Original Article

Moving Toward Competency-Based Education: Undergraduate Medical Education in Bangladesh

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Abstract

Introduction: *In this era of AI (Artificial Intelligence) and AGI (Artificial General Intelligence) competency based education is gaining popularity over all modern thinking of educators. The wind has touched the medical education too.*

Objective: *The objectives of this study was to review the "Curriculum for Undergraduate Medical Education in Bangladesh- Updated 2012" regarding the content coverage, objectives and time allocation for trauma management and to explore the stakeholders' views regarding the trauma management related components in undergraduate medical curriculum in Bangladesh.*

Method: *This descriptive type of cross sectional study was conducted in two stages. First, the details of the contents of undergraduate medical curriculum- updated 2012 were reviewed to find out the content coverage, objectives and time allocation for trauma related teaching.*

Teachers' of Surgery & Allied subjects were conveniently selected from five medical colleges, Medical Officers' (MOs) as well as Emergency Medical Officers' (EMOs) from primary & secondary health care settings were included in the study. Sample size was 349, out of which 181 were teachers of relevant discipline and 168 were MOs & EMOs. A self-administered semi-structured questionnaire with five points of Likert scale or checklist was used to get the views of the respondents.

Result: *A total of 17 hours are allocated in present curriculum for trauma related topic and are almost equally distributed in 2nd, 3rd and final phases. Out of 295 respondents 148 (50.1%) opined that the curriculum is not capable of producing medical graduate with relevant skill to handle poly-trauma. Almost all (99.4% and 96.5% respectively) respondents were in favour of inclusion of trauma related components in existing surgery card and for teaching trauma related management with a separate module format.*

Conclusion: *Transforming traditional curriculum to a competency based curriculum is not a very easy task. We can start with the theme of 'Fortified Curriculum' where contextual competencies will be identified, gradually added in module form and formatively assessed to certify.*

Keywords: *Fortified Curriculum, Trauma, Competency*

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Introduction

Competencies are the knowledge, skills, abilities and behaviors that contribute to individual and organizational performance. Competence can be described as the combination of training, skills, experience and knowledge that a person has and their ability to apply them to perform a task safely. It means the acquisition of sufficient knowledge, psychomotor, communication and decision-making skills, and attitudes to enable the performance of actions and specific tasks to a defined level of proficiency[1]. In recent decade competency-based medical education (CBME)

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has attracted interest among educators and policy-makers in the health care professions[2]. CBME emphasizes the learner and program outcomes, not the pathways and processes to attain them. On the other hand, the traditional method tends to emphasize the instructional process, regardless of the product of the program. CBME focus on outcomes, pays an emphasis on abilities as well as the promotion of learner-centredness, and de-emphasizes time-based training[2]. Learners are interested to know, which exact ability learners going to gain at the end of the session and that is blurred in traditional training programme. CBME identifies the abilities needed of graduates on the basis of population health needs and design the training programme accordingly[3].

In medical education, standard may be as simple as a list of successfully passed students and quality of infrastructure of the institution. This should be reflected by workplace or business related skills and performance at the level of societal needs, which actually indicated by the 'Miller Pyramid' in assessment[4]. A qualitative study on newly started professional life of doctors revealed extremely stressful situation at the beginning. One of the respondent expressed beginning as '...there's no greater challenge outside of war time than actually being a junior doctor...' Other emotionally expressed 'Well, at the end of the day I survived the experience but it was terrifying, I burst into tears twice [...] because I just found it so stressful'[5]. The author pointed out that the stress is related to dealing with uncertainty such as that caused by not knowing what was expected of the trainee as a doctor and dealing with uncertainty was something they had expected. The researcher suggested an early, meaningful, sustained and carefully structured patient contact in undergraduate education, that will provide an associated opportunity to gain skill which will support a better experience of real work as a doctor[5].

The medical education should walk with the reality that there is a need for change from the currently mostly knowledge-based education, to focus on skills that are needed to perform duties as a health care professional. This is mainly because, the knowledge base has expanded exponentially through gains in scientific facts or new knowledge expedited by the tools now made available in this information technology age.

In Bangladesh content of undergraduate clinical medial education curriculum is delivered through multiple mechanisms including lecture, case-based, problem-based, laboratories skills and experiential education. Students are assessed by the content they can recall and apply to simulations and eventually to real-life situations. The whole curriculum is time framed and assessment is criterion based[6]. The junior doctors coming out of the medical colleges are amongst the first line healthcare professionals in primary to tertiary hospitals to assess and provide initial hospital care. Are they properly trained to face the present needs of the society?

Bangladesh is a rapidly developing country and communication system is rationally as well as irrationally proliferating. Recent publication shows that 8,505 people died in road, rail and river accidents throughout the year 2023 in Bangladesh[7]. It is hard to present statistics on death from other accidents and injured as well as disability from accidents. The skill related to initial assessment of trauma patients and skill of trauma life support is the societal need and it is expected that all newly passed doctor must be competent enough to manage trauma patient at level of medical out-lets.

This study was conducted to review the "Curriculum for Undergraduate Medical Education in Bangladesh- Updated 2012" regarding the content coverage, objectives and time allocation to trauma management and to explore the stakeholders' views regarding the trauma management related components in undergraduate medical curriculum in Bangladesh.

Materials & Methods

This descriptive type of cross sectional study was conducted during the period of July 2019 to June 2020. The details of the contents of undergraduate medical curriculum- updated 2012 were reviewed to find out the content, learning objectives and teaching hour allotted.

Teachers' of Surgery & Allied subjects were conveniently selected from five medical colleges of Dhaka city and five medical colleges outside Dhaka and Medical Officers' (MOs) as well as Emergency Medical Officers' (EMOs) were from primary & secondary health care

settings such as upazila & district hospitals were included in the study. Sample size was 349, out of which 181 were teachers of relevant discipline and 168 were MOs & EMOs. A self-administered semi-structured questionnaire with five points of Likert scale or checklist was used to get the views of respondents. Teachers and doctors who were present at the time of data collection and wished to participate in the study as respondent after initial briefing were included in the study.

The data collection instruments were modified, further developed and finalized depending upon the results of the pretesting. Collected data were checked and edited manually. Incompletely filled up questionnaires were discarded. Data entry, editing, processing and analysis were done by using computer as well as manually according to the objectives and interpretations were done subsequently. Ethical approval of the research protocol was obtained from the Institutional Review Board (IRB).

Result

Out of 349 respondents there were 30 (08%) Professors, 42 (12%) Associate Professors, 72 (21%) Assistant Professors and 205 (59%) were others (MO & EMO). There were 44 (12.6%) General surgeons, 40 (11.5%) Neurosurgeons, 112 (32.1%) Orthopedic surgeons, 80 (22.9%) Anaesthesiologists and 73 (20.9%) others (MO & EMO).

Curriculum for Undergraduate Medical Education in Bangladesh- Updated 2012"- regarding the content coverage, learning objectives and time allocation of trauma patients are shown in the Table I. A total of 17 hours are allocated for trauma related topic of that 4 hours (23.5%) during 2nd phase, 7 hours (41.2%) during 3rd phase and 6 hours (35.3%) during final phase. The total allocation is 3.27% of the total curricular time for Surgery and Allied subjects (lecture, small group teaching and integrated teaching) which is 520 hours. Out of 295 respondents 148 (50.1%) opined that the curriculum is not capable of producing medical graduate with relevant skill to handle poly-trauma (Fig 1).

Table I

Distribution of content coverage, learning objectives and time allocation of trauma patients management related subject present in MBBS curriculum of Bangladesh

Phase	Subject	Content	Learning Objective	Teaching hour
2nd	General Surgery	Wounds Haemorrhage and Shock	Diagnose and provide basic treatment for shock & haemorrhage	1+2
	Orthopedic Surgery	Hard tissue trauma	Apply ATLS protocol to provide resuscitation of polytrauma patient. Demonstrate skill in application of splints, slings, traction and cast.	1
3rd	General Surgery	Management of a severely injured patient Abdominal trauma	Identify the patients with abdominal trauma requiring specialty surgical intervention & refer to appropriate centre.	3
	Neurosurgery	Head injury	Provide primary care of head injury cases.	2
	Anaesthesiology	Cardio-Pulmonary Resuscitation (CPR)	Demonstrate basic knowledge and perform CPR.	2
4th (Final)	General Surgery	Chest injury	Assess & diagnose traumatic haemopneumo-thorax, associated injuries & introduce water seal drain in appropriate case.	3
	Neurosurgery	Spinal injury	Provide primary care of spinal injury cases.	2
	Orthopedic Surgery	Mass casualty-ATLS	Apply ATLS protocol to provide resuscitation of polytrauma patient	1
			Total duration	17

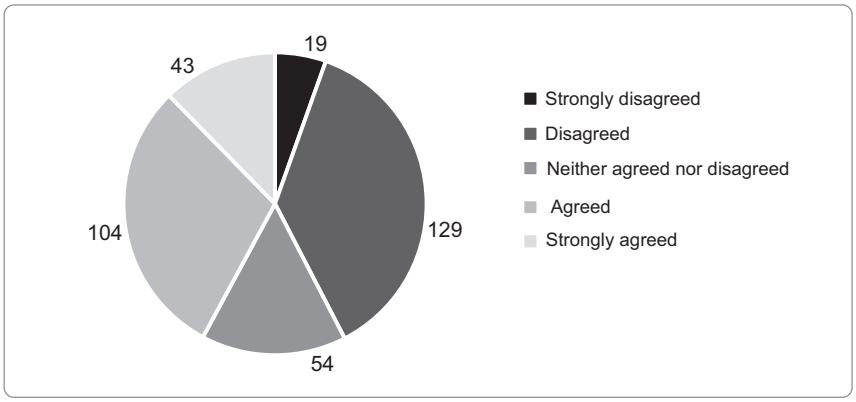

Figure 1: *Distribution as per opinion that 'the curriculum is capable of producing medical graduate with relevant skill to handle poly-trauma' (n=349).*

Table-II

Distribution of respondents as per their views regarding inclusion and ways of teaching for better implementation of ATLS related components

Statement related to inclusion and ways for better implementation	Yes f (%)	No f (%)	Total Number
Contents related to trauma management should be included in existing surgery card	347 (99.4)	02 (0.6)	349
Contents related to trauma management should be taught with a modular format	335 (96.5)	12 (3.5)	347

Table II shows that 99.4% and 96.5% respondents respectively were in favour of inclusion of trauma related components in existing surgery card and for teaching trauma related management with a separate module format.

Table-III

Opinions related to nature of content inclusion in existing curriculum (n=347)

Statement	Opinion
Contents related to trauma management should be taught with a modular format (n=347)	Positive opinion 335 (96.5%)
Ideal time of inclusion of trauma management module (n=335)	During Internship 200 (59.7%)
Ideal duration of trauma management module	4.39±4.35 days (95% CI is 3.93 - 4.85 days)

Discussion

In this study the review of the MBBS curriculum of Bangladesh showed that there is reflection of integrated, need-based, core & optional, problem based, community oriented and community based nevertheless the curriculum is mainly discipline based[6]. Competency-based medical education (CBME) has emerged as a core strategy to educate and assess the next generation of physicians. Advantages of CBME include: a focus on outcomes and learner achievement, support of a flexible, time-independent trajectory through the curriculum and increased accountability to stakeholders[8]. Transition from mostly knowledge-based education, to focus on skills that are needed to perform duties as a health care professional is not an easy mission. This

study focused on a skill that matches context of Bangladesh. World Health Organization (WHO) in 'Road safety Bangladesh 2023 country profile' published in 'Global status report on road safety 2023' reflected estimated death rate is 18.6 per 100000 population in 2021[9]. Trauma on road and at workplace is identified as burden of the health care system. Immediate and proper management of the trauma patient is the expectation of the population from the doctors at all level medical centres. The junior doctors coming out of the medical colleges are working as first line healthcare professionals and provide initial hospital care in Bangladesh. Keeping this in mind the 'competency of trauma management' was considered as the 'competency of this research'. The teachers of Surgery and Allied subjects are the implementing workforce of the curriculum in undergraduate medical education and MOs as well as EMOs working at primary and secondary health care settings are the first line healthcare workforce. So they are considered as stakeholders and were selected as target population. WHO has recommended that first aspect to be considered as elements of competency for training should be organized around functions/competencies required for the practice of medicine in a specified setting[10].

Present study showed that 17 out of total 520 hours (lecture, small group teaching and integrated teaching) of MBBS curriculum for surgery is allocated for trauma related topic. But the subtopics are sparsed over a period of 42 months and half of the respondents opined that the curriculum is not capable of producing medical graduate with relevant skill to handle poly-trauma. Almost all of the respondents mentioned that trauma management skill should be included in existing surgery card (99.4%) or should be presented as a separate module form (96.5%). The respondent opined that the module may be designed for 5 days and the mean duration calculated was 4.39 days (95% CI is 3.93 - 4.85 days).

Competency-based education is more efficient than the traditional information based models of medical education as it focuses on 'mastery learning' to help the learner acquire competencies needed for doing the professional tasks and duties that are in alignment with health needs of the society. The paradigm shift is always challenging. The experiences of advanced world show decades lag between intention to change and actual change[11]. The way forward to overcome these challenges particularly through faculty capacity-building using longitudinal faculty development programs to ensure that it can be successfully implemented and sustained to serve the purpose of producing job-ready professionals. Concept of 'parallel curriculum' may be a useful idea in transformation process of traditional to competency based education[12].

In Malaysia skills like trauma management are incorporated into curriculum as modules and study shows that one-day intensive trauma refresher course concentrating on the primary survey of trauma with pre-test, skill stations and post-test effectively imparted knowledge, skills and attitudes in medical students[13]. American College of Surgeons observed that trauma evaluation and management (TEAM) module was very effective in teaching trauma management principles to senior medical students[14]. Study showed that compulsory training in trauma management reduced trauma-related mortality in Berlin[15].

Conclusion

It is due time to accept the new demands of teaching dictated by an explosive medical science and technological development. More competencies may be identified, incorporating the subject in the curriculum in module form and assigning formatively to certify will help to bring the country's medical education as per global standard.

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