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WHO Safer Surgery checklist compliance amongst paediatric emergency plastic surgery patients in an UK hospital

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HIGHLIGHTS

- This study has shown the value of raising awareness of the WHO checklist for optimizing perioperative safety.
- An overall increase in checklist compliance from 88% to 91% was found.
- We have identified the areas that most need improvement and suggest ways for doing so.

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ABSTRACT

Introduction: The WHO Safer Surgery checklist has become an important component of perioperative safety. Our objective, was to determine the compliance of completing the checklist for paediatric emergency plastic surgery patients at our unit.

Methods: An initial baseline was performed with 70 patients over two months at our unit. Following this, we raised awareness at an audit meeting and closed the audit loop using 80 patients over two months. The audit is reported in line with SQUIRE 2.0 criteria.

Results: Initial compliance was 88% overall and this increased to 91% post-intervention. Compliance with the individual stages in both cycles was for sign-in: 85%–86%, for time-out 92%–98% and for sign-out 86%–89%. Around one in four checklists were not scanned in both periods.

Conclusion: This audit showed a high overall level of compliance in the checklists that were scanned and available for scrutiny. We have identified the areas that most need improvement and suggest ways for doing so.

1. Introduction

Surgical morbidity and mortality are concerns for public health. In 2012, it was estimated that between 266 and 359 million major surgical operations were performed worldwide [1]. To break this down further, of the estimated 234 million major surgical operations in 2004 [2], it is estimated that major morbidity complicated 3–16% of cases. In this study, the rate of permanent disability or death was between 0.4 and 0.8% and it is reported that almost half of the adverse events were deemed to be preventable [3,4].

In June 2008, the World Health Organization (WHO) developed a Safer Surgery checklist to be used globally to improve and ensure perioperative safety for patients. This checklist was designed with the intention of improving teamwork between operating room staff and ensuring the consistent use of a perioperative safety process. It includes various items around three perioperative stages: sign-in (before induction of anaesthesia), time-out (before skin incision) and sign-out (before the patient leaves the operating room). In each stage members of the team have to confirm that certain tasks have been done before the team can proceed. The pivotal multicenter before and after study was performed by Haynes et al. involving 3733 consecutive patients before and 3955 patients after implementation of the checklist. They showed a near 47% drop in mortality (from 1.5% to 0.8%) and a 36% decrease in morbidity [5] and this was validated by further work [6].

The checklist was promptly implemented in multiple health care systems around the world including the NHS in 2009 [7]. However, some studies have suggested that compliance in completing the checklist is minimal [8,9]. Monitoring the implementation and compliance with safety and quality assurance systems is an important aspect of clinical audit and surgical

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Table 1
July–August 2016 Mean compliance and areas with poorest compliance.

	Sign-in (15 items)	Time-out (18 items)	Sign-out (12 items)
Mean Compliance	85%	92%	86%
Top two areas with poor compliance	1. Team Briefing (72%) 2. Does the patient have a safe airway plan in case of difficult airway (89%)	1. Any adverse events anticipated (75%) 2. Specific equipment available if required (79%)	1. Any other issues for follow-up? (21%) 2. Key concerns for recovery (58%)

Table 2
October–November 2016 Mean compliance and areas with poorest compliance.

	Sign-in (15 items)	Time-out (18 items)	Sign-out (12 items)
Mean Compliance	86%	98%	89%
Top two areas with poor compliance	1. Team Briefing (82%)	1. Team introduce themselves (93%)	1. Any other issues for follow-up? (38%) 2. Key concerns for recovery (72%)

surveillance [10]. Data on WHO checklist compliance for a subset of our patients was lacking locally.

Our objective, was to determine the compliance of completing the WHO Safer Surgery checklist for paediatric emergency plastic surgery patients at our unit. Our study is reported in line with SQUIRE 2.0 guidelines [11].

2. Methods

This quality improvement study was performed at the Evelina London Children's Hospital (ELCH). The ELCH is one of only two specialist children's hospitals in London, along with Great Ormond Street Hospital. The neonatal unit cares for 900 babies a year and overall the hospital cared for 55,000 children in 2016 [12]. We assessed emergency paediatric plastic surgery patients operated on during the period July–August 2016 to establish a baseline. Patients were identified retrospectively from patient lists stored on networked computers. The audit standard was 100% completion of all three stages: Sign-In, Time-out and Sign-out. Electronic patient records (EPR) were reviewed to assess the compliance of checklist completion. This also allowed us to assess the compliance of scanning the checklist into electronic record systems – in line with trust policy. Following our intervention of raising awareness via a presentation at a monthly audit meeting on 13 September 2016, we closed the audit loop during October–November 2016. During these periods, we also assessed whether the checklists were scanned in after completion, part of local processes to ensure completeness of EPR.

Data was extracted into a standardized database by the first author (WK). Once complete data was harvested for the two periods, simple descriptive statistics were applied to assess compliance. Ethical approval was deemed unnecessary and not sought given that this is a routine and well established process in this context.

3. Results

For the period July–August 2016, 70 people met the inclusion criteria. 17 Patients had no scanned checklist, hence a total of 53 patients were included (76%). The mean level of compliance for each phase of the WHO checklist is shown in Table 1 together with the two items with poorest compliance.

80 people met the inclusion criteria for October–November 2016. 22 had no scanned checklist; consequently 58 patients were included (73%). Table 2 demonstrates the mean compliance over the second period and the top two areas with poor compliance.

The overall mean compliance at baseline when all three stages were summated, was 88%, during the second period this increased up to 91% (3.4% increase). The summary of the changes during respective periods is shown below (Fig. 1). The operations that were

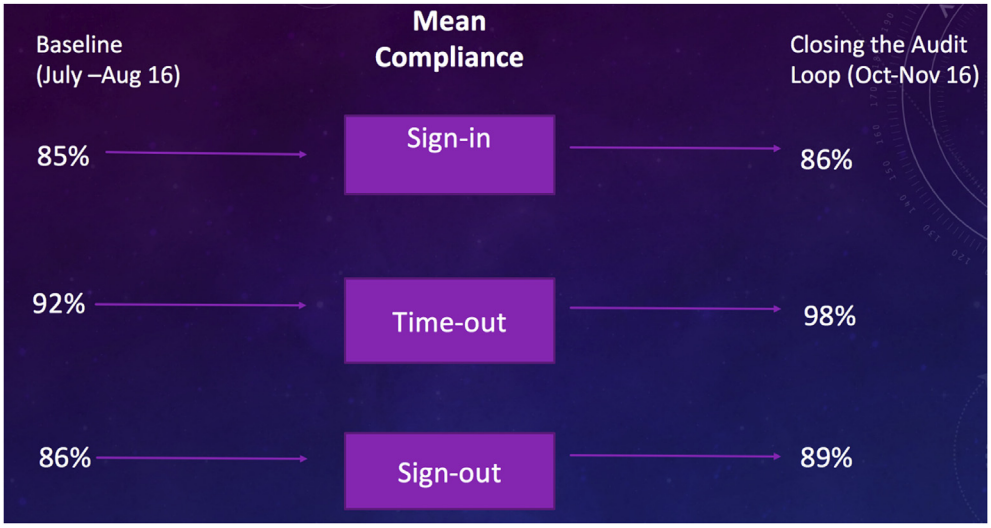

Fig. 1. A summary of how compliance changed before and after the intervention for the three parts of the WHO Safer Surgery checklist.