Research methodology workshops: A small step towards practice of evidence-based medicine

A recent issue of a leading journal celebrated advances in the field of infectious diseases in the past 17 years. Some examples quoted were genome sequencing for real-time monitoring of the development of artemisinin–piperaquine resistance, the substantially improved outlook for people living with HIV-AIDS (including access to drugs), and vaccines to control the Ebola virus outbreak.[1] A recurring theme among all three examples is research, the quality of research, and methodology used therein. From the early controlled studies by James Lind for scurvy,[2] to the randomized study of the use of streptomycin for tuberculosis,[3] to the stepped wedge design (a study design that permits rigorous scientific evaluation albeit under logistic constraints),[4] or the basket and umbrella designs in cancer precision medicine,[5] the nature, repertoire, and complexity of scientific methodology has only grown. Given this, researchers and clinician researchers need to keep abreast of these changes to interpret and use evidence-based medicine (EBM) effectively. One way of doing this is through attending research methodology training programs.

In the current issue of the journal, Shrivastava *et al.* conducted a study that evaluated 153 heterogeneous participants who attended a 4-day basic research methodology workshop.[6] Participants filled out a pretest and a posttest questionnaire, with a significant improvement being seen in the latter scores. The authors concluded that research methodology workshops were a useful way to improve both knowledge and awareness about research. They also acknowledged that the assessment conducted by them was not long term.

A research methodology workshop can be likened to the more familiar continuing medical education (CME) program at one level. The goal of CMEs is to primarily plug gaps in knowledge over the duration that it is conducted.[7] Most countries worldwide also use it for recertification of practitioners. CMEs are expected to improve health-care outcomes and are based on a "felt need" of the participant to both maintain and improve clinical performance. Unlike the CME, a participant in a research methodology workshop may not truly feel the need to learn about the research process or even see value in it. This is likely true of at least some postgraduates who are required to mandatorily attend these workshops as part of fulfillment of requirements toward their degrees. However, the tremendous value that these workshops bring can be best understood by understanding the basis of EBM. In the era of EBM that we live in today, evidence gleaned through scientific method forges practice and even changes paradigms. The very basis of EBM is research, more research, and constant research! An altruistic reason for doing research is progress of science and society, but the process also brings great personal satisfaction and peer recognition and contribution to the nation's health needs. So then, should every one of us attend research methodology workshops? And if yes, then what after that? And what kind of training should these workshops really impart?

A good place to begin learning about the need for research and the process involved therein is at the undergraduate level. This helps sow that seed for potential researchers and clinician researchers. It also helps when moving to the postgraduate level where a thesis is compulsory, rather than being faced with research for the first time at this level. The Indian Council of Medical Research (ICMR) is at the forefront with short-term studentship (STS) programs for undergraduate medical students.[8] Dr. MG Deo conducted a series of research and laboratory method workshops between 2010 and 2011 and invited undergraduate students who were ICMR undergraduate STS awardees to participate in them. He noted a 3-fold increase in the proportion of students who "passed" the evaluation test postconduct of the workshop.[9] Several workshops of this nature are now conducted regularly in the country both at the undergraduate (usually voluntary) and at the postgraduate level.

Will attending workshops beyond the postgraduate level help? Faculty in academic institutions themselves need to be trained so that they become good mentors. Several of us would be testimony to the often-repeated statement, "I only read the conclusion of the paper or I always skip the section on statistics or I only read the abstract" which occurs at several levels both in academia and in private practice. The latter who are usually quicker to

implement EBM would find it useful to know why they do what they do. Policymakers need to have a grasp of EBM so as to implement key decisions. It can thus be argued that anyone who enters medicine or is currently practicing it needs to understand at least a little bit about the research process.

The second question of what after is slightly more difficult to address. One does not expect everyone who exits a research methodology workshop to carry out research. It is also likely that much of the knowledge imparted is lost over time. But what a research methodology does is that it sheds light on a path that was hitherto unknown and shows that it can be walked, and if not walked, at the least understood. Solomon *et al.*[10] evaluated the impact of National Institutes of Health-sponsored medical student research programs at two medical schools in the United States and looked at both short-term and long-term outcomes. The study showed an interest among the participants in pursuing academic careers. Many were currently engaged in research, presenting papers and publishing their work. The research programs thus appeared to foster the growth of physician - scientists.

Finally, where do we stand with respect to research as a country? The inadequate research output from the country has already been bemoaned[11] as also lack of good-quality public health research.[12] A recent study on clinical trials in India has shown them not to be commensurate with her health-care needs.[13] Against this backdrop, training workshops such as the ones conducted by Shrivastava et al are useful. However, they need to be (1) structured, (2) range from basic to advanced, (3) need to be spread all over the country with the help of institutions like the ICMR and other major players in research, (4) include e-learning and use technology to reach a wider audience, (5) cater to diverse levels of participants, (6) link EBM to research, (7) have evaluation of long-term outcomes, and (8) motivate participants to learn research as a way to better practice medicine. This, it is hoped will foster the growth of scientific method and physician-scientists in the country in a small, but significant way.

Nithya Jaideep Gogtay

Department of Clinical Pharmacology, Seth GS Medical College and KEM Hospital, Mumbai, Maharashtra, India

Address for correspondence:
Dr. Nithya Jaideep Gogtay,
Department of Clinical Pharmacology, Seth GS Medical College and KEM Hospital, Mumbai, Maharashtra, India.
E-mail: njgogtay@hotmail.com

REFERENCES

1. Available from: http://www.thelancet.com/pdfs/journals/laninf/PIIS1473-3099(18)30083-5.pdf. [Last accessed on 2018 Mar 01].
2. Magiorkinis E, Beloukas A, Diamantis A. Scurvy: Past, present and future. Eur J Intern Med 2011;22:147-52.
3. Crofton J. The MRC randomized trial of streptomycin and its legacy: A view from the clinical front line. J R Soc Med 2006;99:531-4.
4. Liao X, Zhou X, Spiegelman D. A note on "Design and analysis of stepped wedge cluster randomized trials". Contemp Clin Trials 2015;45:338-9.
5. Menis J, Hasan B, Besse B. New clinical research strategies in thoracic oncology: Clinical trial design, adaptive, basket and umbrella trials, new end-points and new evaluations of response. Eur Respir Rev 2014;23:367-78.
6. Shrivastava M, Shah N, Navaid S. Assessment of change in knowledge about research methods among delegates attending research methodology workshop. Perspect Clin Res 2018;9:83-90.
7. Richards T. Continuing medical education. BMJ 1998;316:246.
8. Available from: http://www.14.139.60.56:84/Homepage.aspx. [Last accessed on 2018 Mar 01].
9. Deo MG. Research-oriented medical education for graduate medical students. Natl Med J India 2013;26:169-73.
10. Solomon SS, Tom SC, Pichert J, Wasserman D, Powers AC. Impact of medical student research in the development of physician-scientists. J Investig Med 2003;51:149-56.
11. Ray S, Shah I, Nundy S. The research output from Indian medical institutions between 2005 and 2014. Curr Med Res Pract 2016;2:49-58.
12. Dandona L, Sivan YS, Jyothi MN, Bhaskar VS, Dandona R. The lack of public health research output from India. BMC Public Health 2004;4:55.
13. Chaturvedi M, Gogtay NJ, Thatte UM. Do clinical trials conducted in India match its healthcare needs? An audit of the clinical trials registry of India. Perspect Clin Res 2017;8:172-5.

Access this article online	
Quick Response Code:	Website: www.picronline.org
	DOI: 10.4103/picr.PICR_28_18

How to cite this article: Gogtay NJ. Research methodology workshops: A small step towards practice of evidence-based medicine. Perspect Clin Res 2018;9:59-60.