EDITORIAL

Critical appraisal skills, tomorrow's doctors and the *Manchester Medical Journal*

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Evidence-based medicine (EBM) provides the foundation for 'gold standard' healthcare worldwide, encouraging the use of high-quality clinical research to optimise patient care. Since the conception of EBM, research output has increased exponentially, as has the number of published articles. In 2012, it was estimated that around 28,000 active peer-reviewed journals in circulation collectively published around 1.8 million articles per annum.(1) The increasing number of published articles can dilute the quality of research that contributes towards EBM, posing a challenge for the healthcare professional trying to keep up to date; journal clubs have therefore emerged as a useful tool. They have been utilised from as early as the nineteenth century by Sir William Osler 'for the purpose and distribution of periodicals to which he could ill afford to subscribe as an individual'.(2)

More recently the use of social media has revolutionised the journal club platform,(3,4) but there have been no direct comparative studies between pedagogical, lecture and group-based journal clubs and those which are based on the internet. There has been a rise in both 'free open-access medical education' (FOAM) and open-access (OA) journals. The origins of both could be argued to come from the Hippocratic oath,(5) which states: 'and to teach them this art – if they desire to learn it – without fee and covenant'.(6) Unfortunately, the critical analysis of research is not necessarily seen as a priority for all medical undergraduates or junior doctors. As the student doctor reaches for the safe environment of a peer-favoured

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textbook to reach his or her primary target of passing exams,[7,8] the junior doctor may utilise online point-of-care tools (e.g. UpToDate©, BMJ Best Practice©, DynaMed©) which have become popular in recent years,[9,10] but with standards for evaluating these tools yet to be fully established.[11] For both demographics the demands foster a difficult environment in which to pursue academic interest.[12]

In 1996, the Royal College of Physicians and Surgeons of Canada produced a framework that proposed six pillars of the medical expert.[13] One of these pillars was the 'medical scholar', which necessitated the ability to critically analyse medical literature. It seems reasonable to suggest that a newly qualified foundation doctor should have a basic understanding of how to interpret and digest medical literature. It could be argued that the motivation to do so is on the decline; however, with the rise of 'big data' and increasing literature there is a growing necessity to differentiate good-quality research to ensure excellent clinical care is continually provided. A number of attempts have been made to assist clinicians in the development of their critical-appraisal skills, but training currently varies widely at an undergraduate and postgraduate level.[14–16] The latest Cochrane review suggested that low-intensity critical-appraisal teaching interventions may result in modest gains despite most studies failing to blind the outcome assessment.[17] In parallel with differing medical school curriculums and varied basic surgical teaching, the Royal College of Surgeons of England has recently published a new national undergraduate curriculum.[18] Perhaps a national 'academic' undergraduate curriculum would aid medical students in developing critical-appraisal skills.

Conceivably in an attempt to fill this void, a number of undergraduate medical journals have been established, many of which utilise undergraduate medical students as reviewers and promote active participation in critical appraisal. One undergraduate medical journal also involves consultants or specialist reviewers in its process.[19] However, there exists a niche for a journal with both high-quality output and formal teaching.

This year has seen the launch of the *Manchester Medical Journal* (MMJ), which has the primary aim to promote an environment where all levels of the academic ladder can learn from critical appraisal. Offering the opportunity to publish during a student's undergraduate years allows the journal to facilitate, guide and develop interest and skills in academic writing. This is the first student-led open-access journal to utilise an original blinded peer-review system. PRISM (Peer Review Integrated Student Model) is a novel platform for undergraduates and junior doctors to receive timely feedback on both writing and critiquing papers. It is expected that reviewers will gain experience in critical appraisal and consolidate this through the feedback loops with academic trainees and specialists.[20] To uphold reviewer status, participants are required to attend regular audited critical-appraisal workshops, abide by the journal's

critical-appraisal guidance and reflect on feedback of their critiques from more senior reviewers.

Recently the UK Secretary of State for Health concluded that a doctor's role in diagnosis would be obsolete in two decades.[21] It was suggested that technological systems could replace the art of diagnosis in governing patient care. This notion provides a challenging environment to educate healthcare professionals, not only in the process of critical appraisal but also its value in delivering EBM. Further work is needed to identify the optimum platform for the teaching of critical appraisal; the MMJ provides one such platform that, if successful in its aim, could be considered as a model for others looking to promote skills in academia amongst students.

We are extremely proud to present the first pilot issue of the MMJ and would like to thank our collaborators: Manchester University Press, which leads internationally on open-access journals; Manchester Medical School for its ongoing support and guidance; and our undergraduate editorial board, whom we congratulate for this achievement.

References

1 Ware M, Mabe M. The STM Report; an overview of scientific and scholarly journal publishing [Internet]. The Hague: International Association of Scientific, Technical and Medical Publishers; 2012 [cited 2015 Oct 18]. Available from http://www.stm-assoc.org/2012_12_11_STM_Report_2012.pdf.

2 Linzer M, DeLong ER, Hupart KH. A comparison of two formats for teaching critical reading skills in a medical journal club. J Med Educ. 1987 Aug;62(8):690–2.

3 Sherbino J, Joshi N, Lin M. 2015 JGME-ALiEM Hot Topics in Medical Education Online Journal Club: an analysis of a virtual discussion about resident teachers. J Grad Med Educ. 2015 Sep;7(3):437–44.

4 Roberts MJ, Perera M, Lawrentschuk N, Romanic D, Papa N, Bolton D. Globalization of continuing professional development by journal clubs via microblogging: a systematic review. J Med Internet Res [Internet]. 2015 [cited 2015 Oct 18]; 17(4):e103. Available from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4424319/.

5 Nickson CP. From Hippocrates to Osler to FOAM [Internet]. Lifeinthefastlane.com; 2007–16 [updated 2016 May 24; cited 2016 Aug 1]. Available from: http://lifeinthefastlane.com/from-hippocrates-to-osler-to-foam/.

6 Edelstein L. The Hippocratic oath: text, translation and interpretation. Baltimore: Johns Hopkins University Press; 1943.

7 Mcloughlin CS. Characteristics of students failing medical education. Med Educ Online [Internet]. 2009 [cited 2015 Oct 18]; 14. Available from: http://www.med-ed-online.org/pdf/L0000029.pdf.

8 Folb BL, Wessel CB, Czechowski LJ. Clinical and academic use of electronic and print books: the Health Sciences Library System e-book study at the University of Pittsburgh. J Med Libr Assoc. 2011 Jul;99(3):218–28.
9 Younger P. Internet-based information-seeking behaviour amongst doctors and nurses: a short review of the literature. Health Info Libr J. 2010 Mar;27(1):2–10.
10 Ketchum AM, Saleh AA, Jeong K. Type of evidence behind point-of-care clinical information products: a bibliometric analysis. J Med Internet Res [Internet]. 2011 [cited 2015 Oct 18]; 13(1):e21. Available from: http://www.jmir.org/2011/1/e21.
11 Shurtz S, Foster MJ. Developing and using a rubric for evaluating evidence-based medicine point-of-care tools. J Med Libr Assoc. 2011 Jul;99(3):247–54.
12 Goldacre M, Stear S, Richards R, Sidebottom E. Junior doctors' views about careers in academic medicine. Med Educ. 1999 May;33(5):318–26.
13 Frank, JR. The CanMEDS 2005 physician competency framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2005.
14 Oxman AD, Sackett DL, Guyatt GH. 1993. Users' guides to the medical literature: I. How to get started. JAMA. 1993 Nov 3;270(17):2093–95.
15 Greenhalgh T. How to read a paper: getting your bearings (deciding what the paper is about). BMJ. 1997 Jul 26;315(7102):243–6.
16 Milne R, Donald A, Chambers L. Piloting short workshops on the critical appraisal of reviews. Health Trends. 1995–96;27(4):120–3.
17 Horsley T, Hyde C, Santesso N, Parkes J, Milne R, Stewart R. Teaching critical appraisal skills in healthcare settings. Cochrane Database Syst Rev. 2011 Nov 9; (11):CD001270.
18 Royal College of Surgeons England. National undergraduate curriculum in surgery [Internet]. RCSENG – Professional Standards and Regulation; 2015 [cited 2015 Oct 18]. Available from: http://www.rcseng.ac.uk/publications/docs/national-undergraduate-curriculum-in-surgery.
19 Scottish Universities Medical Journal. Review process [Internet]. University of Dundee; n.d. [cited 2015 Oct 18]. Available from: http://sumj.dundee.ac.uk/index.php?id=review-process.
20 Burke J, Mitchell A, Khan S. PRISM (Peer Review Integrated Student Model). Unpublished.
21 Matthews-King A. 2015. GPs' diagnostic skills could be obsolete within 20 years, says Hunt. PULSE [Internet]. 2015 Oct 6 [cited 2015 Oct 18]. Available from: http://www.pulsetoday.co.uk/political/political-news/gps-diagnostic-skills-could-be-obsolete-within-20-years-time-says-hunt/20030142.fullarticle.