

Transforming Care Strategies and Nursing-Sensitive Patient Outcomes

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Abstract

Aim. This paper is a report of an observational study of the effects of implementing Transforming Care at the Bedside improvement strategies on medication errors, patient falls and pressure ulcers. The aim of this study was to examine the effects of implementing 13 Transforming Care (TC) improvement strategies on reported of three nursing-sensitive patient outcomes, medication errors, patient falls and pressure ulcers.

Background. Transforming Care at the Bedside (TCAB) has emerged as a way to improve the delivery of nursing services, however there has been limited evaluation of this initiative outside of the US context.

Method. An observational, time series study in two medical units in one Australian hospital was conducted. Statistical process control analysis was used to identify changes in the outcomes was used. Routinely collected, anonymous clinical incident reports were used to calculate the proportion of reported clinical incidents that were reported to result in patient harm in the 15 months prior to and 18 months after the TC strategies were implemented, February, 2005 to December, 2007.

Results. The proportion of reported medication errors and falls and pressure ulcers that resulted in harm as reported in clinical incident reports were reduced from 46.3% to 17.1%, 97.0% to 51.0%, and 91.3% to 46.6% respectively, representing an absolute reduction by about one half. Consistent, sustained improvement in the first two was demonstrated, but analysis showed wide variation in the third - pressure ulcers, which meant that the differences in this outcome may have occurred by chance.

Conclusion. The context, the characteristics of the TC strategies, the way in which the TC strategies were implemented and the results they had on teamwork and communication may all account for the benefits realised in this study.

Keywords. Transforming care at the bedside, clinical incidents, medication errors, patient falls, pressure ulcers, Statistical process control analysis

SUMMARY STATEMENT

What is already known about this topic?

- A number of international reports and research studies have led to a focus on safety and quality in health care.
- Transforming Care at the Bedside involves nursing managers and front-line staff together contributing to practice improvement.
- Evaluation of Transforming Care at the Bedside is limited to only a few American publications.

What this paper adds?

- An overview of adaption of 13 Transforming Care improvement strategies to the Australian context is given.
- Transforming Care improvement strategies were associated with improvements related to the reported harm from reports of two of three nursing sensitive clinical incidents - medication errors and patient falls.

Implications for practice and/or policy.

- A rapid change management cycle can be a useful process when implementing numerous clinical changes in short succession.
- Statistical process control analysis and control charts are a useful analytic technique to assess process change over time.
- The Transforming Care at the Bedside initiative is one framework that can be used to improve the quality of care provided in hospitals.

INTRODUCTION

Today's hospitals are both busy and complex, where nurses and other health professionals work in a knowledge-intensive environment to deliver patient care (Tucker & Edmondson, 2003). In fact, this complexity makes errors a common occurrence, with one in ten patients suffering harm as an unintended consequence of healthcare in hospital (Wilson et al., 1999). As a consequence, patient safety has emerged as a primary focus in the delivery of hospital services. Within the nursing context, Transforming Care at the Bedside (TCAB) is one relatively new framework for improving safety on medical and surgical units in acute care hospitals (Rutherford, Lee & Greiner, 2004). To date, TCAB has been predominately been examined in the American context, with little understanding of its impact in other health systems.

BACKGROUND

Transforming Care at the Bedside

Two Institute of Medicine (IOM), publications, 'Crossing the Quality Chasm' (IOM, 2001) and 'Keeping Patients Safe; Transforming the Work Environment for Nurses' (IOM, 2004) provided the foundation for the TCAB initiative. The Robert Wood Johnson Foundation and the Institute for Healthcare Improvement (IHI) in the United States (US) developed TCAB to improve both patient care and nurses' experiences when working in hospitals (Rutherford et al., 2004; Upenieks et al., 2008). It aimed to engage front-line staff and managers in identifying, implementing and evaluating strategies to improve patient care experience as well as the experiences of the nurses caring for them in medical and surgical units. Engaging all levels of staff is thought to be the reason TCAB will be effective in improving both nursing care and nurses' experience. The TCAB framework has four overlapping pillars - safety and reliability, care team vitality, patient-centeredness and increasing value. TCAB and its four pillars seems to have similarities with the National Health Service Productive Ward initiative, the goal of which is to remove waste and releasing time to provide more direct patient care (Bloodworth, 2009), and the Safer Care initiative, that focuses on upskilling staff to improve patient safety (National Health Service (2009). Based on these four pillars and their associated goals, a large number of strategies have been recommended to 'transform care'. Examples of some of these strategies include Patient Safety Leadership Walkrounds™, traffic light system to indicate

current workload and identify nurses' availability for additional patients, establishing daily patient goals with patients and streamlining discharge processes (Rutherford et al., 2004; Upenieks et al., 2008; Stefancyk, 2008a). Just as the pillars are not mutually exclusive, improvement strategies that target one pillar often will have flow-on beneficial effects to other pillars.

Proponents believe the involvement of front-line staff in identifying areas for improvement, brainstorming and then rapidly testing potential solutions are key aspects of TCAB (Viney et al., 2006; Martin et al., 2007). Also, critically important is both executive and on the ground leadership support for TCAB (Viney et al., 2006; Martin et al., 2007). The process involves teams identifying areas for change, developing and rapidly testing new initiatives, in order to determine if they will be adopted or abandoned (Rutherford et al., 2004; Martin et al., 2007; Upenieks, 2008)

Descriptions and evaluations of TCAB have now begun to emerge. For example, in 16 units within three hospital settings, Upenieks and colleagues (2008) identified 34 locally developed TC strategies and showed that 75% of the units reported an increase in nurse vitality, described as the “vibrancy and satisfaction of the workforce (Rutherford et al., 2004, p. 4). Specifically, in response to the question to interview questions if “the sense of vitality had improved/increased” at either one or two year after their implementation, 12/16 nurse managers provided affirmative comments. Related to this report, Martin et al. (2007) provides further, detailed information on the outcomes from one of the study sites examined by Upenieks et al., (2008). Martin et al. (2007) identified improved patient outcomes, very strong patient satisfaction results and a decrease in nursing staff turnover rates, with the implementation of TCAB. Other authors describe how TCAB improvement strategies, such as patient controlled liberalised diets in hospital (Scott-Smith & Greenhouse, 2007), nurses participating in patient rounds (Stefancyk, 2008b) and one-hour off meal breaks (Stefancyk, 2009), have had positive effects in a range of areas. Still others have shown how TCAB, initially designed for medical surgical units, has been successfully implemented and evaluated in other areas such as ambulatory services (Lorenz, Greenhouse, Miller, Wisniewski & Frank, 2008) and critical care (Donahue, Rader & Triolo, 2008). Thus, this emerging body of work suggests that locally developed TC strategies may be beneficial for patients and nurses.

Descriptions of TCAB and evidence on its impact have arisen almost exclusively from the United States (US). Further, there is actually limited measurable

evidence on the impact of TCAB on patient outcomes. Thus, the aim of this study was to examine the effects of implementing 13 TC improvement strategies on three nursing sensitive patient outcomes, medication errors, patient falls and pressure ulcers in two medical units in one Australian hospital. We hypothesised that this proportion of reported incidents that were reported to cause harm would decrease after the implementation of transforming care strategies. Given TCAB is directed at improving patient care and nursing experiences, we choose to examine patient outcomes that have previously been identified as amenable to nursing interventions (White & McGillis Hall, 2003; Doran et al., 2006). We examined three types of nursing sensitive clinical incidents, medication errors, patient falls and pressure ulcers, advocated by nurse researchers (White & McGillis Hall, 2003; Doran et al., 2006). As White and McGillis Hall's (2003) systematic review of patient safety outcomes identified, medication errors, patient falls and pressure ulcers were consistently linked to the quality of nursing care. Thus, given a lack of measurable evidence related to patient outcomes and that one pillar of TCAB relates to safe and reliable care, we chose these three nursing-sensitive outcomes for our study. Because of the recognised limitation of underreporting of clinical incidents, and the fact that proponents of patient safety assert that incident reporting will actually increase in a supportive, learning environment, the absolute number of reported incidents is unlikely to reflect improvements in patient care (Cullen et al., 1995; Weingart et al., 2000; Wu et al., 2002). However, we propose that improvements in patient care may actually result in detecting errors earlier, resulting in corrective action, and thus limiting the harm experienced by patients.

THE STUDY

Design

This study was observational, using a time series design (Benneyan, Lloyd & Plsek, 2003; Speroff & O'Connor, 2004). It assessed the effect of locally developed TC improvement strategies on routinely collected clinical incident data.

Setting and sample

This study took place on two medical units in a busy community hospital in one Australian state. The hospital had 330 beds and approximately 454 full time equivalent (FTE) nursing staff during the study period. The two medical units had 35

and 30 beds each and 26 FTE nursing staff each, which included both registered and enrolled nurses as well as nursing assistants. In the state, and at the study site, nurse to patient ratios were not used. Instead, nursing hours per patient day accounted for staffing, with agency or casual staff being employed as necessary.

A clinical incident was defined as any event or circumstance that could have or did lead to unintended and/or unnecessary mental or physical harm to a person and/or a complaint, loss or damage. Thus, in this particular state, staff were required to complete incident reports for incidents that involved the potential for harm in addition to those that actually caused harm. Three types of types of nursing sensitive clinical incidents - medication errors, patient falls and pressure ulcers were examined. Clinical incidents are reported anonymously by staff, and are recorded on a web-based reporting form. All reported clinical incidents related to medication errors, patient falls, and pressure ulcers between February, 2005 and December 2007 were included in the study, with the TC improvement strategies implemented in May/June, 2006. As per the state's clinical incident policy, the person reporting the clinical incident initially assessed if the incident caused patient harm. Final determination of harm was made by the nurse unit manager (NUM) who was required to review the incident report. Thus, the three outcome measures reflect reported harm from reported clinical incidents, as judged by staff and NUMs.

Transforming Care Strategies

The locally developed TC strategies are based on the four TCAB pillars, are thus classified as 'bundled interventions', which are distinct from single interventions (Conn et al., 2001). Thirteen specific strategies that were implemented and how they align with the four TCAB pillars are identified in Table 1, although it is recognised that strategies do not exclusively fit within any one pillar.

Insert Table 1 here

The TC strategies were implemented in rapid succession in May/June 2006, over approximately 2 months. A rapid change management cycle based on the principles of adapt, adopt or abandon was used to implement the TC strategies. Prior to implementation, under the broad agenda to redesign nursing service delivery, the

nursing leadership team, consisting of the Nursing Director and the NUMs, together developed a plan to adopt the TCAB philosophy.

Data collection and analysis

Clinical incidents were anonymously reported by staff on a purpose-built, web-based reporting system and later reviewed by NUMs. Data from this system were electronically transferred to SPSS (version 17.0) for analysis. Data were accessed for the 15 months prior to and 18 months after the implementation of implementing the TC strategies. Ethics approval was obtained from both the university and hospital to access routinely collected de-identified data.

Statistical process control (SPC) analysis was used to assess the effect of the TC strategies (Benneyan et al., 2003; Speroff & O'Connor, 2004). To achieve this, control charts were created to illustrate the variation of the proportions of reported medication errors, falls and pressure ulcers that were reported to result in harm to the total number of reported medication errors, falls and pressure ulcers over the study period, both prior to and after implementing the TCAB strategies.

We undertook two sets of process control analyses for each outcome. The first analysis examined the dataset as a whole for the duration of data collection period and established an overall mean (displayed as a dotted line) and 2 standard deviations from the mean, also termed the 95% control limits (displayed as two hatched lines on either side of the mean line). This was important as conventional 'visual rules' for interpreting control charts are based on both the mean and the control limits. For example, change is assumed to occur if, 2 out of 3 successive points are greater than 2 standard deviations from the mean on the same side of the mean, 8 successive points occurring on the same side of the mean, or 6 successive points increasing or decreasing on visual inspection (Benneyan et al., 2003). These charts are displayed in the results. The second process control analysis involved splitting the data into two, to obtain mean rates both prior to and after the Transforming Care strategies were implemented, in order to assist with interpretation. These means are reported in text in order to assist in interpretation, but as they are point estimates only over time, they simply help the reader interpret the first SPC results. The P-Chart was adopted for all analysis because the events of interest (i.e. clinical incidents) were binary (i.e. harm/no harm) (Lee and McGreevey, 2002; Mohammed, Worthington & Woodall, 2008).

RESULTS

The overall mean proportion of reported medication errors that reportedly resulted in harm for the duration of the study was 34.5%. Figure 1 is an illustration of this proportion including the mean line (dotted) and 95% control limits or 2 standard deviations above and below the mean line (hatched lines). A vertical line has been added to indicate implementation of the TC strategies. Applying Benneyan et al.'s (2003) 'visual rules', it is clear that high proportion of reported medication errors reportedly resulted in harm from October, 2005 to about April, 2006 (i.e. 8 successive points on the same side of the mean), but improved significantly after that, with this improvement sustained for the duration of the study period. The second set of analyses (graphs not shown), which split the data into the two time frames showed that the proportion of reported medication errors that resulted in harm was reduced from 46.3% to 17.1%, representing an absolute reduction of more than half. Together, these two sets of analyses, which consider not only the mean (i.e. point estimates) but also the variation (i.e. 95% control limits), suggests that chance could be ruled out as a cause of the variation.

Insert Figure 1 here

The overall mean proportion of reported falls that reportedly resulted in harm for the duration of the study was 69.9%. Figure 2 is a reflection of this proportion including the mean line (dotted) and 95% control limits or 2 standard deviations above and below the mean line (hatched lines). A vertical line has been added to indicate implementation of the TC strategies. Applying Benneyan et al.'s (2003) 'visual rules', it is clear that a high reported proportion of falls reportedly resulted in harm from the start of the study period, February, 2005 to about July, 2006 (i.e. 8 successive points on the same side of the mean), but after that improved significantly, with this improvement sustained for the duration of the study period (as evidenced by both 8 successive points on the same side of the mean and two time periods where 2 out of 3 successive points were greater than 2 standard deviations from the mean). The second set of analyses, which split the data into the two time frames showed that the proportion of reported medication errors that resulted in harm was reduced from 97.0% to 51.0%, representing an absolute reduction almost half. Together, these two sets of analyses, which consider not only the mean (i.e. point estimates) but also the

variation (i.e. 95% control limits), suggests that chance could be ruled out as a cause of the variation.

Insert Figure 2 here

The overall mean proportion of reported pressure ulcers that reportedly resulted in harm for the duration of the study was 66.7%. Figure 3 is an illustration of this proportion including the mean line (dotted) and 95% control limits or 2 standard deviations above and below the mean line (hatched lines). A vertical line has been added to indicate implementation of the TC strategies. Reviewing this figure, it is clear that there was wide variation throughout the study period in the proportion of reported pressure ulcers that reportedly resulted in harm, as evidenced by wide variation in individual values as well as the 95% control limits (2 standard deviations) with none of Benneyan et al.'s criteria for change being met. The second set of analyses, which split the data into the two time frames showed that the proportion of reported medication errors that resulted in harm was reduced from 91.3% to 46.6%, representing an absolute reduction almost half, however given the wide variation throughout the study, it is possible that this variation occurred by chance.

Insert Figure 3 here

In summary, the SPC analysis showed that the proportion of reported medication errors and patient falls that reportedly resulted in patient harm decreased after the introduction of the 13 TC strategies, but the proportion of reported pressure ulcers did not.

DISCUSSION

There are a number of limitations to this study. First, it was conducted in only two medical units in one Australian hospital, thus the findings may not be generalisable to other settings. However, the study provides a foundation for future work in the area. Second, this study used routinely collected clinical incident data, which relies on reporting, however only a small proportion of clinical incidents may be reported (Cullen et al., 1995; Weingart et al., 2000; Wu et al., 2002). In order to address this

problem we did not examine the frequency of clinical incidents per say, but rather the proportion of those that were reported to result in harm. Related to this, at the time they were completing the incident reports staff were not aware that the reports would be accessed for research purposes. Nurses and other staff who completed the incident reports were not research participants in this study as it was a secondary analysis of routinely collected administrative data, which was accepted by the ethics committees. Third, implementing the TC strategies, while occurring in quick succession over approximately 2 months, did not all begin at the same time. However, the use of statistical process control charts does demonstrate process change over time for two of the outcomes.

The findings of this study extend the emerging evidence of the effects of TCAB, to the Australian context and to the benefits they may have on nursing-sensitive patient outcomes. There are several potential reasons why the TC strategies may have been associated with such positive effects, including the context, the characteristics of the TC strategies, the way in which the TC strategies were implemented and the results they had on teamwork and communication. First, prior to adopting the TCAB framework, the two medical units were experiencing a number of difficulties including high vacancy and turnover rates, low morale and dissatisfaction with the working environment. Lewin's (1951) seminal change model of unfreezing, changing and refreezing, postulates that in the unfreezing step "equilibrium needs to be destabilised (unfrozen) before old behaviour can be discarded (unlearned) and new behaviour successfully adopted" (Burns, 2004, p. 985). Thus, it may be that the nurses were 'primed' for a change.

Second, the actual characteristics of the TC strategies implemented may have influenced their uptake and flow-on beneficial effects. In his innovation diffusion model, Rogers (1995) describes how the characteristics of the innovation influence its uptake. Some of the characteristics of successful innovations include that they will have more advantages than existing routines, that they will be easy to understand and that their introduction is considered feasible and not too difficult to implement, and finally, that the results of the new procedure will be easily visible to the user as well as to others (Rogers, 1995). It appears that the 13 TC strategies implemented reflected these characteristics. For example, safety scrums, medication vests and admission introductory letters made nurses work easier and were easy to understand and implement. Another strategy, bedside handover, while somewhat more complicated,

had clear benefits such as shortening and improving the quality of the handover. Its implementation was supported by training sessions and the development of clear clinical guidelines (Chaboyer et al., 2009). Finally, a number of the strategies such as Leadership safety walk-throughs, 30 and 90 day interviews and the reward and recognition strategies, were carried out by the nursing leadership team, who were committed to the TCAB philosophy and were able to incorporate these changes into their work processes. These latter strategies were not only very visible indicators that the leadership team valued their staff, but that they also recognised that staff have insights into how to improve workplace problems.

Third, a rapid change management cycle was used to implement the TC strategies. Such an approach ensured that staff nurses were able to influence not only the way in which the strategies were implemented, but also how were adapted for their particular wards and whether they should continue or be abandoned. In fact, this change process may have empowered the staff. Empowerment has been described as intrinsic motivation or orientation towards one's work role (Thomas & Velthouse, 1990). Key dimensions of empowerment include competence, or one's belief in their ability to perform the work and self-determination or a sense of having a choice about work methods, and impact (Thomas & Velthouse, 1990). In other contexts, it has been shown that empowered workers achieve better results (Laschinger, Finegan & Shamian, 2001), thus it is possible that this is why patient outcomes improved in the current study as well.

There are several others potential reasons why the TC strategies may have been effective. First, the focus was brought back to the patient and nursing care and back to the bedside. Second, staff may have been reinvigorated by the new 'care' focus of TCAB. Third, staff were encouraged to be innovative and creative in the workplace, enabling change to occur from the bottom up. Finally, the NUMs became much more focused on being present in the unit, co-ordinating patient care rather than undertaking administrative duties in an office, which may have provided important clinical leadership to not only new, novice nurses but also more experienced clinical nurses.

Finally, together, the TC strategies may have improved teamwork and communication. Across a number of settings, poor communication and teamwork have been implicated in adverse events (Joint Commission Accreditation of Healthcare Organisation, 2003; Rogers et al., 2006). Improving communication,

especially during clinical handover, is viewed as one fundamental way to improve patient safety (World Health Organization, 2007: Australian Commission on Safety and Quality in Health Care 2008). By their very nature, most of the TC strategies implemented would have resulted in improved communication and teamwork.

Findings from this research lead to a number of suggestions for future study. First, given the limitations identified previously, a prospective, study of TCAB could be undertaken, randomising wards or hospitals, as in cluster randomised trials to adopt TCAB or not. Second, chart audit or observation could be used to measure nursing-sensitive outcomes. Other outcomes such as patient complaints may be used, however researchers would have to devise a method to systematically collect this data. Third, nursing outcomes, such as job satisfaction and turnover could be examined as outcomes given the theoretical basis of TCAB. Fourth, this study could be extended to other clinical areas of the hospital, such as rehabilitation or surgical units. Finally, in-depth interviews and unstructured observation could be used to gain a deeper understanding of the implementation process including its effects on nursing staff.

CONCLUSIONS

In conclusion, using routinely collected anonymous incident reports, this observational study demonstrated that the proportion of reported medication errors, and patient falls that were reported to result in harm to patients in two medical units diminished after the implementation of 13 TC quality improvement strategies, but this was not the case for pressure ulcers. Prior to this implementation, the units were experiencing a number of problems that made them ready and willing for a change. The strategies that were adopted were either easy to implement or their benefits were soon realised. Importantly, the staff were part of the change process, which probably contributed to teamwork and communication and ultimately the success of the TC strategies. While this study took place in one setting, given the TCAB pillars, it is likely that benefits may be realised in other contexts as well.

References

- Australian Commission on Safety and Quality in Health Care (2008) *Nine priority programs*. Retrieved from <http://www.safetyandquality.org/> on 30 June 2008.
- Benneyan J.C., Lloyd R.C. & Plsek P.E. (2003) Statistical process control as a tool for research and healthcare improvement. *Quality and Safety in Health Care* **12**, 458-464.
- Bloodworth K. (2009). Productive ward 1: implementing the initiative across a large university teaching hospital. *Nursing Times* **105**, 24 (early online publication).
- Burnes B. (2004) Kurt Lewin and the planned approach to change: a re-appraisal. *Journal of Management Studies* **41**, 977-1002.
- Chaboyer W., McMurray A., Johnson J., Hardy L., Wallis M. & Chu, S. (2009) Bedside handover: one quality improvement strategy to “Transform Care at the Bedside”. *Journal of Nursing Care Quality* **24**(2), 136-142.
- Conn V., Rantz M., Wipke-Tevis D., et al. (2001) Designing effective nursing interventions. *Research in Nursing and Health* **24**, 433-442.
- Cullen D.J., Bates D.W., Smith S.D, et al. (1995). The incident reporting system does not detect adverse events – a problem for quality improvement. *Joint Commission Journal on Quality Improvement* **21**, 541-548.
- Donahue L., Rader S. & Triolo P.K. (2008) Nurturing innovation in the critical care environment: transforming care at the bedside. *Critical Care Nursing Clinics of North America* **20**(4), 465-469.
- Doran D.M., Harrison M., Spence-Laschinger H., et al. (2006). Nursing sensitive outcomes data collection in acute care and long-term care settings. *Nursing Research*, **55**(2S), S75-S81.

- Institute of Medicine (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. Author. Washington DC.
- Institute of Medicine (2004). *Keeping Patients Safe; Transforming the Work Environment for Nurses*. Author. Washington DC.
- Joint Commission Accreditation of Healthcare Organisation (2003) *Sentinel Event Statistics*. Oakbrook Terrace: JCAHO.
- Jones J., Lowe M., Burns C., Donaldson P.I., Abbey J. & Abbey B. (2008) *Practice partnership model: an innovative approach for nursing at The Prince Charles Hospital (TPC)*. Brisbane: Queensland University of Technology. (not in text)
- Laschinger H.K., Finegan J. & Shamian, J. (2001) The impact of workplace empowerment, organizational trust on staff nurses' work satisfaction and organizational commitment. *Health Care Management Review* **26**(3), 7 – 23.
- Lee K. & McGreevey C. (2002). Using control charts to assess performance measurement data. *The Joint Commission Journal of Quality Improvement*, **28**(2), 90-101.
- Lorenz H.L., Greenhouse P.K., Miller R., Wisniewski M.K. & Frank S. L. (2008) Transforming care at the bedside: an ambulatory model for improving the patient experience. *The Journal of Nursing Administration* **38**(4), 194-199.
- Martin S.C., Greenhouse P.K., Merryman T., Shovel J., Liberi C.A. & Konzier J. (2007) Transforming care at the bedside: implementation and spread model for single-hospital and multihospital systems. *The Journal of Nursing Administration* **37**(10), 444-451.
- Mohammed M.A., Worthington P. & Woodall W.H. (2008) Plotting basic control charts: tutorial notes for healthcare practitioners. *Quality and Safety in Health Care* **17**(2), 137-145.

- National Health Service (2009). Safer Care Improving Patient Safety.
[http://www.institute.nhs.uk/safer_care/safer_care/safer_care -
_home_page_2.html](http://www.institute.nhs.uk/safer_care/safer_care/safer_care_-_home_page_2.html) (accessed 17 August, 2009).
- Rogers E.M. (1995) *Diffusion of Innovations*. Free Press, New York.
- Rogers S., Gawande A., Kwaan M., Puopolo A., Yoon C., Brennan T. &
Studdart D. (2006) Analysis of surgical errors in closed malpractice claims at
four liability insurers. *Surgery* **140**, 8.
- Rutherford P., Lee B. & Greiner A. (2004) *Transforming care at the bedside*.
Cambridge, MA: Institute for Healthcare Innovations.
- Scott-Smith J.L. & Greenhouse P.K. (2007) Transforming care at the bedside: patient
controlled liberalized diet. *Journal of Interprofessional Care* **21**(2), 179-188.
- Speroff T. & O'Conner G.T. (2004) Study designs for PDSA quality improvement
research. *Quality Management in Health Care* **13**(1), 17-32.
- Stefancyk A.L. (2008a) Implementing TCAB on White 10: a retreat can advance care.
The American Journal of Nursing **108**(10), 27-29.
- Stefancyk A.L. (2008b) Nurses participate in presenting patients in morning rounds:
the first test of change was more complex than was anticipated. *The American
Journal of Nursing* **108**(11), 70-72.
- Stefancyk A.L. (2009) One-hour, off-unit meal breaks. *The American Journal of
Nursing* **109**(1), 64-66.
- Thomas K. & Velthouse B. (1990) Cognitive elements of empowerment: an
'interpretive' model of intrinsic task motivation. *Academy of Management
Review* **15**(4), 666-681.
- Tucker A. & Edmondson A. (2003) Why hospitals can't learn from failures,

organisational and psychological dynamics that inhibit system change.

Californian Management Review **45**, 55-72.

Upenieks V.V., Needleman J., Soban L., Pearson M.L., Parkerton P. & Yee T. (2008)

The relationship between the volume and type of transforming care at the bedside innovations and changes in nurse vitality. *The Journal of Nursing Administration* **38**(9), 386-394.

Viney M., Batcheller J., Houston S. & Belcik K. (2006). Transforming care at the bedside designing new care systems in an age of complexity. *Journal of Nursing Care Quality* **21**(2), 143-150.

Weingart N.N., Ship A.N., Aronson M.D (2000). Confidential clinician-reported surveillance of adverse events among medical in-patients. *Journal of General Internal Medicine* **15**: 47—477.

White P. & McGillis Hall L (2003) Patient safety outcomes. In D. Doran *Nursing-sensitive outcomes state of the science* (pp. 211-242). Jones and Bartlett: Misissauga, ON.

Wilson R., Harrison B., Gibberd R., et al. (1999) An analysis of the causes of adverse events from the Quality in Australian Health Care Study. *Medical Journal of Australia* **170**, 511-515.

World Health Organization (2007). Communication during patient hand-overs.

Patient Safety Solutions **1**(3). Retrieved from <http://www.who.int/patientsafety> on 26 May 2008.

Wu A.W., Pronovost P. & Mortlock L. (2002). ICU incident reporting systems. *Journal of Critical Care* **17**(2): 84-99.

Table 1: Transforming Care Strategies Implemented in Rapid Succession

Pillar	Strategies
Safe and reliable care	<ul style="list-style-type: none"> • “Safety Scrums” that involved team briefings part way through the shift to bring staff together briefly each day to rapidly identify and improve unsafe conditions. • “Leadership safety walk-throughs” where nursing leaders visited patient care areas every second week to talk with front-line staff and help remove barriers to implementing new initiatives. Every second month previous actions taken in this regard were reviewed to identify areas for further improvement. • Medication vests worn during medication rounds to limit interruptions.
Care team vitality	<ul style="list-style-type: none"> • 30 and 90 day meetings with new staff to provide new staff with opportunities to get to know the managers, facilitating future communication and to provide feedback to new staff. • ‘Pay-it-forward’ program to promote random acts of anonymous kindness in the nursing team. One staff member coordinates the program, and provides a ‘green card’ prompt to staff members on a rotational basis. The selected staff member returns the card once they carry out an anonymous act of kindness for a staff member of their choice. • Reward and recognition strategies including handwritten thank you notes and ‘starfish pin’ awards for staff who make a difference in the workplace as identified by peers or leaders.
Patient-centeredness	<ul style="list-style-type: none"> • ‘Practice partnerships’, where two staff are allocated care of a group of patients and work together toward meeting patient needs –in essence team nursing. • Bedside nursing handover was implemented with associated training and development of a competency statement. • Admission introductory letter to educate patients and families • Patient daily goals written on a whiteboard at patients’ bedside to help both nursing staff and patients understand the plan of care. • Discharge brochure including a checklist to ensure important aspects of discharge planning was not missed.
Increasing value	<ul style="list-style-type: none"> • To improve patient flow, a “Be a bed ahead” system was implemented where units anticipate demand and have a bed ready as soon as the demand occurs (i.e. “pull” rather than “push” patients). • Utilisation of ‘lean thinking’ methodology to decrease waste, rework and duplication in work flows and practices including redesigning the equipment and medication rooms.

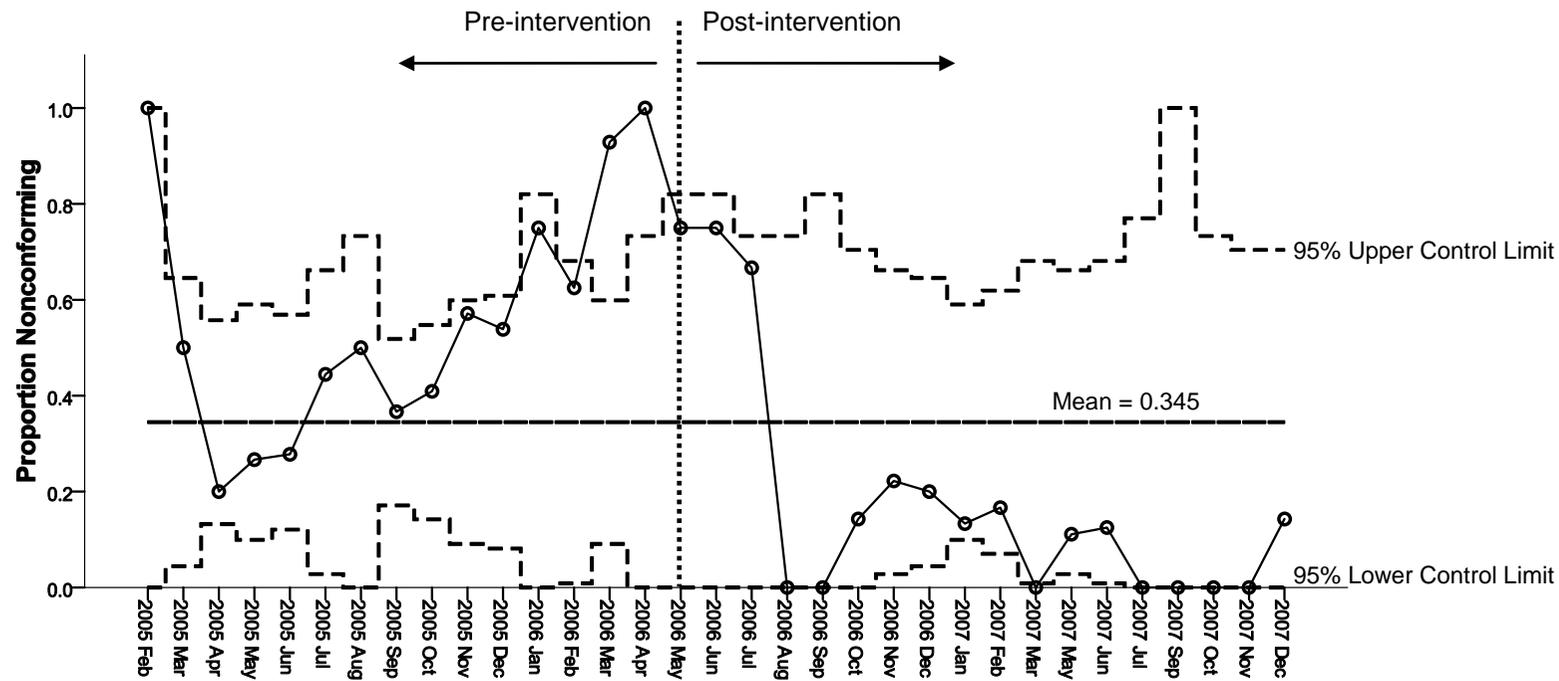


Figure 1: P-Chart: Proportion of Reported Medication Errors that were Reported to Result in Harm

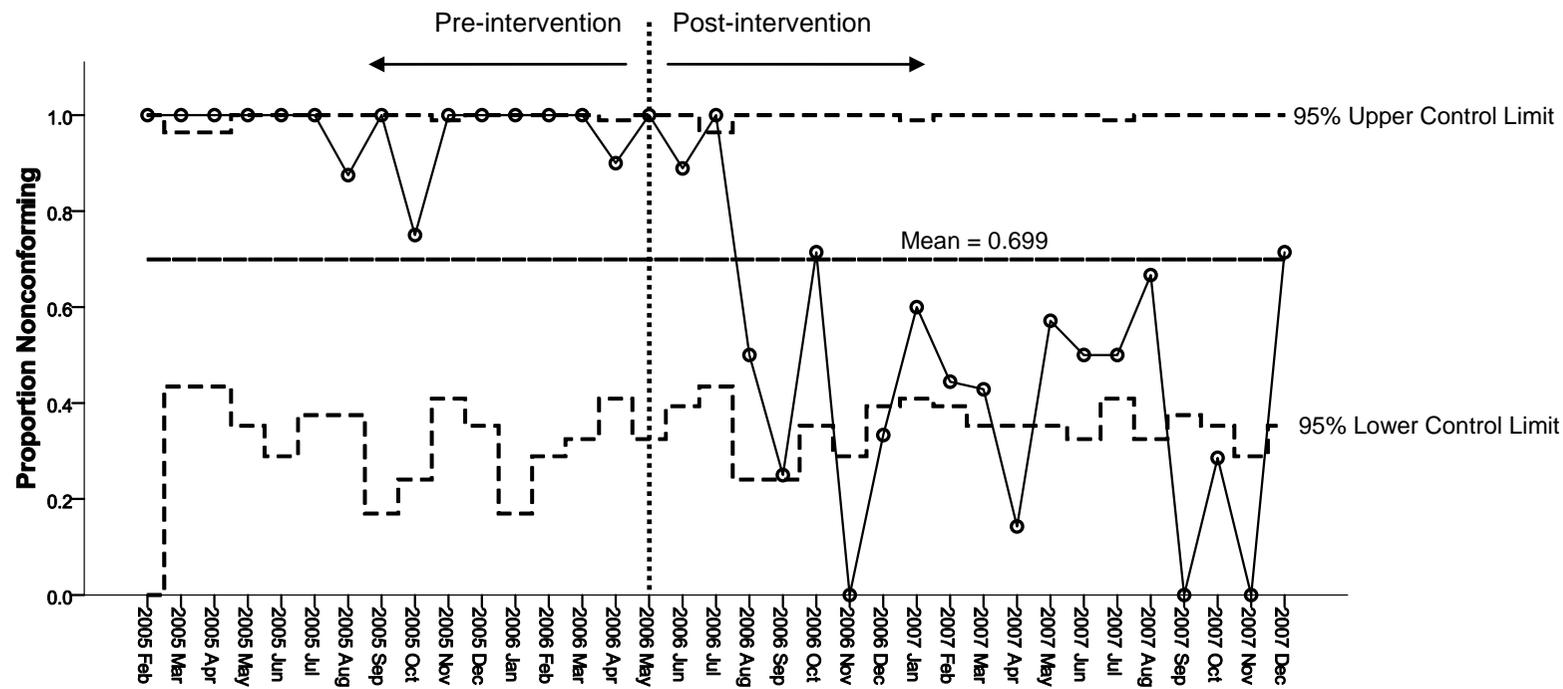


Figure 2: P-Chart: Proportion of Reported Patient Falls that were Reported to Result in Harm

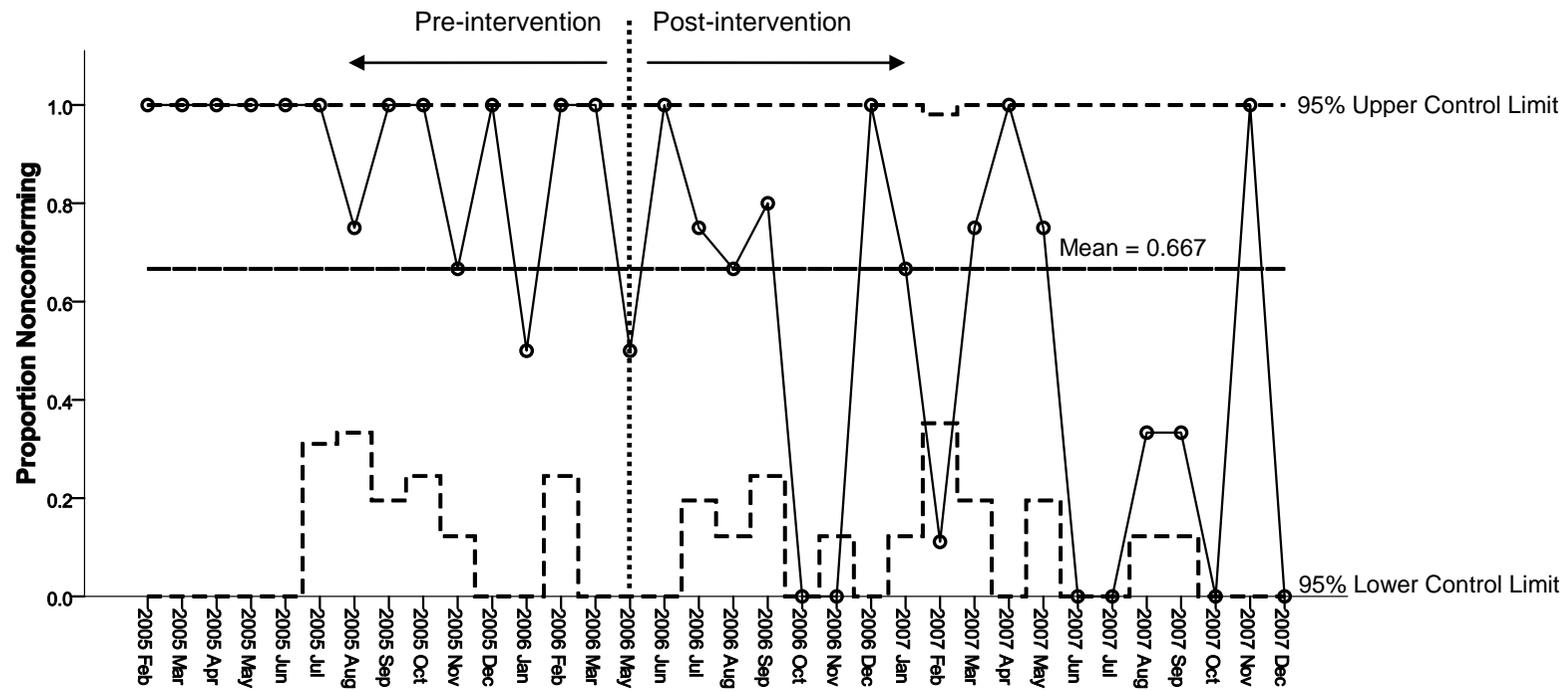


Figure 3: P-Chart: Proportion of Reported Pressure Ulcers that were Reported to Result in Harm