Evidence-based medicine: a persisting desire under fire

Fares Alahdab, Samer Alabed, Ahmed Al-Moujahed, Mohammad Anass Al Sallakh, Tareq Alyousef, Ubai Alsharif, Munes Fares, M Hassan Murad

10.1136/ebmed-2016-110608

Mayo Clinic, Rochester, Minnesota, USA

Correspondence to:
Dr Fares Alahdab,
Assistant Professor of Medicine
Postdoctoral Research Fellow
Mayo Clinic Rochester, MN 55906, USA;
Alahdab.Fares@mayo.edu

Abstract

Healthcare infrastructure and medical schools in Syria have been greatly compromised by military conflict and humanitarian disaster. Medical students and healthcare professionals reached out for remote learning opportunities. Surprisingly, they desired a curriculum in evidence-based medicine. We report on a curriculum that was delivered to 126 learners using an online remote delivery platform. This experience demonstrates the feasibility of this approach in disaster-stricken areas and underscores the importance of evidence-based medicine even under such conditions.

The heart-breaking humanitarian crisis in one of the oldest civilisations known to man has claimed over 500 000 lives since it started in Syria in early 2011.[1] The military conflict has demolished the country's infrastructure, particularly, the previously advanced healthcare system.[2 3] A very large number of cities and towns were destroyed, besieged or evacuated due to the conflict. Not only did the destruction severely affect the basic means of life such as water and electricity, but it also affected medical schools, hospitals, clinics and healthcare facilities and infrastructure. This led to the advent of field hospitals to replace the no-longer-functioning traditional medical care facilities in these areas.[4] However, repeated and systematic attacks on health professionals have reportedly cost 750 medical personnel their lives, making Syria the most dangerous place in the world for doctors.[4–6] In response, most health personnel have fled opposition-controlled areas or the country altogether.[7] The responsibility to provide care fell on the remaining medical health personnel,[8] who, in many cases, had not yet completed their professional training, residency or even medical school. Therefore, they were faced with complex situations that often required knowledge and skills beyond what they had attained. This is true for most of the country except for some areas that are considered the stronghold of the current government. Universities and medical schools in those somewhat safer cities were largely unaffected by the crisis. However, many students would still be unable to attend and continue their education for fear of persecution or because they were stuck in one of the many besieged areas.

Under such conditions, and with longer than expected continuation of the crisis, the medical education for these brave souls was halted. They tried to devise means to teach each other whenever possible. They also reached out to medical professionals around the world to help them continue their medical education via the internet. As expected, they needed to learn about trauma, life support, infectious diseases and management of acute and chronic conditions.[9 10] Surprisingly, however, they were also interested in learning about evidence-based medicine (EBM). Through informal communication between medical personnel who resided in some of the besieged areas inside Syria and expatriate Syrian physicians and scientists abroad, the desire to learn about EBM was communicated. They expressed that they had not received such education before, and that learning EBM would allow them to use the best medical evidence to treat their patients. It would also allow them to identify and evaluate medical approaches to treating common conditions they were facing, taking into account the limited resources available to them. In response, the Education Committee of the Syrian American Medical Society started the planning process for an EBM curriculum to be delivered remotely. Once the news about this learning activity were disseminated via social media, two medical centres caring for Syrian refugees in neighbouring countries (Turkey and Jordan), joined the course and attended the live sessions in groups. Many medical students and medical graduates residing in non-besieged Syrian areas, as well as outside of Syria, joined as well.

Format and delivery platform

Organisers of the course used a Facebook group to plan the course, share educational material and to debrief after sessions. Didactic sessions were delivered through an online platform designed for remote conferencing. The platform allowed two-way communication between the instructor and learners alongside display of PowerPoint slides. A second Facebook group was created for learners to engage in threaded discussion and to post questions for instructors. The Facebook group was open to all interested people to request to join, and therefore it served as recruitment and announcement platform. The decision of what language (English or Arabic) to use for delivery of the sessions was left to the speaker. However, all presentation materials were in English, except for one session in which the slides were in Arabic. There were no specific eligibility criteria to attend the course. The course directors welcomed as many as the delivery platform allowed. It is worth noting that because of the very high turnout rate for the initial sessions, the directors needed to upgrade the platform membership to accommodate the higher attendance rate. The cost of the online platform was paid by the Syrian American Medical Association and all instructors were unpaid volunteers. All the sessions were recorded and later made available on YouTube.[11]

Curriculum

Two course directors contacted expatriate experts from the USA (5), UK (2) and Germany (1) to provide and

deliver the curriculum. Most of them already had prior experience in teaching EBM. The curriculum was derived from modules published in the User's Guide to the Medical Literature[12] as outlined below.

- Introduction to EBM;
- Formulating a patient, intervention, comparison, outcome (PICO) question;
- Doing literature search (parts 1 and 2);
- Methodological study designs (parts 1 and 2);
- Therapy (parts 1 and 2);
- Diagnosis (parts 1 and 2);
- Harm;
- Prognosis;
- Summarising evidence;
- Systematic reviews (parts 1 and 2).

The course comprised of 15 sessions followed by 2 critical appraisal sessions (ie, journal clubs) delivered over a 12-week period. Each session started with a clinical scenario, curricular content and ended with resolution of the same clinical scenario. The critical appraisal sessions involved an interactive group appraisal of an open access published randomised controlled trial or a systematic review article and followed the checklists produced by the Critical Appraisal Skills Program.[13]

Outcomes

We administered two short surveys, before the start and after the completion of the course to collect basic information about the attendees. These two surveys were exempt from the Institutional Review Board (IRB) review because they were anonymous and were used for the sole purpose of enhancing the content and delivery of the educational material. After the completion of the course, the students were offered to take a timed evaluation test.

The precourse survey was completed by 126 learners (table 1). Approximately a third of the learners resided inside Syria whereas the rest were Syrians who have recently left the country. Several locations across Syria arranged to attend in groups and allocated rooms with a computer, a projector and internet connection. Many others joined the sessions individually from their home, school, hospital or clinic. More than a half of the participants were medical students whereas the rest were recent medical graduates. The vast majority of participants were not specialists. The survey also assessed the perceived knowledge and skills of participants in EBM.

After each session, participants were asked to complete feedback forms of how the session was conducted and if they had any recommendations for improvement. The feedback was later made available to the instructor and course organisers and suggestions were incorporated into further sessions. Using unified feedback forms facilitated comparing participants' views of how well the sessions went.

The precourse survey (table 2) also measured the perceived understanding of EBM at baseline. We conducted a similar postcourse survey as well and it demonstrated an overall consistent increase of confidence and perceived skill over eight different domains, although the number of respondents (18) was too small for any meaningful quantitative conclusions. The evaluation test comprised of 60 multiple choice questions and included ~10% of questions derived from material not covered during the course to gauge background knowledge and impact of self-directed learning. The examination had a window of availability of 2 weeks and was delivered during a timed session lasting for a maximum of 2 hours. Only a small minority of participants completed the evaluation examination (27 learners, mean score 65% (range 33–88%)). However, all students who achieved a session-attendance rate of 70% or more (30 students) received attendance certificates signed by the course director as well as by the president of the Society.

Table 1 Characteristics of course participants who completed the precourse survey

Total=126	Number (%)
Gender	
Females	48 (39.3)
Males	74 (60.7)
Current location	
Syria	46 (36.5)
USA	33 (26.2)
Europe	9 (7.1)
Other location*	38 (30.2)
Current medical career level	
Medical school (years 1–3)	7 (5.6)
Medical school (years 4–6)	49 (38.9)
Medical graduate (MD)	55 (43.7)
Clinical subspecialty	10 (7.9)
Other	5 (4)
Clinical field/specialty	
General/none	70 (64.8)
Internal medicine	17 (15.7)
Paediatrics	6 (5.6)
Dermatology	2 (1.9)
Surgery	1 (0.9)
Laboratory medicine	1 (0.9)
Other	10 (9.3)

*Mostly neighbouring countries, such as Lebanon, Jordan, Turkey and Egypt.

Discussion

This educational activity provided EBM content to medical learners in besieged areas as well as others in Syria and around the world, using their primary language (ie, Arabic) in most sessions. Learners desire to learn EBM, as opposed to many other competing topics urgently needed in disaster areas, was surprising. Overall, this experience demonstrates feasibility of remote learning under such dire conditions. This initiative showed the potential role expatriates could play in the education and support of health professionals who remain in conflict areas. Expatriates tend to have a better understanding of the severity of the crisis and have fewer bridges to cross when delivering information.

This educational activity was not intended to have a rigorous or comparative design or to have outcome evaluation to demonstrate effectiveness. Rather, it was developed for learners who lost their medical schools

Table 2 Perceived knowledge and skills in EBM before the course

Domain	Baseline (126)
Self-perceived understanding and skills in EBM	
No previous experience	19 (15.1%)
Beginner	62 (49.2%)
Intermediate	36 (28.6%)
Advanced	9 (7.1%)
Ability to formulate PICO questions	
No previous experience	51 (40.5%)
Beginner	31 (24.6%)
Intermediate	19 (15.1%)
Advanced	25 (19.8%)
Searching in literature databases	
No previous experience	30 (23.8%)
Beginner	49 (38.9%)
Intermediate	35 (27.8%)
Advanced	12 (9.5%)
Understanding study designs	
No previous experience	33 (26.2%)
Beginner	45 (35.7%)
Intermediate	35 (27.8%)
Advanced	13 (10.3%)
Overall critical appraisal skills	
No previous experience	53 (42.1%)
Beginner	49 (38.9%)
Intermediate	18 (14.3%)
Advanced	6 (4.8%)
Evaluating risk of bias in a study	
No previous experience	58 (46%)
Beginner	42 (33.3%)
Intermediate	20 (15.9%)
Advanced	6 (4.8%)
Understanding statistical measures reported	
No previous experience	45 (35.7%)
Beginner	52 (41.3%)
Intermediate	22 (17.5%)
Advanced	7 (5.6%)
Applying evidence to patient care	
No previous experience	47 (37.3%)
Beginner	57 (45.2%)
Intermediate	15 (11.9%)
Advanced	7 (5.6%)

EBM, evidence-based medicine.

and specifically requested this topic. The described curriculum was developed very rapidly in an iterative fashion to fill a gap of knowledge in an urgent situation. Changes were made in a pragmatic way based on learners' feedback. The delivery, however, was challenged by time zone differences, language limitations and internet access issues for a few locations. In some besieged areas, they had to use several car batteries and a costly satellite internet provider to overcome the lack of electricity and cable internet. Access to paid literature databases as well as to journal full-text articles was another limitation in those areas.

Nevertheless, this experience describes an innovative way to provide educational material to areas stricken by a long-term disaster, and underscores the non-intuitive and surprising desire and need for EBM in such areas.

Contributors FA and AA-M organised the course. The authors conducted the course and spoke during the sessions. FA and MHM drafted the manuscript, and all authors revised and approved it.

Competing interests None declared.

Provenance and peer review Not commissioned; internally peer reviewed.

References

1. **Black I**. Report on Syria conflict finds 11.5% of population killed or injured. *The Guardian* 2016 Wednesday 10 February 2016 19.01 EST.
2. Syria: a health crisis too great to ignore. *Lancet* 2016;**388**:2.
3. **Devi S**. Syria's health crisis: 5 years on. *Lancet* 2016;**387**:1042–3.
4. **Alahdab F**, Albitar B, Muhiedeen K, *et al*. Field hospitals in Syria. *Lancet* 2014;**383**:303.
5. **Society**. TCfPHaHRotJHBSoPHatSAM. Syrian medical voices from the ground: the ordeal of Syria's healthcare professionals. February 2015. https://www.sams-usa.net/foundation/images/PDFs/Syrian Medical Voices from the Ground_F.pdf (accessed 11 7 2016).
6. **Rights PfH**. Anatomy of a crisis: a map of attack on health care in Syria. 2016. https://s3.amazonaws.com/PHR_syria_map/web/index.html (accessed 11 7 2016).
7. Watch. HR. ATTACKS ON HEALTH—GLOBAL REPORT. May 2015. https://www.hrw.org/sites/default/files/related_material/HHR%20Attacks%20on%20Hospitals%20brochure%200515%20LOWRES.pdf (accessed 7 Nov 2016).
8. **Alahdab F**, Omar MH, Alsakka S, *et al*. Syrians' alternative to a health care system: "field hospitals". *Avicenna J Med* 2014;**4**:51–2.
9. Syrian American Medical Association Medical Education & Training Program. 2015. https://www.sams-usa.net/foundation/index.php/what-we-do/medical-education-training (accessed 28 Oct 2016).
10. **Alghothani N**, Alghothani Y, Atassi B. Evaluation of a short-term medical mission to Syrian refugee camps in Turkey. *Avicenna J Med* 2012;**2**:84–8.
11. SAMS Evidence-Based Medicine Online Course: YouTube. 2015. https://www.youtube.com/playlist?list=PLr1yaLM_bf05TiywDfs4M1gz7n_sDSdzN (accessed 7 Nov 2016).
12. **Gordon Guyatt DR**, Maureen O Meade, Deborah J Cook. Users' guides to the medical literature: a manual for evidence-based clinical practice. 3rd edn. McGraw-Hill Medical, 2015.
13. Critical Appraisal Skills Programme (CASP). Oxford. 2014. http://www.casp-uk.net/checklists (accessed Nov 2016).

Evidence-based medicine: a persisting desire under fire

Fares Alahdab, Samer Alabed, Ahmed Al-Moujahed, Mohammad Anass Al Sallakh, Tareq Alyousef, Ubai Alsharif, Munes Fares and M Hassan Murad

Evid Based Med 2017 22: 9-11 originally published online December 13, 2016
doi: 10.1136/ebmed-2016-110608