecessary deaths of up to 1,200 patients at one hospital Trust in England. To pre-empt future failings in care, Francis endorsed the recommendations made by earlier reports and made additional recommendations which included: monitoring standards; being transparent, open and honest with outcomes; and putting the patient first. All of which support a positive culture of patient safety.

In response to this, and as part of its strategic efforts, University Hospitals Coventry and Warwickshire NHS Trust (UHCW) has been keen to develop more innovative ways of working with its data to better inform patient safety. UHCW has identified the need to better visualise the safety performance of individual wards in order to identify 'failing' wards quicker to ensure the rapid provision of adequate support. The purpose of this project was to develop a mechanism for visualising ward-level safety performance data and improve patient safety.

Methods

Within a quality improvement framework, the project team devised an initial tool using the literature.^{6,7} Nationally recognised indicators were selected to ease data collection and processing as these indicators would already be available for extraction in to the new tool. Using workshop formats, the initial tool was discussed and revised in collaboration with 14 modern matrons and ward managers. At this workshop, the different indicators were confirmed, their triggers were set and the layout of the electronic tool was established. A second workshop was conducted to finalise the details of the escalation process. Data for the five month period prior to tool deployment has been collated and compared to data since.

Results

Tool development

In response to local needs, using a participatory quality improvement methodology, the Trust has developed the QUESTT tool, meaning **q**uality is being **u**nderachieved which affects the patient's **e**xperience and **s**afety and needs to be **t**urned around in **t**imely manner. The QUESTT tool collates routinely collected administrative data and visualises ward-level safety performance according to metrics set within a zero tolerance to harm philosophy on a monthly basis. The development of these metrics and their trigger levels were determined collaboratively with front line nursing staff who participated in the project. Consequently, any presence of harm is coded red as each ward is encouraged to aspire to zero harm; these harms include: clostridium difficile, MRSA, falls with harm, pressure ulcers (grade 2, 3 or 4) and harmful drug administration errors. In addition, the QUESTT tool visualises a range of risk indicators that have been specifically selected to support improvements to aspects of the system. Hence, staff are able to make direct and meaningful change. This is particularly important as it provides nursing staff opportunities to see how their direct actions can improve the safety of care by reducing risk within the system, which may translate overtime to improvements in adverse events. All indicators selected were routinely collected and therefore easily extracted and incorporated into the QUESTT tool without new data collection required or any data processing.

To support the QUESTT tool, an escalation process was constructed, to enable underperforming wards to access support depending on the scale of the underperformance. As part of the escalation process, performance is tracked over time and further action taken. The criteria for each level and the escalation procedure can be found in Table 1.

Table 1: escalation criteria and support procedure

Level	Criteria	Support procedure
1	1 month has triggered RED	Meet and work with the Modern Matron and other relevant professionals that may be able to support the ward and formulate an action plan to improve the team's performance and achieve a rating of GREEN the following month.
2	last 3 consecutive months have triggered RED	Meet and work with the Modern Matron and Associate Director of Nursing and other relevant professionals that may be able to support the ward, review the current action plan and make any relevant changes to improve the team's performance and achieve a rating of GREEN the following month
3	6 months in the last rolling 12 months have triggered RED	Meet and work with the Modern Matron, Associate Director of Nursing and Deputy Chief Nurse and other relevant professionals that may be able to support the ward and formulate an action plan to improve the team's performance and achieve a rating of GREEN the following month. This group should continue to meet until the ward has a GREEN rating.

To ensure a wide understanding of the QUESTT tool, a range of educational material and learning events were developed and delivered to different levels of nursing staff.

Interim Results

The QUESTT tool was launched in April 2016. There has been no impact on the level of harm indicators to date. Two risk indicators requiring manual input have seen a decline in the number of non-entries since the implementation of QUESTT. The appraisals indicator exceeded the minimum threshold for the first time in June 2016 and has remained above the

threshold since. Staff turnover has decreased since QUESTT implementation. The monthly average of total risk indicators post-QUESTT implementation has fallen by 7%.

Discussion

Although improvements in the risk indicators are evident, impact on harmful events has been less responsive to the introduction of the QUESTT tool. This is unsurprising, given that safety and the occurrence of adverse events is typically multifactorial and longer term cultural changes may need to be embedded before improvement in adverse events are visible. The escalation process developed to support the introduction of the QUESTT tool could enable longer term cultural change as openness and transparency increases across the hospital with greater data visualisation and support mechanisms recognise that this is an organisation-wide problem, rather than that of any one individual or ward. As the risk indicators improve, there is the possibility that harm indicators will improve as a result.

Conclusion

Patient safety remains an unsolved challenge in healthcare. The QUESTT tool offers a ward-level data visualisation system combined with an escalation and support procedure for underperforming wards. Although improvements in harm have yet to be realised, as risk improves, it is anticipated that harms will also improve.

References

1. Vincent C, Neale G, Woloshynowych M. Adverse events in British hospitals: preliminary retrospective record review. *BMJ*. 2001;322(7285):517-9.
2. Wilson RM, Runciman WB, Gibberd RW, Harrison BT, Newby L, Hamilton J. The quality in Australian health care study. *Med J Aust*. 1995;163(9):458-71.
3. Baker GR, Norton PG, Flintoft V, Blais R, Brown A, Cox J, et al. The Canadian adverse events study: the incidence of adverse events among hospital patients in Canada. *CMAJ*. 2004;170(11):1678-86.
4. Department of Health. An organisation with a memory: a report of an expert group on learning from adverse events in the NHS. London: The Stationery Office; 2000.
5. Francis R. Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry. London: The Stationery Office; 2013.
6. Maben, J., Morrow, E., Ball, J., Robert, G., Griffiths. High Quality Care Metric for Nursing. National Nursing Research Unit, King's Collect London, 2012.
7. Department of Health. The NHS Outcomes Framework 2012/13. London: The Stationery Office. 2012