

## The gaps unaddressed in competency-based medical education (CBME) curriculum

Surekha A<sup>1</sup>, Suguna Anbazhagan<sup>2\*</sup>, Deodatt Madhav Suryawanshi<sup>2</sup>

<sup>1</sup>Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, Sri Balaji Vidyapeeth Deemed to be University, Ammapettai, Tamil Nadu, India

<sup>2</sup>Department of Community Medicine, Trichy SRM Medical College and Research Institute, Trichy, Tamil Nadu, India

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### Abstract

It is crucial to glare at the lacunae of the current competency-based medical education (CBME) curriculum. Certain areas are inadequately addressed, namely issues about gender health and development with a particular focus on the healthcare needs of the LGBTQ+ community. It is needed to insist more on health care of disadvantaged sections of the population like primitive tribal groups, the scope dimensions and utilities of palliative and rehabilitative care in patient care, addressing workplace violence against health care professionals, the role of universal health coverage and health insurance in addressing inequitable health care accessibility, the sensitization and application of digital and machine learning technologies in health care, use of artificial intelligence (AI) and 3D printing to solve complex health issues, the utilities of telemedicine to address inaccessible quality health care and most notably the absence of sensitization and training on Chemical, Biological, Radiological, Nuclear (CBRN) casualty management as a subset of disaster.

Regulations on Graduate Medical Education (Amendment), 2019 envisaged implementing competency-based medical education (CBME) for the Bachelor of Medicine and Surgery admitted in MBBS course from the 2019-2020 academic year onwards. It caused the creation of an “Indian Medical Graduate” (IMG) coined by the Medical Council of India (MCI), whose training includes possessing numerous interventions such as knowledge of requisites, skills, viewpoints, values, and accountability, so that s/he may also perform effectively and appropriately as a physician of the first point of contact of the community while being globally pertinent. To accomplish the above national mandate, the MCI designed the Competency-Based undergraduate curriculum to train a clinician, who can provide preventive, promotive, curative, palliative, and holistic care to everyone.<sup>1</sup>

The preamble to the curriculum document describes it as living and explains that the new curriculum will be more patient and learner-centered., gender-sensitive, outcome-oriented, and environmentally appropriate, adapting to global trends. This preamble effectively accentuates the need for Skill-based Learning outcomes and effective communications, which will constitute the fulcrums of

undergraduate medical education through which the national goal of “Health for all” is achieved. Subject experts prepared documents detailing the curriculum thoroughly and meticulously, with outcomes (competencies) in each subject grouped based on number-wise topics. A total of 412 topics and 2949 competencies are outlined across subjects in all the phases of MBBS courses, with sufficient opportunities for aligning and integrating the competencies.<sup>2</sup>

Additionally, it is commendable that a document on Attitude, Ethics & Communication (AETCOM) was prepared to teach students how to communicate effectively with patients and their relatives while respecting their preferences, values, beliefs, confidentiality, and privacy. Adding foundation courses, AETCOM, electives, use of mannequins, and models with the aim of an outcome-driven curriculum is commendable.<sup>3</sup>

Given this background, it is also essential to glare at the lacunae of the current CBME curriculum. Insufficient attention is paid to some areas, including gender health and development with a particular focus on the health care needs of the LGBTQ+ community, Health care for disadvantaged sections of society like the tribals and primitive tribal groups, the scope dimensions and

\*Corresponding author: Suguna Anbazhagan, Email: sugucommed87@gmail.com

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utilities of palliative and rehabilitative care in patient care, addressing workplace violence against health care professionals, the role of universal health coverage and health insurance in addressing inequitable health care accessibility, the sensitization and application of digital and machine learning technologies in health care, use of artificial intelligence and 3D printing to solve complex health issues, the utilities of telemedicine to address inaccessible quality health care and most importantly the absence of sensitization and training on Chemical, Biological, Radiological, Nuclear (CBRN) casualty management as a subset of disaster management.

The total population of transgender (LGBTQ+) in India is approximately 4.88 Lakh based on the 2011 Indian census.

Regarding human rights, the concerns of the transgender community regarding health and social issues cannot be waived. Furthermore, to address this issue, a comprehensive approach needs to be adequately addressed by sensitization and effective communication strategies to ensure that healthcare providers treat them with utmost dignity, care, and empathy. It is essential to include it in the medical curriculum (Effective communication strategy, especially in AETCOM module).

Based on the 2011 Indian census, the tribal population constitutes 8.6% of the total population, with almost 90% living in the country's inhospitable, rugged, and hilly regions.<sup>4</sup> Tribal health issues are different from those of the general population, including the presence of severe acute malnutrition among children under five, chronic energy deficiency among adults, Iron deficiency anemia in pregnant women, genetic disorders like thalassemia and other hemoglobinopathies and social problems such as child marriage and tendency to seek out religion-based healing therapies.<sup>5</sup> Without adequate knowledge and training on these specific health issues, graduates may not be proficient enough to contend with those populations or provide service to them. We suggest they spend a specific portion of their rural training in tribal areas.

The primary goal of palliative care is to improve the quality of life for both patients and their families by alleviating the patients suffering from pain and other distressing physical symptoms and providing nursing care and psycho-social and spiritual support.<sup>6</sup> Adequate palliative care knowledge will help medical graduates administer optimal care with an interdisciplinary, multi-dimensional team comprising doctors, nurses, counselors, social workers, and volunteers.

In an ongoing study, Indian Medical Association reported that 75% of doctors in India had encountered violence at some point in their life, which is usually verbal abuse.<sup>7</sup> For students to be aware of this serious issue, it needs to be included in the undergraduate medical curriculum and discussed to find ways to overcome it in the future.

Artificial intelligence (AI) in medicine can be

categorized into two types: Virtual and physical.<sup>8</sup> The virtual part ranges from electronic health record systems to neural network-based guidance in treatment decisions.

The physical part deals with robots assisting in performing surgeries, intelligent prostheses for disabled people, and elderly care.<sup>9</sup> Undergraduates must get upgraded with AI techniques to align with the international students' curriculum.

Telemedicine refers to diagnosing and treating patients remotely, utilizing telecommunications technology, and providing substantial healthcare to low-income regions. Telemedicine can also benefit family physicians by providing them with easier access to specialty doctors and helping them monitor patients closely. Numerous telemedicine services such as store and forward, real-time and remote or self-monitoring provide various educational, healthcare delivery and management, disease screening, and disaster management services worldwide. Although it cannot solve all the problems, telemedicine, to a large extent, can help reduce the healthcare system's burden.<sup>10</sup> Knowledge of implementing telemedicine is highly recommended for undergraduate students.

The Indian health system is characterized by a vast, underutilized public health infrastructure, with a largely unregulated private market that caters to a greater need for curative treatment. High out-of-pocket (OOP) health expenditures pose a barrier to access to healthcare. Among those hospitalized, nearly 25% are pushed below the poverty line by the catastrophic impact of OOP healthcare expenditure.<sup>11</sup> Medical graduates need to be sensitized the health insurance topics, thereby involving themselves actively in the enrolment process by the eligible.

In conclusion, the importance of Skill-based training of medical students cannot be overemphasized as a critical component of casualty management in CBRN incidents since the perils of modern asymmetrical warfare underscore the threat in the fastest-growing economy like India. Due to the recent surge in CBRN incidents such as the Bhopal gas tragedy, Mayapuri in Delhi,<sup>12</sup> and the ongoing COVID-19 with increasing and widespread outbreaks, we recommend that medical students be adequately equipped with knowledge and skills to mitigate the casualty impact of CBRN fallout. In addition, we suggest scenario-based simulation models and drills train students in basic methods of decontamination, triage, first aid, and personal protective measures for CBRN casualties.<sup>13</sup>

#### **Author Contributions**

**Methodology:** Surekha A.

**Validation:** Deodatt Madhav Suryawanshi.

**Resources:** Surekha A.

**Writing and others—Review and Editing:** Surekha A, Suguna Anbazhagan, Deodatt Madhav Suryawanshi.

#### **Competing interests**

The authors declare no conflict of interests.

#### Ethical approval

Not applicable.

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