How would you promote Interventional Radiology as a specialty in the modern era?

Interventional radiology (IR) is facing a workforce crisis and long term efforts to meet the shortage must be focused toward succession planning. Early exposure to IR has long been advocated¹, given that the formative years of one’s career are spent in medical school. Nevertheless, the question arises, what more must be done to raise the profile of IR within the undergraduate community? A survey of final year medical students in England found lack of knowledge due to limited exposure to be the strongest deterrent against pursuing a career in IR²- a problem which also extends globally³,⁴. With the emergence of the digitalisation in healthcare, new methodologies must be adopted in IR teaching to take full advantage of the limited teaching time within an already crowded curriculum.

As Confucius once stated, “Tell me and I will forget, show me and I may remember, involve me and I will understand” and virtual simulation models offer a highly effective means of increasing exposure to a variety of training cases in a risk-free environment, without compromising patient safety. Moreover, addressing the aforementioned problem of limited exposure, virtual simulation models provide flexibility, as delivery can be self-directed or as part of the curriculum. Phenomenal results have been observed in other specialties using this approach, given that 95% of medical students at Stanford University⁵ reported increased knowledge and interest in vascular surgery following an endovascular simulation course, whilst the proportion of those considering a career in the specialty increased significantly from 8.5% to 70%. Further, 70% of these students still expressed a keen interest at the 1-year follow-up, signifying the long-term benefits of this intervention. Even so, variability in the engagement of students still exists⁶, partly owing to the lack of standardisation and the need for thorough consideration of key performance measures in the replication of IR procedures⁷–⁹. Tackling these problems will be key to increasing uptake of virtual simulation in more medical schools.

3D printing, another emerging technology, is a teaching and learning tool already used in surgical training¹⁰ but its potential for use in IR teaching remains relatively unexplored in the
literature. Using this technique, digital imaging and communication in medicine (DICOM) data derived during CT, MRI, or ultrasound scanning can be coupled with 3D printing technology to produce models which demonstrate anatomical and structural fidelity, consistent with the patient’s disease process. In addition to significantly ameliorating knowledge, this teaching modality offers the opportunity for physical interaction, providing true appreciation of the motor skills required to manoeuvre IR procedures. Additionally, a recent study found dental students prefer a multimodal and kinaesthetic approach to learning\textsuperscript{11} and findings may also be extrapolated to medical students. Even so, current limitations to this technique are finding appropriate materials to mimic human tissue.

In summary, technological advances offer new and exciting opportunities to engage medical students in considering a career in IR, which can be used as a means of achieving equipoise between increasing demand for IR procedures and an appropriately trained workforce in the long term.

\textbf{Word Count:} 499
References


