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Avoiding complications by a hands-on mentor programme

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The complexity of gynaecologic surgery has increased in recent years, while the duration of residency training has remained fixed with reduced work hours compared with our predecessors. Residents may not be graduating with the advanced surgical skill set required for complex cases, which are now considered standard of care. The ever-changing advancements in the field of gynaecologic surgery warrant the development of training programmes for practicing surgeons to incorporate recent advances and best practices. This can be accomplished through mentorship in training residents as well as the continuing professional development of safe gynaecologic surgeons. This review outlines the process of mentorship to enhance surgical skills, and objective feedback tools for surgeons seeking to improve performance. Mentorship programmes can help surgeons incorporate new technologies in a structured environment, which seeks to decrease the risk of complications for our patients.

Abbreviations: AH, Abdominal hysterectomy; GOALS, Global operative assessment of laparoscopic skills; LH, Laparoscopic hysterectomy; MIH, Minimally invasive hysterectomy; MIS, Minimally invasive surgery; OR, Operating room; OSATS, Objective structured assessment for technical skills; VH, Vaginal hysterectomy; VR, Virtual reality.

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Becoming safe surgeons through training programmes and mentorship

Traditionally, residency programmes have relied on the preceptorship model, which is often referred to as 'see one, do one, teach one' [1]. In recent years, this informal learning process has been criticized with regard to patient safety, standardization and best practice [2]. Over the past decade, we have seen significant changes within our residency training programmes that have consequently led to decreased work hours. At present, residents are exposed to smaller volumes of surgical cases with a simultaneous significant increase in surgical complexity [3,4]. The impact of these challenges on the surgical capabilities of newly graduated specialists has been discussed on an international level. A study of graduates from Canadian residency programmes from 2005 to 2010 reported that only 26% were comfortable performing a total laparoscopic hysterectomy (LH) once in practice [5]. Similarly, Australian obstetrics and gynaecology (OBGYN) trainees have admitted their lack of confidence performing a range of advanced laparoscopic procedures at the completion of their training [6]. While many current residency training programmes use box trainers and virtual reality simulation to teach minimally invasive surgery (MIS) techniques, there is general agreement that these simulated environments complement but do not replace real-time operating room (OR) experience [4,7–9].

Mentorship has the potential to improve a surgeon's confidence and decrease medical error. Mentoring has been described as a two-way, face-to-face long-term relationship between a 'supervisor' and a 'novice student' that fosters the mentee's professional, academic or personal development [10,11]. Although there are several definitions for the term mentoring [12], all of them include elements of a senior/junior advice and guidance. In the context of surgical mentorship, the mentor serves the important roles of both teaching and skill transfer to less experienced mentees. Recent studies use the terms 'surgical mentorship', 'surgical coaching', 'mentoring' and 'mentor traineeship' interchangeably to describe the relationship of a skilled surgeon guiding a trainee to incorporate new skills in their practice. For the most part, the mentor-mentee relationship is described positively; however, negative outcomes have been reported. These are generally related to lack of time and professional expertise mismatch [13]. Despite the use of mentorship during residency training to graduate competent newly qualified surgeons, the realities of training at present warrant the relationships of mentors be explored well into our surgical careers [14]. To accomplish positive outcomes as a consequence of the mentor–mentee relationship, we must first investigate the underlying principles of teaching surgical skill.

Principles of education and teaching

The challenge of creating an effective mentor–mentee relationship is not a new concept. Bloom's taxonomy was designed to improve communication between educators on the design of curricula and examinations [15]. The educational process according to Bloom can be categorized into the following steps: (1) remembering, (2) knowledge of specifics, (3) understanding, (4) interpretation, (5) applying, (6) analysing, (7) evaluating and (8) creating. This taxonomy can be applied to surgical teaching. Learning surgical procedures consists of perfecting the skills required in the OR and learning the indications, alternatives, preoperative and post-operative management. These would fit in the first four categories (1–4) of Bloom's educational process and should be studied before the OR setting through a combination of didactics, video instruction and simulation [16].

Bloom's taxonomy serves as the backbone of many teaching philosophies, but other educators have since created psychomotor taxonomies. Simpson [17] proposed the following levels: (1) Perception followed by readiness to act; this involves a guided response, which includes imitation and trial and error. (2) Adequacy of performance is achieved by practice; following which learned responses become habitual and the movements can be performed with some confidence and proficiency. (3) Reaching a complex overt response; whereby the learner incorporates skilful performance of motor acts that involve complex movement patterns. (4) Proficiency, which is indicated by a quick, accurate and highly coordinated performance. (5) Adaptation, where skills are well developed and the individual can modify movement patterns to fit special requirements. Bloom [15] and Simpson's [17] educational principles, although not designed for the field of surgery, can easily be extrapolated to the teaching and learning of surgical procedures and technique.