

# Distractions and the anaesthetist: a qualitative study of context and direction of distraction

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## Editor's key points

- Distractions contribute to medical error.
- It is likely that the anaesthetist is particularly prone to significant distraction because of the close relationship between vigilance, actions, and outcome.
- This study found that the most common distractions come from the circulating nurse and other anaesthetists.
- Such causes of distractions, and how best to minimize them, need to be further investigated.

**Background.** Distractions are cited as contributory to healthcare-associated errors in a large proportion of incidents including those involving anaesthetists. The anaesthetist is relatively understudied, despite the closer coupling between action and outcome than in surgery.

**Methods.** After formal regulatory approval, we undertook an observational study using a validated rating scale for the observed effect of distractions. We also recorded the parties involved, the relative urgency of the distraction and the likely benefit or harm to the initiator and recipient.

**Results.** Thirty-two separate surgical operations were observed. Median case duration was 103 min (range 22–227 min). 3557 potentially distracting events were observed, of which 1173 (33%) were deemed to score  $\geq 2$  on the distraction scale (i.e. caused distraction). Of these 3557 events, 1227 involved the anaesthetist either as an initiator of a potential/actual distraction, or the recipient of an actual distraction. The commonest initiators of distraction were the circulating nurse (832/3557) and the anaesthetist (816/3557). Sixty distracting events were observed while the anaesthetist was preparing or administering drugs ( $\sim 2$  per case). Of the 60 drug-related distracting events, 26 were initiated by the anaesthetist, and 3 of 7 airway events.

**Conclusions.** Distracting events involving the anaesthetist are common, but approximately two-thirds of these events have no externally visible effect. Another anaesthetist was the most common recipient of a distracting event initiated by the anaesthetist. Anaesthetists need to address themselves as causes of distractions and the potential impact on patient safety.

**Keywords:** attention; interdisciplinary communication; medical errors, prevention and control; observation; operating theatres; quality of health care; safety

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Distractions are cited as contributory to healthcare-associated errors in a large proportion of incidents.<sup>1</sup> Previous reports have estimated that  $\sim 10\%$  of patients experience some form of healthcare-related error during their hospital stay, of which 50% were deemed avoidable.<sup>2</sup>

Several groups have attempted to describe and quantify distraction in the operating theatre, for the scrubbed team and during various phases of anaesthesia.<sup>3–6</sup> These studies have provided valuable information about the number of distractions, but have largely not addressed the issue of the context or quality of the distraction. The Imperial and Toronto groups have published some investigations of case-irrelevant communication, and limited aspects of timing.<sup>7, 8</sup> More recently, Rivera-Rodriguez and Karsh have proposed that distractions in the operating theatre context should be studied in a more contextual framework—a sociotechnical

systems perspective. They argue that not all distractions are negative, and both the distractor and distractee may have positive, neutral, or negative effects from the distraction. These effects may be relevant to the patients at hand, or other patients with whom staff may be involved.

Anaesthetists are relatively under-studied compared with the surgical team, despite their ability to make mistakes, and the close coupling between action and outcome (particularly with drug errors). In a similar manner to airline pilots and naval captains, their professional role involves periods of high risk and workload interspersed with relative inactivity where the focus is on monitoring rather than intervention. During these periods, distraction for the anaesthetist may, in fact, be beneficial in maintaining alertness. These periods may not coincide with low-risk periods for the other members of the operative team. Human factors

research suggests that teams function best (and by implication are safest) when team members fully understand each other's role. However, research from the Imperial Patient Safety group suggests that, at best, the different members of the operating theatre team over-estimate their understanding of each other's roles.<sup>9</sup>

We, therefore, undertook a pilot study to investigate the quality, context, and direction of distraction involving the anaesthetist in particular.

## Methods

### Ethical review, consent, and confidentiality

The study was sponsored by the University Of Nottingham and approved by North West Great Manchester Research Ethics Committee (11/NW/0581; 24/8/2011). Written informed consent was obtained from all staff taking part in the observational aspect of the study. Written consent was obtained only once, but continued participation was confirmed with staff before each observation period. Patients also gave written informed consent for this part of the study.

Anonymity and non-traceability for staff involved in the observational study were assured:

- There were no names recorded on any observation schedules.
- There were no dates recorded on the observation schedules.

### Observational study

Two medical student observers (H.J., J.H.-H.) were trained by an experienced observational researcher (R.E.). Once the trainer was satisfied with their accuracy and timeliness of observation, the students observed independently. For each observation period, a single observer positioned himself where he could observe the anaesthetist unimpeded without disrupting the process of care. The observer did not initiate interaction with team members but would respond to staff if they initiated conversation. The observers discussed

their observations and their interpretation with the senior investigators as the study progressed to ensure consistency of interpretation.

The two observers had two overlapping pre-specified foci of observation. Observer 1 focused on the anaesthetist as the initiator or recipient of distraction. Observer 2 focused on the context of when these distractions occurred. Preliminary work suggested that it was not possible for a single observer to capture all this information in real-time.

The distractions score described by Healey<sup>5</sup> was used to rate the 'severity' of distraction (Table 1). This tool has been developed and validated by the Patient Safety group from Imperial College, London as a reproducible metric for the distraction quantity and quality. Several terms are used for distracting events in the literature. Interruptions, where an individual attends to the distraction, are rated according to increasing severity by the Healey scale. Potentially distracting events (i.e. where no interruption was observed) score 1. In addition, the direction and context of the distraction was recorded, and the perceived benefit/harm to the initiator and recipient of the distracting event both at the time of the event and in the near future. Benefits to the distractor were events such as the anaesthetist lifting the drapes to give a drug, asking the surgeon how the case was progressing. Current harm would be interrupting someone else in their task (e.g. the surgeon) whereas there may be future benefit ('shall we send for the next patient?'). Case-irrelevant conversations were given a separate category of 'social' as they are in general not directly beneficial to the current patient's care. The urgency of the distracting event was scored on three-point scale: (i) event is truly urgent; (ii) event has urgency, but does not need to happen at the present moment; and (iii) no urgency to event (Table 2). In all the observations, the primary focus was on the anaesthetist, rather than on the operating personnel.

### Statistical considerations

All data were summarized using simple descriptive statistics (frequencies, proportions, median, and range) as appropriate. Data from the Healey distraction scale were *a priori* split into level 1 events (which are potential distractors with no observed effect on staff) and events scored >1 (which have an observed effect on one or members of the team).

**Table 1** Scoring system for impact of potentially distracting events or interruptions<sup>5</sup>

Level	Observed effects on team
1	Potentially distracting source
2	Interference noticed by non-sterile, non-anaesthetic staff
3	Non-sterile/non-anaesthetic staff attends to non-case interference
4	Team member momentarily distracted from task
5	Team member pauses current task
6	Team member attends to distraction
7	Team (anaesthetic or surgical) distracted momentarily
8	Team (anaesthetic or surgical) attend to distraction
9	Operation flow interrupted

**Table 2** Scoring system for urgency of events

Score	Category	Example
1	Immediate	Equipment failures; immediate patient safety issues
2	Urgent	Questions about list; arranging or preparing equipment for next case
3	Non-urgent	Social conversations

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