Surgical training

Training in the operating theatre: is it safe?

R Aggarwal, A Darzi

The importance of a systems approach to surgical training

Recent years have witnessed a number of drivers for change in the delivery of health care. Working time restrictions, quality assurance targets, the introduction of new technologies and star ratings for hospitals have served to create antagonism between service and training priorities. The provision of a high quality service necessitates the employment of proficient practitioners, using training priorities. The provision of a high quality service necessitates the employment of proficient practitioners.

This study echoes the main features of the apprenticeship model which has been a cornerstone of skills acquisition in surgical disciplines. The key principle is to ensure patient safety whilst enabling the trainee surgeon to acquire and hone skills to perform the procedure. The notion of a graded approach allows trainees to acquire skills in a stepwise manner, through close supervision by a senior surgeon. It is the responsibility of the senior surgeon to ensure the patient does not come to any undue harm. Upon achievement of proficiency, the trainee can progress to performing more complex cases, eventually gaining the ability to operate independently.

Although the apprenticeship model has stood the test of time, the incorporation of new technologies for technical skills training outside the operating room can further improve patient safety. It is no longer appropriate (nor acceptable) to have a surgeon dithering in theatre. The trainee must know the basic skills and be able to undertake complex manoeuvres by the time he comes to the operating theatre. With the incorporation of simulation based training earlier in the curriculum, it may also be possible to reduce the length of the learning curve for the achievement of proficiency on real cases.

Upon achievement of proficiency in the skills laboratory, training must continue in a structured manner in the operating room. Graded exposure along with appropriate support when necessary is most effective in transferring skills from tutor to student. This should also not be limited to the operating theatre, but augmented by discussions and feedback before and after each case. In addition, the postoperative dialogue of each procedure can be supported by video footage of the operation. Thus, the model is still recognisable as graded exposure in the operating suite, but amplified by a number of other factors.

For each interventional speciality, outcomes come from a key procedure are traditionally used as markers of an individual surgeon’s technical performance. However, this approach is too simplistic and fails to take account of the numerous factors which can affect patient outcomes. Patient characteristics can decrease or increase the risk of complications, especially during major surgical procedures. This can be accounted for through appropriate case selection, ensuring that the sickest or most complex patients are operated upon by the most experienced surgeons.
is not only the surgeon who needs to be experienced to ensure an optimal outcome—the rest of the operating team can also have a significant impact on the outcome of the procedure. This is none more so than for minimally invasive procedures whereby the surgeon must rely upon the camera positioning skills of another individual. For cardiothoracic surgery, an experienced anaesthetist is crucial for those cases where the patient has minimal physiological reserves. Recent work has also shown that post-operative and ward care has a considerable impact on patient outcomes.23

In the study of outcomes following lobectomy by Chaudhuri et al.,6 surgical skill has been assessed indirectly by way of complications and mortality at 1 year. Although extensively used as a marker of skill has been assessed indirectly by way of complications and mortality at 1 year.

In summary, training in the operating theatre is a critical part of developing skills toward independent practice. The apprenticeship model of training through graded exposure can be safe, but should be augmented with simulation based practice, adequate supervision, and constructive feedback following each case. Analysis of outcomes data can ensure patient safety is not compromised, but should be placed within the wider multifactorial context of patient outcomes. It is only with this approach that we can provide the utmost level of care and continue to produce competent practitioners of the future.

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### REFERENCES


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