Free Open Access Medical Education in India

The Stage Is Set

Sriram Sunil Kumar, M.B.B.S.[1,2] and Jeremy B. Richards, M.D., M.A.[2,3]

[1]Bangalore Medical College and Research Institute, Bangalore, India; [2]International Medical Education Working Group, Section on Medical Education, American Thoracic Society, New York, New York; and [3]Mount Auburn Hospital and Harvard Medical School, Cambridge, Massachusetts

ORCID IDs: 0000-0001-5365-7135 (S.S.K.); 0000-0002-8922-1955 (J.B.R.)

Free Open Access Medical Education (FOAM) is a living collection of free resources such as blogs, podcasts, tweets, and video content (1). FOAM was born out of a simple need for globally accessible medical content that was independent of traditional distributors and consumer financial resources. FOAM also represents a community of medical educators who share the same objectives. Over the past few years, the FOAM movement has grown significantly, gaining substantial attention and engagement throughout the world (2). From the early days of FOAM, most content was created by contributors from a handful of high-income countries such as the United Kingdom, United States, Canada, and Australia (3). When examining the global distribution of users of FOAM resources, India ranks fourth, with more than 1 million cumulative session counts in 2016 (3). This discrepancy is a reflection of the unique challenges in medical education in India.

Traditionally, medical education in India has focused on faculty-recommended textbooks and large-group teaching. Indian-authored textbooks are the primary educational resources for Indian medical education,

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Correspondence and requests for reprints should be addressed to Sriram Sunil Kumar, M.B. B.S., Bangalore Medical College and Research Institute, KR Road, Bangalore, Karnataka, India 560002. E-mail: sriramsunil98@gmail.com.

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supplemented by international reference books. Clinical teaching is usually limited to a couple of hours of ward- or outpatient-based classes every morning. In most Indian medical schools, not many additional resources are offered. In a recent survey of Indian medical students, 81% were dissatisfied with the quality of teaching (4). Libraries in most publicly funded medical schools are understocked with outdated books. Even though there have been initiatives to update libraries with computers, these have frequently been hampered by poor maintenance and a lack of subscriptions to important journals or databases such as UpToDate (5). The majority of students borrow books from graduating students or purchase used copies because reference texts are also prohibitively expensive. Teaching faculty members in medical schools are primarily medical practitioners with little to no protected time for developing new teaching material (4, 6).

Because of these obstacles, many medical students in India started using free, asynchronous learning strategies. Students first used FOAM resources to supplement and eventually replace didactic lectures from their medical school curricula. Video lectures from sites such as Osmosis and OnlineMedEd were incredibly detailed, routinely updated to reflect the ever-evolving medical landscape, rewatchable, and, most crucially, free for students. A recent analysis of the Osmosis YouTube channel demonstrated that South Asian trainees were a large proportion of viewers and the only group that showed a month-over-month increase in views (7). These videos stood in contrast to lectures in medical schools, which were limited in detail and less frequently updated because of faculty members' clinical responsibilities.

Free didactic videos have also been promoted by the Indian government under the National Program on Technology Enhanced Learning. The videos, which cover preclinical subjects, are developed as massive open online courses and have been recorded by eminent medical educators from across the nation (8). However, as interaction with teachers is mostly absent in videos, these lectures cannot entirely replace conventional in-person classes.

The flipped-classroom model, in which students complete preclass preparation using distributed materials before spending time in class for discussion and faculty engagement, has significant untapped potential and has already been tested by certain educators in India, who used school-specific recorded lectures rather than FOAM material (9, 10). Combining FOAM resources with classroom-based hands-on teaching and group discussion sessions in Indian medical education has not yet been described in the literature.

Case-based teaching in clinics in Indian medical education was initially not influenced by online alternatives. However, pausing in-person rotations because of the coronavirus disease (COVID-19) pandemic spurred the growth of online case discussion sessions led by organizations such as The White Army. These sessions followed the same format as clinics, with students presenting cases, followed by discussions with distinguished faculty members from medical schools across the nation. Other groups, such as Clinical Problem Solvers, presented fresh viewpoints for medical learners in India through virtual morning reports based on clinical reasoning. Because of the open transmission of rich medical knowledge and diverse geographical views, the benefits of these online learning opportunities have persisted even after the return to in-person clinics.

The same problems that plague undergraduate medical education also

affect postgraduate medical education in India. In a recent survey of residents in India, more than half of respondents reported that there was insufficient access to online journals, regular continuing medical education, and other resources (11). Although journal clubs exist in many residency programs, they are often infrequent because of, among other challenges, the lack of implementation guidelines. Virtual journal clubs on Twitter, such as @NephJC and @GIJournal, are frequented by residents and fellows from India, and some virtual clubs even schedule specific times for Indian audiences (12). These are popular because of the asynchronous learning paradigm, which enables trainees to participate without sacrificing their clinical responsibilities. Although widespread access to high-speed Internet has become less of an issue, paywalls for journals and databases such as UpToDate make FOAM the most easily accessible medical resource. FOAM blogs give near real-time updates on management and serve as a quick reference tool for trainees navigating patient care, which was especially useful during the COVID-19 pandemic. Applications such as Airway Ex (Level Ex Inc.) and Hamilton Ventilator Simulator (Hamilton Medical Inc.) handle the technical components of medicine as well and can provide a bridge to patient care in residency programs without regular simulation training. Because medical training is in English, there is no language barrier in India, which contributes to the broad use of FOAM resources, which are primarily in English.

New FOAM content development from medical educators in India is uncommon. Because of the lack of a supportive environment for research, with time, mentors, and infrastructure frequently hard to find, publishing in peer-reviewed journals is not typical among residents and faculty members in India (13). Limited time for teaching has also affected FOAM, which could explain the disparity between FOAM content creation and consumption in India (3).

Although FOAM resources are increasingly used in Indian medical education, there are concerns about the applicability of FOAM in India, where the clinical milieu is different from the high-income countries where the content is created. The medical community in India would benefit from FOAM content made locally in collaboration with established FOAM blogs to help with national and international dissemination. In addition, on FOAM websites and social media, there are problems with inaccurate information and opinions masquerading as facts because of the lack of a formal or informal peer-review process (14, 15). Making the distinction between factual and incorrect content is challenging, particularly for trainees. A clear distinction between the facts and the assumptions made by authors can make for a better experience for users in India. FOAM content is also exempt from financial conflict of interest rules applicable to journals and other peer-reviewed publications, and open dialogue by FOAM authors about potential conflicts of interest will be beneficial in reducing even the appearance of bias. Before using these resources, learners and educators should therefore ask appropriate questions regarding the information included in FOAM resources and its interpretation and should assess it using tools such as the revised Medical Education Translational Resources: Impact and Quality scoring system (2).

Despite these obstacles, the culture of education in India is changing to include FOAM in mainstream medical education.

With the help of all stakeholders, the stage is now set for FOAM to meaningfully contribute to medical education in India, with significant engagement in content creation, consumption, and effectiveness over the coming years.

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