

# Safer delivery of surgical services: a programme of controlled before-and-after intervention studies with pre-planned pooled data analysis

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## Plain English summary

### Safer delivery of surgical services

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## Plain English summary

Modern surgical treatment carries high risks of inadvertent patient harm, estimated at around 10%. Previous research has identified risky work systems and poor teamwork and communication as the main causes. Interventions have generally tried to correct either the teamwork problems or the system faults. We conducted five experiments, using three different interventions alone or in combination, to see whether or not tackling both system and teamwork faults would be more effective than dealing with either alone. We studied operating theatre teams performing surgery in five hospitals and measured their teamwork and technical performance by directly observing them. We used a training programme from aviation to improve teamwork and either a standard operating protocol (SOP) or the Toyota lean quality improvement process to correct system faults. We interviewed staff and researchers to find out more about what worked and why.

We found that teamwork training (TT) always improved teamwork performance, but on its own did not improve technical performance. Neither SOP nor lean systems alone improved team performance at all. The best results were obtained with integrated training. Only TT plus lean systems improvement caused major improvements in both technical and teamwork performance.

Our interview studies revealed a great deal about barriers to change in the NHS and how to overcome them, and about why integrated interventions work better.

Our studies were designed to measure the effects of the training on team performance. There are many other things that can affect patient outcomes and so we were not surprised that we were not able to prove that the interventions made things better for patients. To show this would require a much larger study. We recommend a large trial of lean systems integrated with TT to see if this can show a difference in patient outcomes.

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