# Noisy operations associated with increased infections after surgery

June 1 2011

Patients who undergo surgery are more likely to suffer surgical site infections (SSIs) if the operating theatre is noisy, according to research published in the July issue of BJS, the *British Journal of Surgery*.

Swiss researchers studied 35 patients who underwent planned, major abdominal surgery, exploring demographic parameters, the duration of the operation and sound levels in the theatre. Six of the patients (17 per cent) developed SSIs and the only variable was the noise level in the operating theatre, which was considerably higher in the infected patients.

"SSIs lead to patients spending up to 13 days longer in hospital, making their stay cost up to three times as much" says Dr Guido Beldi, staff surgeon and research group leader from the Department of Visceral Surgery and Medicine, Berne University Hospital, Switzerland.

"Having found a significant association between SSIs within 30 days of surgery and increased sound levels in the operating theatre, we can only conclude that noise is associated with a stressful environment or lack of concentration and this impacts on the surgical outcome."

Key findings of the research included:

- Median sound levels during surgery were significantly higher for the patients who developed SSIs (43.5dB) than for those who did not (25dB).

- Peak levels of at least 4dB above the median were found in 23 per cent of the SSI patient operations, twice as many as the 11 per cent observed in the other operations.

- The sound levels appeared to increase in both groups 60 minutes after the first incision. This could be related to increased difficulty with the operation, but talking about non-patient topics was also associated with a significantly higher noise level. The latter finding may suggest a lack of concentration by the entire surgical team, including surgeons, anaesthetists and nurses. However, this interpretation is speculative, as the timing of the non-patient-related conversations was not recorded.

"The results of our study suggest that increased sound levels in the operating theatre may point to issues such as surgical difficulty, a stressful environment, impaired discipline or concentration" concludes Dr Beldi.

"Each of these factors may increase the risk of SSIs and other complications and further studies looking at the source of operating theatre noise and its specific influence on the behaviour and performance of surgeons is warranted."

In an editorial on the paper, Professor Ara Darzi from the Division of Surgery at Imperial College London, says that it stands to reason that noisy surgical environments distract the surgeon from what is a complex task.

"The authors are to be commended on seeking clinically important parameters concerning the quality and safety against which to measure outcome" he says. "It is also worth noting that this research stems from a simple research question and did not involve a multicentre trial. Yet it

produced interesting and relevant results for the surgical community.

"Not all great research need necessarily be on a large scale; surgeons should be encouraged to examine the day-to-day problems they encounter and seek innovative ways to investigate them."

**More information:** Adverse effect of noise in the operating theatre on surgical-site infection. Kurmann et al. British Journal of Surgery. 98, pp1021-1025. (2011). DOI: 10.1002/bjs.7496

Provided by Wiley