

Allowing failure so trainees can thrive: the importance of guided autonomy in medical education

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The delicate balance between resident autonomy and patient safety is an essential topic in medical education. Without a doubt, it is imperative to preserve the quality and safety of care for patients. As a result, clinician educators are constantly challenged by their obligation to provide the best possible patient care while educating the next generation of trainees. How are educators who are committed to patient safety but also want to prepare trainees for independent practice expected to educate within these constraints? Said differently, is it acceptable for an educator to allow a trainee to make a mistake under supervision to teach them to avoid mistakes in the future?

In this issue of *BMJ Quality and Safety*, Klasen *et al*¹ summarise their findings from 19 semistructured interviews with clinical supervisors who allow their trainees to commit errors for educational purposes. The supervisors, who practice in a variety of procedural and non-procedural specialties in Switzerland and Canada, described a total of 79 examples of permitting clinical failure. The nature of these failures ranged widely from technical to communication to diagnostic errors and allowed for impactful, specific feedback. Specific themes of this feedback included sensory feedback to improve technical skills and emotional feedback to develop resilience. Supervisors were careful, however, to weigh these educational benefits against the potential harmful outcomes that trainee failure may present to patient safety and satisfaction. In general, as long as the supervisor felt that they could 'rescue' the situation and that the risk to the patient was acceptably small, they were comfortable allowing the learner to fail under supervision.

The proposed benefit of this approach is that it is safer for the patient and more

educational for the trainee to experience failure under close supervision where more serious consequences can be quickly identified and avoided or remedied. Some supervisors, however, may be reluctant to allow any amount of actual or potential harm come to their patients for the sake of learning. The issue with this second ideology, however, is its long-term consequence. Error is inevitable, and navigating it for the first time as a junior consultant or fully trained practitioner may present undue risk to patients. If physicians are to 'first, do no harm', it may at first seem like sheltering patients and trainees from error and harm now represents the right course of action. Yet, this course, which requires trainees to learn to correct errors and address them later without backup, may engender inadvertent harms of its own—possibly greater ones.

Klasen and colleagues found that '[The supervisors]' accounts also reflected medical education's strongly held value of progressive independence, the notion that trainees *must* be allowed increasing independence if they are to graduate prepared for practice.¹ This method is often referred to as 'see one, do one, teach one' in surgical education. Other groups have examined this specific educational strategy for efficacy. One example is a 2018 randomised controlled trial by LeCompte *et al*.² In this study, the investigators taught fourth year medical students how to create a vascular anastomosis; half of the students were the control group under total supervision, while the other half were in the 'autonomy' group under the 'see one, do one, teach one' model. Video-based evaluation of their technical skills and pressure testing of anastomotic strength were compared between groups over three distinct time periods to assess for retention. Of the 14 students



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who ultimately participated in the trial, those in the autonomy group created their anastomoses more quickly than those under total supervision, but were equivalent in terms of technical skill. The authors conclude that 'While overall improvement in technical ratings were similar for both groups, faster performance at an equivalent level of technical ability indicates superior mastery of the learned procedure by the autonomy group,' as this represents physiological training of the motor memory cortex and improved confidence with the procedure.

The degree to which an attending physician allows resident autonomy (and thus potential error) in a particular patient interaction is determined by a variety of factors. Through a series of semistructured interviews, Chen *et al*³ found that resident characteristics (ie, previous experience with the case at hand), pertinent medical knowledge and experiences beyond the current scenario (such as reputation) impact a supervisor's decision regarding operative autonomy. Another group analysed over 7000 trainee-assisted operations using three distinct assessment scales to evaluate the relationship between trainee performance, difficulty of the case and the degree of allowed autonomy.⁴ Their findings suggest that trainee performance during a particular case was the strongest predictor of granted autonomy, followed by typical guidance habits of the supervisor, which are influenced by 'personality characteristics, habits, beliefs and experience of the supervising surgeon'.

One important theme identified by Klasen *et al* in their interviews was 'the emotional impact of failure as part of its educational power'.¹ Failure in the clinical setting is an inherently stress-provoking experience (for both the educator and the learner), and there is no single mental, emotional or intellectual way that clinicians respond to failure. But what do supervisors do after the encounter to ensure the intended lesson was conveyed? While some (hopefully many) trainees will likely adopt practice-changing knowledge after

committing an error, others may find the experience more punitive than educational. The imprinted memory may be largely dominated by self-deprecating thoughts of incompetency rather than details of what can be done differently to prevent similar failures in the future.

So how can one confirm that the takeaway is productive in nature? It may come as no surprise that the millennial junior author of this commentary is a strong proponent of directed feedback (so is her senior author). In addition to a preassessment of resident readiness for autonomy, educators should solicit feedback from learners after an episode of permissive error to see if the intended lesson was indeed received. Just as closed-loop feedback is used at promoting patient safety in clinical settings, it can also serve as a powerful tool for effective resident education.

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REFERENCES

- 1 Klasen JM, Driessen E, Teunissen PW, *et al*. 'Whatever you cut, I can fix it': clinical supervisors' interview accounts of allowing trainee failure while guarding patient safety. *BMJ Qual Saf* 2019;2020:727–34.
- 2 LeCompte M, Stewart M, Harris T, *et al*. See one, do one, teach one: a randomized controlled study evaluating the benefit of autonomy in surgical education. *Am J Surg* 2019;217:281–7.
- 3 Chen XP, Sullivan AM, Alseidi A, *et al*. Assessing residents' readiness for or autonomy: a qualitative descriptive study of expert surgical teachers' best practices. *J Surg Educ* 2017;74:e15–21.
- 4 Williams RG, George BC, Meyerson SL, *et al*. What factors influence attending surgeon decisions about resident autonomy in the operating room? *Surgery* 2017;162:1314–9.