Should we use virtual simulators for surgical resident selection?

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To the Editor:

We read with great interest the article by Gardner et al. entitled "How Much Are We Spending on Resident Selection?" [1]. The authors draw attention to the importance of a rigorous selection process to recruit applicants who would be best suited for a surgical career. In their analysis, authors stress the significant time and resources currently spent in the resident selection process, with the average program spending approximately $100,000 annually. Moreover, the authors highlight the burden in man hours and effort spent by Residency Coordinators in the screening and selection process, averaging 132 h. Against this background, Gardner et al. argue that Surgical Program Directors should assess the efficacy and validity of the current selection procedures, especially in view of the increasing evidence, albeit circumstantial, that all is not well and that the current selection process, which has remained largely unchanged for many decades, *may no longer be fit for purpose to modern surgical practice*. Thus, a recent survey reported that 30% of Program Directors from Fellowship Council in North America expressed the view that residents entering fellowships are unable to perform safely routine operations independently [2]. Therefore, Gardner et al. are right in highlighting the need to reduce cost by limiting the number of on-site interviews by a customized pre-selection exclusion process, to short-list only eligible applicants early in the process.

Although various alternatives have been suggested to resolve this problem including online assessments, phone or video interviews, assessment centers, etc., in our view these measures have the intrinsic limitation of lacking objectivity, aside from issues of standardization on a national scale. Instead, there is good evidence that use of virtual reality simulators (VRS) could represent a valid option as a component of a revised selection process which would also include personality assessment and academic track record. The use of VRS in surgical residents' training curricula is well established in most centers. Why not use them as an integral component for resident selection? Published studies have confirmed that VRS provide reliable objective assessment of the innate ability for psychomotor manipulative skills of individuals which determine those candidates who are suited for a surgical career, and perhaps what is more important, those who cannot acquire technical competence, despite extensive surgical training. The fact remains that manual dexterity has been largely overlooked in the selection process of surgical residents, despite the confirmed ability of VRS to evaluate objectively psychomotor competence of the individual. Two studies although different in design, participants and VRS type, yielded similar result with almost the same distribution of the groups, i.e., 6.6% and 5.8% of subjects studied exhibiting outstanding performance, with 11.6% and 11.0% exhibiting a very low level ability for manipulative skills when compared to their peers [3, 4]. These data agree with results reported by a study on medical students using a simulator for laparoscopic appendectomy, which confirmed that 15% of medical students exhibited a low aptitude for manipulative skills [5]. Another study from the Republic of Ireland involving candidates entering a higher surgical residency training program (equivalent to a Fellowship in the USA), reported a high correlation between score at surgical simulators and overall assessment, based on education and academic records, progress in clinical surgical performance, research output, and interview assessment [6].

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In conclusion, the use of VRS for objective assessment of manipulative skills merits serious consideration for inclusion in the selection process of surgical residents. If accepted and adopted by program Directors, the costs of the purchase of VR simulators may not be an issue, as with increasing use (and sales) the costs of VRS would inevitably reduce.

Compliance with ethical standards

References

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