Perioperative human error - a target for high-fidelity inter-professional simulation training?

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Background:
Human error in high-risk professional groups can be actively prevented through continuous professional training and the use of cognitive aids, such as checklists. Operating room teams undertaking complex surgery do not routinely undertake training in crisis prevention and management as a joint group. This is unusual when compared to team training in other high-risk environments, which acknowledge the need to address both technical and behavioural safety threats. Although the use of team training systems imported from other professional groups have been trialled in operative settings, their application outside the operating room has been limited.

Aims:
To estimate the incidence and significance of perioperative human error in tertiary clinical centres, in order to ascertain the need for inter-professional high-fidelity simulation training for small teams (nurses, anaesthetists and surgeons) undertaking complex or high-risk interventions.

Methods:
The Datix databases of two teaching hospitals were retrospectively reviewed. The audit data was collected for a period of 4 consecutive months across all surgical specialties, including elective, emergency and out-of-hours operations. The study endpoints were the incidence, nature and severity of the events reported, as well as the professional groups involved. Surgical, anaesthetic, nursing, administrative, drug-related and portering events were included in the study. Non-perioperative adverse events were excluded from the analysis.

Results:
389 events were reported in a 4-month period, of which 19.5% were thought to have the potential to lead to harm. The majority of these (16.5%) were associated with only a minor degree of harm. 78.9% of incidents led to no harm. 80.4% of events were reported by medical (28.1%) or nursing (52.3%) staff. Communication, behavioural or organisational incidents accounted for 29% of reports, with 8.5% of reported events posing a risk to staff. Only 53.7% of incidents were reported as having a clinical nature (errors related to diagnosis, interventions or treatment) and only 11.6% of incidents were related to medical equipment.

Discussion
The audit data suggests that reported perioperative incidents are common, although the majority of these don’t lead to patient harm. However a non-dominant proportion of these were associated with technical errors. This highlights the need to address safety threats arising from human or behavioural factors, such communication, organisation and staff interaction. This might also suggest that mixed operative teams working in the NHS may benefit from joint crisis management training in a simulated environment, as undertaken by other high-risk professional groups with good effect. A possible research and training model is outlined in Figure 3.

The study is limited by the fact that it did not capture clinical incidents that failed to be reported. Furthermore, it appears that there are differences in incident reporting patterns amongst the various professional groups working in theatres (Figure 4).

Conclusions:
High-fidelity inter-disciplinary simulated training may improve efficiency and outcomes in operating theatre teams.

References: