Interventional radiology (IR) is a rapidly expanding specialty in healthcare institutes across the world. However, the literature suggests that this increase in demand is not being met by the supply of recruited trainees, and a lack of exposure to IR amongst medical students may be contributing to this<sup>1-3</sup>.

In a study I conducted with some colleagues involving medical students at the University of Leeds, we established that 49.7% of students had received no formal IR teaching at medical school, resulting in only 10.9% of students considering a career in the specialty, mainly due to lack of knowledge (39.7%)<sup>4</sup>. Similar results from institutes around the world suggest increasing the exposure of students to the specialty could be a solution to the supply-demand gap in IR recruitment<sup>2,5-7</sup>.

Institutes should establish a baseline of their students' knowledge of IR, to implement a curriculum that fills these gaps and corrects misconceptions, including lack of patient contact<sup>4</sup>. A core IR clinical placement, introduced early on in medical school, has proven most effective in improving students' understanding of and enthusiasm for IR<sup>8,9</sup>. This should be part of a curriculum that teaches the anatomy and pathophysiology pertinent to IR procedures and the basic management of conditions using IR techniques, in line with the Cardiovascular and Interventional Radiological Society of Europe's (CIRSE) "Interventional Radiology Curriculum for Medical Students"<sup>10</sup>. Surveys should establish students' preferred teaching methods, and contemporary methods, including webinars, virtual reality and simulators or cadavers to teach image-guided procedures, should be tapped into<sup>11,12</sup>.

Rotem *et al.* (2016) also suggests introducing student IR interest group meetings, which can not only help identify potential IR candidates, who can then be mentored by interventional radiologists in local hospitals, but can also provide students inclined towards other specialties with a solid understanding of when to consult IR, improving the quality of referrals<sup>13,14</sup>.

To appeal to students not initially inclined towards IR, a dedicated IR student society with a strong social media presence, designed alongside local interventionalists to put on educational events, simulations and IR taster days, can collaborate with other specialty societies on events pertaining to their shared interests. The society can provide research and publication opportunities, courses with CV points, and free access to IR journals as incentives to draw students in. It can also collaborate with the medical school to facilitate the addition of more IR projects into the research module.

Every year, IR societies from neighbouring schools can host a free joint student IR conference, where students can present their research, attend lectures, workshops and simulations from big-name interventionalists, and network with professionals. Such an event put on in Ohio greatly improved student insight into the specialty and its training pathways<sup>15</sup>.

Finally, the British Society of Interventional Radiology (BSIR) can collaborate with student IR societies to provide funding towards research, electives, intercalated IR degrees and conference attendance<sup>3</sup>. BSIR student representatives can keep students up-to-date regarding conferences, meetings and available research opportunities<sup>3</sup>.

All of the above should aid in paving the way for the next generation of interventional radiologists.

## References

- 1. Leong S, Keeling AN, Lee MJ. A sur-vey of interventional radiology aware-ness among final year medical studentsin a European country. Cardiovasc In-tervent Radiol 2009; 32:623–629.
- 2. Ghatan CE, Kuo WT, Hofmann LV, Kothary N. Making the case for early medical student education in interventional radiology: a survey of 2nd-year students in a single US institution. Journal of Vascular and Interventional Radiology. 2010 Apr 1; 21(4):549-53.

- 3. Ojha U, Mohammed R, Vivekanantham S. Should there be greater exposure to interventional radiology in the undergraduate curriculum?. Advances in medical education and practice. 2017; 8:791.
- 4. Muzumdar S, Dayal S, Mohamed M, Sandhu S, Singh S, Walker P. Understanding the Awareness, Knowledge and Perceptions of Interventional Radiology Amongst Undergraduates in the UK. Cardiovascular and interventional radiology. 2019 May 8:1-7.
- 5. O'Malley L, Athreya S. Awareness and level of knowledge of interventional radiology among medical students at a Canadian institution. Academic radiology. 2012 Jul 1; 19(7):894-901.
- 6. Rehman IU, Ahmed M, Assad S, Rahman MA, Rahman DT, Jehangir M. Assessment of level of awareness and knowledge of interventional radiology among medical students at a Pakistani Institution. Journal of Postgraduate Medical Institute (Peshawar-Pakistan). 2016 Jun 2; 30(1).
- de Gregorio MA, Guirola JA, Sierre S, Serrano-Casorran C, Gimeno MJ, Urbano J. Interventional Radiology and Spanish medical students: a survey of knowledge and interests in preclinical and clinical courses. Cardiovascular and interventional radiology. 2018 Oct 1; 41(10):1590-8.
- 8. Commander CW, Pabon-Ramos WM, Isaacson AJ, Yu H, Burke CT, Dixon RG. Assessing medical students' knowledge of IR at two American medical schools. Journal of Vascular and Interventional Radiology. 2014 Nov 1; 25(11):1801-7.
- Branstetter IV BF, Faix LE, Humphrey AL, Schumann JB. Preclinical medical student training in radiology: the effect of early exposure. American Journal of Roentgenology. 2007 Jan; 188(1):W9-14.
- Cardiovascular and Interventional Radiological Society of Europe: Interventional Radiology Curriculum for Medical Students. Cardiovascular and Interventional Radiological Society of Europe. 2012. <u>https://www.cirse.org/wp-</u> content/uploads/2018/07/CIRSE\_IR\_Curriculum\_for\_Medical\_Students.pdf.
- 11. Gould D. Using simulation for interventional radiology training. The British journal of radiology. 2010 Jul; 83(991):546-53.
- 12. Pillai R, McLennan G, Chung M, Warhadpande S, Kalra-Lall A. The makings of an ideal interventional radiology clinical clerkship: survey results of medical students and interventional radiology educators to improve medical student training in preparation for the IR/DR residency. Journal of Vascular and Interventional Radiology. 2016; 3(27):S77-8.
- 13. Rotem E, Jen S, Chi A, Dunlap R. Impact of interventional radiology interest group meetings on medical student interest in interventional radiology as a specialty. Journal of Vascular and Interventional Radiology. 2016; 3(27):S213.
- 14. Maingard J, Kok HK, Ranatunga D, Brooks DM, Chandra RV, Lee MJ, Asadi H. The future of interventional and neurointerventional radiology: learning lessons from the past. The British journal of radiology. 2017; 90:20170473.
- Makary MS, Rajan A, Miller RJ, Elliott ED, Spain JW, Guy GE. Institutional Interventional Radiology Symposium Increases Medical Student Interest and Identifies Target Recruitment Candidates. Current problems in diagnostic radiology. 2019 Jul 1; 48(4):363-7.