

Clinical skills training – practice makes perfect

‘To advance the art and science in clinical examination, the equipment a clinician most needs to improve is himself.’¹

Recently, the inclusion of clinical skills training into the required curriculum of medical students has seen a tremendous growth. Numerous reports cite examples of curricular reform that include clinical skills training and the creation of clinical skills centres,² the use of simulation devices and computer technology,³ the development of outcome measures that more accurately and reliably assess clinical competence⁴ as well licensing agencies that provide high-stakes testing in clinical skills for certification.⁵ The report by Lam and colleagues⁶ is another welcome example of a growing trend to introduce clinical skills training earlier in the curriculum and shows a growing movement towards international standardization of medical curricula. Institutions that have integrated clinical skills training into their existing curricula undergo similar growing pains to those seen at the University of Hong Kong. These include: (1) lack of correlation with basic science; (2) increase in student work that results from adding training sessions without removing previous didactic sessions; (3) misunderstood purpose of OSCE by students and/or faculty who focus on the summative assessment rather than formative feedback; (4) lack of concomitant patient contact; (5) lack of sufficient time to practice skills; (6) faculty who are either unenthusiastic or ill-prepared to serve as skills instructors; (7) lack of defined learning outcomes for both students and faculty. Many of these common problems result from the fact that most stu-

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Skills may be defined as ‘actions (and reactions) which an individual performs in a competent way in order to achieve a goal.’⁷ Research in instructional science demonstrates that the acquisition and maintenance of skills expertise in clinical medicine depend upon the learner’s engagement in deliberate practice of desired educational outcomes.⁸ Deliberate practice involves (a) repetitive performance of intended cognitive or psychomotor skills in a focused domain; joined by (b) rigorous skills assessment; that provides learners with (c) specific, informative feedback; that results in (d) increasingly better skills performance, in a controlled setting. Scholarly research about the acquisition of expertise consistently shows the importance of intense, deliberate practice in a focused domain, in contrast with so-called innate abilities (e.g. measured intelligence) for the acquisition, demonstration, and maintenance of mastery. Medical educators must provide a systematic approach to ensure students’ mastery of clinical skills.

Establish learning outcomes

The acceptance of clinical skills as an essential learning outcome is universal as evidenced by their endorsement by governing bodies such as the World Health Organization, Association of American Medical Colleges⁹ and medical schools worldwide.¹⁰ Those who have a stake in the medical students’ future should contribute to deciding the core clinical skills necessary for all graduating students. This

includes school administrators, practising physicians representing a broad spectrum of clinical practice, nurses, lay persons, local, regional and national agencies. Those skills that are common to each of these groups should become the focus of mastery.

Regular formative assessment and feedback are crucial to skills training and an essential part of deliberate practice

Organize the clinical skills throughout the curriculum

In their junior years, students prefer to see the relevance of the skills they are learning to what they learned in basic science, and how it will serve them in practice. In their senior years, students must continue to apply basic science to clinical medicine. A spiral curriculum¹¹ is a useful approach that is appropriate to clinical skills training: (1) there is an iterative revisiting of core clinical skills throughout the entire medical school curriculum; (2) clinical skills are revisited at numerous levels of difficulty; (3) new clinical skills are related to previous skills; (4) the competence and self-efficacy of students increases with each visit to a skill.

Specify the competency level required at each stage of learning

Explicit standards will guide student learning and faculty instruction. Rather than developing scales from scratch, adopt existing templates that provide clear grades of achievement of clinical skills:¹²

- students have been exposed to the skill and understand the basic sciences associated with it, but may not have attempted it for themselves;
- students have been involved and may have assisted with the skill;

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- students have attempted the skill for themselves;
- students are competent to perform the skill;
- students are proficient with the skill.

Implement instructional delivery methods

The limitations of relying solely on clinical encounters either in the hospital and ambulatory settings are well documented. As a result, many healthcare institutions have established clinical skills learning facilities that provide an environment in which students can receive training in clinical skills in a 'safe and protected fashion using effective educational strategies and graded to the needs and experiences of the students.'¹³ However, facilities alone are not enough. Instructors who have appropriate training in the teaching methods skills and an understanding of the learning objectives are required to guide students through their learning of clinical skills. As Lam and colleagues point out, this does not always occur because many students believe faculty members are unenthusiastic, unprepared or not conversant with the material. This may be remedied by assigning a core group of faculty members who work exclusively in the clinical skills centre,¹³ adopting teaching strategies specific for skills training¹⁴ and by using selected senior students who may be just as effective as faculty.¹⁵

Evaluation and assessment

Assessment of student performance using valid outcome measures is an important component of clinical skills training. Regular formative assessment is crucial to skills training and an essential part of deliberate practice. Students must be informed about the benefits of formative feedback, when evaluation data are used as a tool and not a weapon, and how it can be used to improve their skills. This can relieve some of the anxiety students feel when they are subjected to testing situations as noted at the University of Hong Kong. If summative assessment is used

to provide a grade or formative testing is used to provide information for remediation, we need to develop valid and reliable outcome measures to capture training results and lead to focussed feedback and improved performance among trainees. Rigorous methods have been used to develop valid outcome measures in OSCE settings at local and national levels⁵ and in multimedia computer-based examinations.⁴

There is a need to develop valid and reliable outcome measures that lead to focused feedback and improved trainee performance

In summary, exposure, practice and assessment are necessary to ensure that core attributes, such as clinical skills, will be mastered and maintained. This approach should become part of the curriculum beginning in the first year of medical school and continuing until graduation. Outcome measures obtained early in medical school could provide evidence to direct faculty time for specific instruction. The result will be doctors who are better trained in basic clinical skills and motivated to engage in continuing 'deliberate practice' to maintain them.

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