

Six Sigma approach to the introduction of Board Rounds in a Neurosurgical Department

C. Akhunbay-Fudge, A. Williams, C. Wigfield

Department of Neurosurgery, Southmead Hospital, Bristol

Introduction

Six Sigma is a data driven process for quality improvement, used primarily in the industrial sector. It is used to find defects in a particular system and continuously improve that system with the aim of attaining "perfection" (1). The two main methods used are illustrated in Figures 1 and 2.

Board rounds are intended to be a streamlined process used to briefly review the progress of current ward patients. It identifies when they are expected to be medically fit for discharge and what would be required before they are safe for discharge (e.g. TTAs, Physiotherapy, Occupational therapy). Board rounds had been attempted previously in our neurosurgical unit with limited effectiveness. We used the principles of Six Sigma to help us re-introduce board rounds with better results.

Neurosurgical patients often have complex needs requiring intensive medical and therapy input. We wished to have daily board rounds so that doctors and allied health professionals were all up to date on patient needs. Our aim was to facilitate patient flow, improve the working environment and improve patient safety by increasing VTE form fill rates.

Method

Since board rounds are established in many units already, we used the DMAIC approach to introduce them into our unit. After consultation with various stakeholders, it was decided to run them early morning prior to formal ward rounds to highlight key issues early, such as unfilled VTE assessments. Throughout the period of the study, we continuously made changes to improve and modify on the board round process based on feedback and trial and error.

Two standardised questionnaires were used to measure staff perceptions (TeamSTEPPS Teamwork Perceptions Questionnaire (2)) and team performance (GRPI Team Assessment Questionnaire (3)) before board rounds and 2 months after. They were filled in by doctors, nurses and allied health professionals. VTE fill rates before and after board rounds were accessed on the hospital intranet.

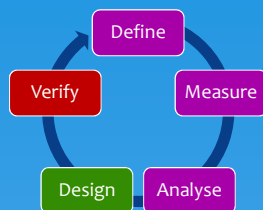


Figure 1 – The DMADV process. This system is used in the development of new processes.

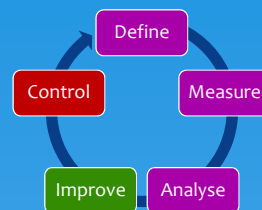


Figure 2 – The DMAIC process. This system is used for the improvement of current processes.

Results

The mean board round duration was 25 minutes (StdDev=5.1) over six weeks. The first set of questionnaires were filled in by 24 staff members and the second set by 19 staff members. The TeamSTEPPS questionnaire showed significant improvements in average scores in all team constructs ($p < 0.001$ in 4/5 categories and $p < 0.005$ in 1/5 categories), illustrated in Figure 3. The GRPI questionnaire also showed significant improvements in average scores ($p < 0.005$), shown in Figure 4.

Board rounds began running mid September. VTE form fill rate went from 79.91% in August before board rounds had started, to 91.11% in December when board rounds had been running for at least 2 months shown in Figure 5.

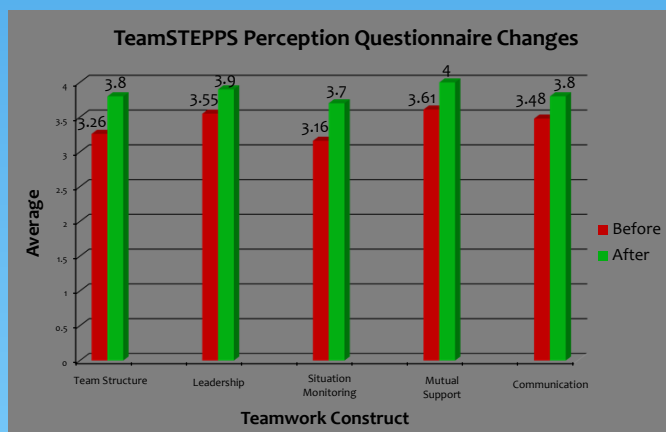


Figure 3 – Improvements in TeamSTEPPS scores before and after board rounds.

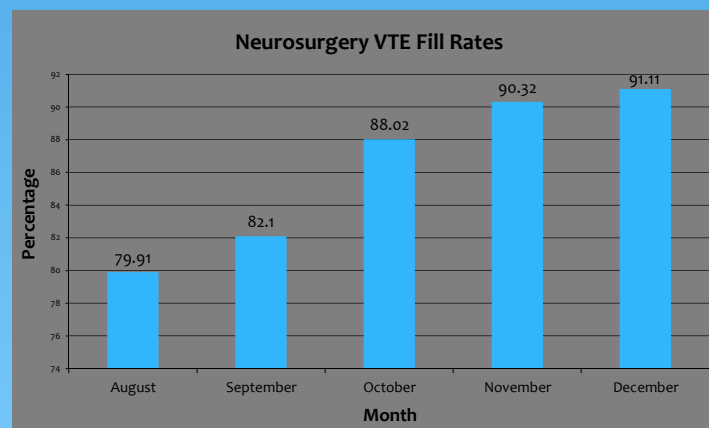


Figure 5 – Improvements in VTE fill rates in the Neurosurgery department over a five month period.

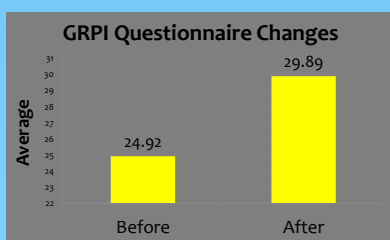


Figure 4 – Improvements in GRPI scores before and after board rounds.

Conclusions

Board Rounds can act as an effective and time-efficient tool to improve two key aspects of the modern hospital environment – patient safety and team-working.

We demonstrated this by improved VTE fill rates over the initial few months of introducing board rounds and improved teamwork scores on both questionnaires used. The board rounds are still running effectively in the department and planned future improvements include trying to assist more key allied healthcare professionals to attend regularly. Using the principles of Six Sigma, we are continuously reviewing the board rounds to find ways to improve it.

Six Sigma is a useful process to assist departments in introducing new or established systems effectively and continuing to improve them to meet desired goals. In a modern healthcare system where clinical governance is vital and quality improvement is increasingly important, tools such as this could be considered a valuable resource.

References

- 1 – Six Sigma Resources for Six Sigma Quality (<http://www.isixsigma.com/>)
- 2 – TeamSTEPPS Attitude Questionnaire (<http://teamstepps.ahrq.gov/>)
- 3 – Assessment Tools for Developing and Leading Effective Teams (<http://www.insead.edu/>)