

# Medical Education in Libya: Challenges, Hopes, and Recommendations

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## Abstract

The purpose of this review is to examine the current Libyan medical education system, look at its positive and negative aspects, and to provide suggestions and recommendations that could help improve the quality of the system today. The current Libyan medical education system has aged, and unfortunately, cannot meet both societal needs and the new requirements from the World Federation of Medical Education (WFME). The WFME issued a strong statement to all international medical schools to meet its new accreditation standards by 2023 in order for them to be recognized internationally. Lacking almost 70% of the international standards, Libyan medical schools will require considerable amount of time and resources to solve the issue. The process of changing and updating the system will involve all parts of the learning environment, including students, teachers, curriculums, resources, research, and governing bodies.

**Keywords:** Accreditation, Libya, medical education, CBME, Non-technical skills

## INTRODUCTION

It has been more than 100 years since the revolutionary changes in medical education made by Abraham Flexner and William Osler.<sup>[1,2]</sup> Throughout the century, both undergraduate and postgraduate medical education systems went through many updates, additions, and innovations. Yet, the most significant change in medical education has just begun. This change is an attempt to transform the medical education system to an outcome-based system or what is now known as competency-based medical education (CBME).<sup>[3]</sup> One of the fundamental new additions that played an integral part of this new change is the introduction of the concept of Entrustable Professional Activity by ten Cate, which replaced the well-known goals and objectives or intended learning outcomes.<sup>[4]</sup> Despite the good reputation of the North American and British medical education, both have decided to change their existing systems based on many evidence-based red flags that showed the ineffectiveness and incompetence of the current systems. These red flags include a high percentage of nonconfident new graduates,<sup>[5]</sup> medical errors as the third cause of mortality in the United States,<sup>[6]</sup> most disciplinary claims against physicians are related to professionalism,<sup>[7]</sup> inability of the current systems to solve the issue of “failure to fail,”<sup>[8]</sup>

nonpracticality of some of the current systems,<sup>[9]</sup> and lack of objectivity and trust in teaching and assessment.<sup>[10]</sup> These changes are also made to meet the new societal needs and scientific advancements.

Most developing countries follow one of two main medical education systems; British or North American; however, the quality of medical education has always been lower in developing countries compared to the original systems. This gap in quality will become increasingly larger with the new revolutionary changes and hence sending an emergency alert to all developing countries, including Libya.

Furthermore, the 2015 revision of the *WFME Global Standards for Quality Improvement: Basic Medical Education* requires that all medical schools meet the new accreditation standards by 2023.<sup>[11]</sup> This is based on the World Health Organization (WHO) recommendation to have all countries

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establish accreditation mechanisms for health training institutions by 2020.<sup>[12]</sup>

The Libyan medical education system has not seen any major update since the first medical school was established in Benghazi in 1970. The system has aged and faced many challenges over the years, which has led to a system that does not meet the international standards and more importantly, societal needs.

## CHALLENGES TO THE CURRENT LIBYAN MEDICAL EDUCATION SYSTEM

The best way to approach this complex subject is to discuss it systematically according to stakeholders and resources that form the final structure of any learning environment. Despite the excellent attempts to improve the medical education system in Libya, it is obvious that we lack fundamental and integral components to create an ideal learning environment that fosters competency, independency, creativity, innovation, professionalism, scholarly activities, and health advocacy.

### Governance of the medical education system in Libya

Clearly, there is a disconnection between the different governing bodies, and the recent 2018 Ministry of Health (MOH) survey has showed an alarming disconnection between the MOH and Ministry of Education (MOE).<sup>[13]</sup> This, in return, led to independent and randomized decisions over the years resulting in unwanted outcomes. During their early years, both Benghazi and Tripoli medical schools enjoyed good international reputations and their graduates succeeded in many international postgraduate training programs. This most likely lasted up to the late 90s when the number of medical schools suddenly increased from 3 to 18,<sup>[13,14]</sup> and an alarmingly large number of new students began to be accepted to medical schools. We must realize that all advanced health-care systems are struggling with providing the needed number of “competent” physicians. Nevertheless, they always kept quality ahead of quantity. In this regard, I would like to remind the reader with two similar historical issues that occurred in the USA and the UK. In 1910, Abraham Flexner and his team reviewed the quality of medical schools in the USA and Canada, and despite the shortage of physicians, his work resulted in closing approximately 50% of the 168 medical schools he visited.<sup>[15]</sup> Whereas in the UK, the Medical Act of 1858 resulted in closing medical schools with poor quality.<sup>[16]</sup> Combining random decisions with the lack of accountability and quality assurance, we can understand how sometimes higher government decisions can negatively affect the medical education system. In Libya, such decisions have created an uncontrolled number of independent medical schools, different unique systems of education in the same country, uncontrolled admissions to medical schools, and most importantly, a lack of government support to those medical schools.<sup>[13,17]</sup>

### Students

They are the focus of the medical education environment, and the quality of graduated students is reflective of the quality of

their medical education. There are many direct learner-related factors that have contributed to the declining of medical education in Libya. These include: (i) a high influx of students without increasing the learning environment resources, (ii) low levels of secondary school education, (iii) lack of the main teaching language, (iv) lack of accountability, (v) an unclear and ineffective student selection process, (vi) lack of student-active roles in the learning environment, (vii) poor nontechnical skills, and (viii) the effect of external psychosocial factors that might result in stress and fatigue. Students should be protected by the system and this will require clear policies to guide them in cases related to harassments, abuse, safety, wellness, and mental health. Medical students, especially in their clinical stages, should be treated as “adult learners” where they can have more proactive roles and enhance their teaching and clinical skills, recognize professional boundaries, provide feedback to their seniors, and participate in quality improvement projects, while at the same time, acquire some accountability to their actions.<sup>[18]</sup> A lack of trust between the different stakeholders within the learning environment has led to many known and unwanted complications in medical education that can either directly or indirectly impact the quality of education.<sup>[10]</sup> This lack of trust has resulted in students seeking help from other private institutions and specific teachers.

### Teachers

Our medical education system lacks the numbers and qualifications needed to make the system sustainable and productive.<sup>[13]</sup> Many factors have contributed to the decline in teachers’ productivity. These are (i) the increase in the number of medical schools which added more work to faculty members, (ii) the exceptionally large number of students that made teachers unable to provide high-quality lectures and perform fair and effective assessments, (iii) the lack of accountability, which created nonhealthy work relations within the educational institutes, (iv) the socioeconomic status of the country resulting in many faculty members spending more time in the private clinical and/or educational sectors, (v) the lack of strict promotion criteria that resulted in a large number of professors, which could confuse the system and disrupt the iconic professorship rank and its image, (vi) the lack of experts in medical education who are needed to monitor, design, and update the system, and (vii) the ineffective continuous professional development programs. These factors have led to deterioration in teachers’ competency, interest, and productivity. This has also led to low-quality research that is either published in low impact journals or deemed nonpublishable.<sup>[19]</sup> The focus on research as the main drive for faculty promotion had a negative impact on education and quality improvement. Basic science teachers should be supported and promoted based on their research, education, and quality improvement achievements, whereas clinical excellency and leadership should be added to the promotion requirements of clinical teachers. Many advanced medical education systems have very strict promotion criteria that require the faculty member to be recognized nationally to be

promoted to the Associate Professor rank and internationally to qualify for the full professorship.<sup>[20]</sup>

### Resources

The typical medical education system is expected to support its two main pillars, namely, students and teachers, by providing them with an environment that supports, protects, and promotes learning. We lack many mandatory requirements such as physical space, financial support, effective assessment systems, effective faculty promotion systems, sufficient library resources, adequate laboratory equipment, student protective policies, and resources to acquire nontechnical skills, such as simulation centers. Despite the clear lack of major supportive services, the system continues to open new medical schools, create new postgraduate programs, and accept large numbers of medical students.

### Curriculums

The current curriculums are now almost 50 years old and have not seen any major update nor do they meet the new accreditation requirements.<sup>[13]</sup> Curriculums are mainly delivered as large group sessions, except for the Libyan International Medical University who had already updated their curriculum and adopted many new teaching techniques. The current curriculum delivery system lacks most of the relatively new innovations, such as problem-based learning,<sup>[21]</sup> flipped classrooms,<sup>[22]</sup> and portfolios.<sup>[23]</sup> The weak English language has affected all aspects of curriculum delivery and assessments. Therefore, it is critical for medical schools to focus on improving the main language of instruction. Over the years, and with the deterioration of infrastructures, medical students became more focused on taking classes and curriculum outside of medical school. This resulted in low-class attendance at the main school, which could be part of a “hidden curriculum” that resulted in an inherited learning behavior and attitude toward medical school teachers, classes, and curriculums.<sup>[24]</sup> Most international medical schools transformed their traditional curriculums to an “integrated” one, aiming to break down barriers between the basic and clinical sciences currently in place because of traditional curricular structures. This should also promote retention of knowledge and acquisition of skills through repetitive and progressive development of concepts and their applications.<sup>[25]</sup> There is now a higher focus on teaching and assessing the nontechnical skills, and there has been major developments and updates in this regard. In fact, this was the first step made before the new Canadian competence by design project that transformed the medical education structure in Canada as of July 2017.<sup>[26]</sup> They started by updating their Canadian Medical Education Directives for Specialists roles, which are equivalent to the non-technical skills in other systems.<sup>[27]</sup> Furthermore, adding the non-technical skills is now a mandatory step according to the new World Federation of Medical Education (WFME) international standards.<sup>[11]</sup> These non-technical skills should include professionalism, research, communication, collaboration, and leadership skills. Recently, there has been a move toward including quality improvement and patient safety to all medical school curriculums and assessments.<sup>[28]</sup>

### Accreditation standards

The *WFME Global Standards for Quality Improvement: Basic Medical Education* comprises 106 basic standards and 90 quality development standards.<sup>[11]</sup> According to the recent review by the MOH,<sup>[13]</sup> only 22 (20%) of the WFME basic standards are achieved by Tripoli’s medical school, 33 (31%) by Benghazi’s medical school, and only 4 (3%) by Omar Mukhtar’s Medical School. The very few quality indicators achieved by all medical schools are quite alarming and calls for a resilient process to make the appropriate changes and additions. At present, in Libya, accreditation is the responsibility of the Center for Quality Assurance and Accreditation, a division within the Ministry of Higher Education and Scientific Research. Accreditation is a complex process, and advanced medical training programs have one strong independent governing body that overlooks a robust accreditation process. The same concern applies to the Libyan postgraduate medical education since the current system has no clear process of accrediting centers for both Libyan and Arab board programs.

### Assessments

Assessments are now considered the backbone of medical education, and improving assessment has a vast impact on the quality of learning.<sup>[2]</sup> There have been many advancements in assessments within medical education and it will require a comprehensive plan to update these assessments and to provide the right tools to achieve that. Examples of new techniques that are currently used in advanced systems are O-Score,<sup>[29]</sup> 360/multisource feedback,<sup>[30]</sup> logbooks,<sup>[31]</sup> and portfolios.<sup>[23]</sup> Most of the recent changes in medical education surround assessment. In fact, there is a move toward changing the word “assessment” to “observation,” which will mainly focus on an objective direct observation of the student and enhance the relationship between students and teachers.<sup>[32]</sup> The current system uses old assessment techniques of written and oral methods and may be hard to update without working on the other contributing factors, such as the large number of students and medical schools, shortage of teachers, lack of technical support, and lack of physical spaces.

### Postgraduate education

It seems that the control over the postgraduate training has been lost, and we have noticed an increase in the number of postgraduate “clinical degrees,” making it almost impossible for our current medical environment to support them all. At present, enrolled physicians can obtain Libyan and Arab Board certificates in addition to clinical masters and diploma degrees. This is mainly based on passing examinations and not fulfilling strict training requirements. We all know that the current health-care system lacks the ability to support one full training program and having multiple different postgraduate medical training programs are unprecedented in the modern world. Most advanced training systems adopt one main training (or board) system, as in the UK, USA, Australia, and Canada. These countries have more resources than Libya, yet, they have not considered adding a second



similar and parallel specialization degree. Furthermore, these countries limited their masters and PhD programs to research without any clinical component. The ultimate goal should be “readiness to independent practice” and not just passing board examinations. Therefore, the focus should be on improving the quality of training and the implementation of a strong accreditation system to ensure that. In fact, the new international revolutionary change in postgraduate medical education is to move the final board examination from a certification examination to an in-training assessment that is needed to be passed before graduation and certification.<sup>[26]</sup>

### Low research productivity

The number of publications from Libyan medical schools has always been low compared to international numbers and has deteriorated over the years.<sup>[14]</sup> In addition, most publications were produced by a very small cohort of researchers, with two-thirds of them originating from one university and being published in low impact journals.<sup>[14]</sup> This decline has occurred despite the dramatic increase in the number of medical schools and the addition of a research project as an essential requirement to obtain the Libyan Board and master’s degrees. As of 2007, medical research output in Libya was about twenty times less than other countries with similar backgrounds.<sup>[33]</sup> Factors that could have contributed to the poor research activities are (i) weak faculty promotion criteria, (ii) lack of research courses at all levels of medical education, (iii) lack of publication requirements for both Board and master’s programs, and (vi) no clear national program that supports and promotes research.

### HOPES

- a. The recent 2018 MOH<sup>[13]</sup> and the 2017 Service Availability and Readiness Assessment surveys<sup>[17]</sup> are very important milestones in the history of Libyan medical education and health-care systems. As described in the MOH survey introduction, “the objective of the study was to gather information on medical educational institutions to design a database of students, graduates, and medical faculties to study the current output of the Libyan educational system in terms of quantity and suitability to provide distinguished medical care services.”<sup>[13]</sup> Clearly, this is an important step forward and we are all looking forward to seeing the positive impact of these results
- b. There are currently promising curriculum development projects at both Benghazi and Tripoli universities, in addition to the well-functioning curriculum of the Libyan International Medical University. These projects have incorporated new advanced teaching and assessment techniques, as well as considered the new WFME accreditation requirements with great focus on teaching and assessing non-technical skills. The transformation to an “integrated curriculum”<sup>[25]</sup> will be a great addition and has proven efficient over the last two decades in many international schools. The new curriculums have also recognized the importance of the English language

through its addition as a mandatory course within the curriculum<sup>[13]</sup>

- c. For the first time in history, the medical school in Benghazi has implemented a preceptor feedback process, and results are provided to faculty members for feedback and quality improvement. This new electronic preceptor evaluation system is a step forward toward improving teaching quality, faculty promotion, creating mutual trust between teachers and students, and fostering the concept of the “adult learner.” The new curriculum update in Tripoli University has also added an excellent and very promising preceptor feedback form that will be started soon
- d. The National Center for Health System Reform has completed great first steps in attempting to update the Libyan medical education system as part of a bigger project of reforming the Libyan health-care system
- e. The high number of qualified Libyan clinicians and educators outside of Libya can give the Libyan health-care system an advantage over many other countries with similar challenges. As of 2005, 8.9% of the Libyan physicians were practicing abroad and it is quite evident today that this number has increased drastically.<sup>[14,34]</sup>

### SUMMARY AND RECOMMENDATIONS

The current international advancements and changes in medical education will place a great burden on the third world countries, including Libya. The evolution of CBME, the WHO recommendations to accredit all medical schools by 2020, and the need to meet the WFME accreditation standards by 2023 are all calling for a major change to the Libyan medical education system. Given the challenges that the system faces, a tremendous amount of work is required at all levels to achieve the desired standards. These are recommendations that could help medical schools and their governing bodies during the transformation process:

- a. Although the 2018 MOH survey has addressed the shortage in health-care workers, I believe that it is crucial to not proceed with their recommendation of increasing the number of specialists and physicians unless quality and accreditation standards are met. Given the fantastic results obtained through the MOH 2018 survey, I strongly recommend a similar “qualitative” study about the Libyan medical education system where we can combine the results to create practical action plans
- b. Improve collaboration and communication between all governing bodies including MOH, MOE, medical schools, Libyan Board of Medical Specialties (LBMS), and Center for the Development of Medical Manpower. Furthermore, these stakeholders can benefit from the guidance, expertise, and supervision of international medical education governing bodies. This may save time and provide an easy way for continuous system and faculty developments
- c. Improve the quality of students by implementing admission tests similar to some international systems,

such as the Medical College Admission Test<sup>®</sup>, which includes sections covering critical thinking, behavioral and social sciences, biological sciences, physical sciences, and verbal reasoning. There is strong evidence that these tests can help in the selection process and may predict student performance in medical schools<sup>[35]</sup>

- d. Creating communication channels with Libyan clinicians and educators outside Libya will help in the process of transforming the health-care system and could serve as an important link between Libya and the rest of the world
- e. There should be a sustainable long-term plan to prepare, promote, and support faculty members. This should include implementing more strict promotion criteria, providing resources for both research and teaching, encouraging quality improvement and assurance projects, and recognizing teaching and leadership roles
- f. The new curriculum update in Benghazi and Tripoli is an important milestone in the medical education history of Libya. However, having two independently similar, yet, different curriculums in the same country may create some confusion. Therefore, I strongly recommend the two universities to work and collaborate among each other to create one united curriculum that can be used and adopted by other medical schools in the country. This will allow the higher governing bodies to easily monitor and support the new curriculum. Implementing major new changes in an old environment will need robust quality improvement and quality assurance programs<sup>[36]</sup>
- g. There should be an effective program to improve the English language, which may also include making changes to the secondary school education curriculum. The English language is the key to both understanding and delivering curriculums. In addition to teaching it as a course, I highly recommend an objective assessment of the English language for all students during the admission process
- h. The low research productivity has raised many red flags and requires special attention from all stakeholders. Improving research skills and productivity is a complex process that should include teaching research and critical appraisal skills to students, clear guidelines and expectations from faculty members, investments in strong research infrastructures, and finally, providing the needed funding to conduct high-quality research projects. Teaching evidence-based medicine (EBM) to clinicians and educators during their early career stages will improve critical thinking and provide the necessary skills of statistical reasoning and continuous evaluation of medical practice.<sup>[37]</sup> EBM will have a very positive impact on research quality and productivity, and adding a mandatory “critical appraisal” course or workshop will enhance and promote the concept<sup>[37]</sup>
- i. Promote and support the concept of “active learning.” This is one of the core ideas around which changes have been made in medical training systems around the world.<sup>[38,39]</sup> Medical students are active adult learners,

and therefore, should “drive” their own training and play more active role in the learning process. Students should be given opportunities to engage in teaching and curriculum design, provide constant feedback to teachers, and allow them to participate in faculty committees and quality improvement groups

- j. The clinical postgraduate training should only focus on “one” board training program and limit the Masters and PhD programs to research. Limiting the board training to one program will lift a heavy burden off the struggling learning environment and aid in directing resources to the right direction. Furthermore, there should be a robust process by an independent governing body to accredit centers that are involved in postgraduate training
- k. The WFME and WHO have requested that all countries establish accreditation mechanisms for their health training institutions by 2023.<sup>[11,12]</sup> The lack of the required accreditation standards in all Libyan medical schools is a time sensitive issue that needs to be handled carefully and given priority by authorities. There are currently attempts at different levels to address this issue, but there is uncertainty that improvements are happening at the required pace. The new accreditation process and updates will need qualified personnel with strong administrative and leadership skills. Therefore, it is crucial to train leaders and experts before and during the planned projects
- l. I suggest that any new changes or updates to our current system should consider the new international transformation of the education system to a competency-based one. Our new changes should be flexible enough to accommodate any further future changes.

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### Conflicts of interest

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## ملخص المقال باللغة العربية

### التعليم الطبي في ليبيا: التحديات والآمال والتوصيات

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قسم التخدير والطب المحيط بالجراحة، جامعة ويسترن، لندن، أونتاريو، كندا.

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الغرض من هذه المراجعة هو فحص نظام التعليم الطبي الليبي الحالي، والنظر في الجوانب الإيجابية والسلبية، وتقديم الاقتراحات والتوصيات التي يمكن أن تساعد في تحسين جودة النظام اليوم. لقد هرم نظام التعليم الطبي الليبي الحالي، وللأسف لا يستطيع تلبية الاحتياجات المجتمعية والمتطلبات الجديدة من الاتحاد العالمي للتعليم الطبي (WFME). أصدر WFME بيانًا قويًا لجميع الكليات الطبية في مختلف أرجاء العالم للإيفاء بمعايير الاعتماد الجديدة بحلول عام 2023م من أجل الاعتراف بها دوليًا. كليات الطب الليبية تفتقر إلى ما يقرب من 70% من المعايير المطلوبة، وهذا سوف يتطلب قدرًا كبيرًا من الوقت والموارد من هذه الكليات لحل هذا المشكل. ولذا فإنه مطلوب من جميع الكليات الطبية بليبيا القيام بعملية تغيير وتحديث عامة للنظام الدراسي يشمل جميع أجزاء بيئة التعلم، بما في ذلك الطلاب والمعلمين والمناهج والموارد والأبحاث وهيئات الإدارة. هذه المراجعة تقدم وجهة نظر حول عملية التغيير والتحديث المطلوبة للإيفاء بمعايير الاعتماد الدولية.

**الكلمات المفتاحية:** الاعتماد، ليبيا، التعليم الطبي، التعليم الطبي القائم على الكفاءة CBME، مهارات غير تقنية.