Electronic Library of Medicine, Jordan: experience in the digital transformation and managing COVID-19 crisis

Ghaith Salameh (a) and Alice Haddadin (b)
(a) Electronic Library of Medicine, Jordan
(b) King Hussein Cancer Center, Amman, Jordan

Abstract

During COVID-19 pandemic Electronic Library of Medicine – Jordan (ELM) was on the upfront of dealing with the crisis. ELM worked on a response plan for the Digital Transformation of its online services with focus on COVID-19. The plan strategy consisted of four phases: preparation, implementation, evaluation and sustainability. The immediate management for COVID-19 pandemic was done through having a dedicated COVID-19 Knowledge Center and digitizing all training and educational sessions. An online survey for the evaluation of the impact on the Digital Transformation of library services was done. Evaluation results showed satisfactory impact. The COVID-19 pandemic was an opportunity to ELM, and it even enhanced the library services and training. Challenges concerning sustainability and accreditation of the continuing professional development need to be addressed with concerned authoritative parties within Jordan.

Key words: *digital transformation; electronic library; library; COVID-19; sustainability, Electronic Library of Medicine, Jordan.*

Introduction

The Electronic Library of Medicine – Jordan (ELM) is a program that has been launched in 2013. This program is part of a wider umbrella under the Electronic Health Solutions (EHS) national services in Jordan; where there are three other programs: Hakeem which is the national program for the automation of Health Patient Records in the public sector; Hakeem Academy which is the educational arm of EHS where the aim is to build capacity on the health informatics front and the third program is HDA (Health Data Analytics), whose objectives are big data, data analysis and data mining (1).

ELM provides the service of the medical library on a national level through its electronic library portal and to all healthcare professionals (HCP's) in all sectors: Ministry of Health, Royal Medical Services, King Hussein Cancer Center, private sector and academic sector. Currently, access to library resources and services is free of charge.

ELM was established with the aim of keeping HCP's updated on the latest information related to their clin-ical practice, with evidence-based practice as the core aspect for clinical information dissemination (2). Through the progress of the program, ELM gained further momentum by enhancing the concepts of integrating the use of the clinical decision support tools databases within the workflow of the health care providers, to support them find answers to clinical questions that arise during their practice. This also allowed ELM to be aligned with the practice of providing continuing professional development for its users (3).

In mid-March 2020, the Jordan government took stringent measures to combat the COVID-19. This started with a three months of total lockdown in country (4). After this period, there have been different measures to deal with the pandemic. All these measures disrupted public and professional aspects of society. During this period the role of virtual and electronic services has increased, hence ELM, as an electronic library, showed excellent readiness to deal with this crisis through providing "remote services, resources and support for research, innovation and public health in the current health crisis" (5).

Address for correspondence: Ghaith Salameh, Electronic Library of Medicine, Jordan.
E-mail: ghaith.salameh@ehs.com.jo.

This paper will share the experience of ELM in the digital transformation of the library training, awareness and educational sessions, in addition to how ELM managed the COVID-19 crisis.

ELM COVID-19 response plan

It is well known that the challenge the world is facing in conjunction with the pandemic is the "infodemic"; a flood of information and resources on the COVID-19, which posed a major issue to the public and HCP's (6). Hence, at ELM and by March 2020, the immediate response to COVID-19 was creating the COVID-19 Knowledge Center, with the aim of having all information related to the pandemic in one central hub and facilitate the access to all HCP's for updated information that are evidence-based, trustworthy and reliable. ELM Knowledge Center is constantly fueled with information from different content providers and with the local guidelines related to the pandemic.

With the lockdown measures, and not being able to conduct the usual – before pandemic – educational, awareness and training sessions at the different health sites, the need arose for transforming the model of knowledge dissemination digitally. This was the second pillar for the response plan. Preparing for this phase required a strong communication plan. The communication plan was the base that supported the whole process of digital transformation for training programs (7). It was also targeted, first, to policy makers, through ELM consulting committee. A committee that has representation from all health sectors within Jordan. The aim was to get approval and accreditation of the online training and awareness session with the content provided. Secondly, official communication to different health sites and stakeholders to inform them about the plan of knowledge dissemination and start arranging the roll out of the program. Thirdly, to all ELM users through emails, social media posts and other supporting communication channels.

Knowledge and digital transformation: implementation and roll out

The implementation phase started by August 2020. The roll out of the digital sessions started at key hospitals in Jordan. This was a pilot phase to prove the concept and test the process. Three sites were chosen from each health sector. Two types of sessions were

done; the training of trainers (TOT) and training of HCP's. TOT sessions were more impactful since those depended on the training coordinators at the hospital sites, these personnel can drive and advise on the proper timing and be a focal point for the ongoing communication and training. Monitoring of the process be updated and answering any request, also was part of the objective of having focal points (8).

The main video conferencing platforms that were used for delivering those sessions are Zoom and Microsoft Teams. At the beginning, technical challenges were faced, due to the lack of proper knowledge on how to deal with those platforms, and also due to change of mode for delivering the sessions from face to face into virtual (9). As the roll out of the program kicked off and more sessions and meetings were conducted online, users were more adoptable to the process and sessions went smoother.

Ongoing progress of the sessions to all users was done, reaching more sites, focusing on frontline HCP's who deal directly with COVID-19 cases. This also included having more flexible timing for sessions to suit all requirements of users. A regular weekly session was announced. Collaboration for sessions were done through having trainers from content providers, academia and medical librarians, ongoing communication on COVID-19 knowledge center updates, sessions and latest information.

During this roll out, research has proved that comorbidities and older population were a major challenge for treating COVID-19 patients (10). ELM in collaboration with medical content providers and the National Epidemiologic Committee introduced the treatment algorithm and comorbidities tool. This was an important milestone in digitally transforming part of the clinical pathways of treatment. Integration of this clinical decision support tool with the National Electronic Health Record Hakeem (EHR) was tested successfully, but no further implementation was done due to security and technical challenges, in a time when a lot of other higher priority projects were in the pipeline (11).

In order to check results and impact on users, and if ELM was able to achieve and be an integral part in the COVID-19 crisis management, ELM committee recommended to conduct an evaluation for the digital transformation program and check impact.

Evaluation and impact: managing the crisis

For the purpose of evaluating the impact of the COVID-19 crisis management and the digital transformation of ELM services, sessions and tools, ELM conducted an online survey through Google forms. The survey was shared with HCP's who attended the awareness and training sessions. It consisted of 10 questions covering different aspects of ELM library services. It was simple easy questions with Yes or No answers, to facilitate gathering feedback. *Table 1* shows these questions and the results received from participants.

Questions (N = 500)	Yes	No
1 Were the online training sessions beneficial?	480	20
2 Were timing proposed for these sessions' suitable timings?	452	48
3 Did you use the content of the training in your practice?	463	37
4 Did you collect Continuing Professional Development (CPD) credits from the Knowledge Center?	132	368
5 Would you attend other online sessions if expanded to other treatment and care plan options?	484	16
6 Did you use the COVID-19 Knowledge Center?	420	80
7 Did you use the comorbidities treatment algorithm option?	383	117
8 Did you attend any other training online for the updates on COVID-19?	478	22
9 Did attending the online sessions and using the COVID-19 knowledge center have an impact on your practice?	491	9
10 Was (ELM-Jordan) library successful in delivering messages?	480	20

Table. 1. *Online survey questions and feedback received from participants.*

As shown in Table 1 the total number of participants in these surveys were 500. The results collection ex- cluded any uncompleted or unanswered survey. The survey was shared with participants attending online sessions for the period from December 2020 to March 2021. No criteria for selection was mandated, the only condition was that a participant had attended one on- line session.

Figure 1 shows the results from these online surveys. Results show excellent impact. At the beginning of the roll out, it was challenging and unexpected that users would easily adopt new ways and forms of receiving knowledge. Overall users were satisfied with the online sessions, the content was also relevant to their practice. Most users used the COVID-19 Knowledge Center on ELM, and mostly agreed that the library was successful in delivering the messages. The one question that was with least satisfaction was related to the CPD, but an explanation for this is that Jordan is still in the early stages of implementing the CPD program in health sector. According to Younes et al. (12) "participating in CPD activities in Jordan is compromised by lack of mandatory laws and barriers related to staff shortage, heavy workload, limited funds, lack of time, and cost". There are limitations for the data used in this survey mainly due to the selection criteria, lack of other mea- sures such as a section for notes to provide further feedback on the provided services. No collection for specific parameters such as the profession were col- lected, but the whole purpose was to measure satisfac- tion of users in order to present it to stakeholders.
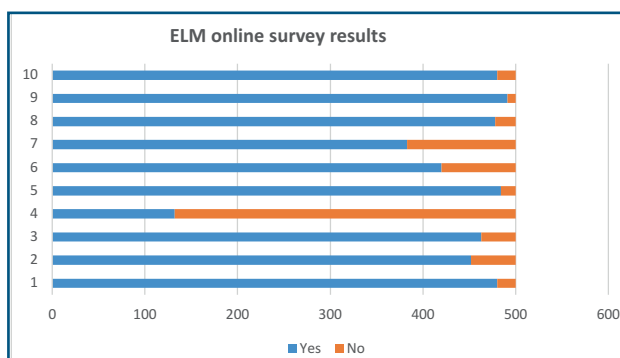
Fig. 1. *Results from the online survey conducted by ELM.*

In addition to the online survey, feedback data was col- lected through a face to face questionnaire from physi- cians at the King Hussein Cancer Center. It was not included in these results. Mainly, physicians there felt more supported through the digital transformation of

services, with their busy schedule, and they believe that it provides a more flexible way of updating them with library services better than before.

Future perspectives and recommendations

Results and feedback from users on how ELM managed the COVID-19 crisis with the digital transformation of the services related to COVID-19 were satisfactory. Surprisingly, HCP's were more flexible and adopted the usage of online library services beyond than expected. This allowed ELM to start adopting a different approach on how to provide digital services to its users (13).

Apart from COVID-19 knowledge center sessions, ELM started sessions on the different library topics such as: how to conduct PubMed and NLM search, how to reference, retrieving data from clinical decision support tools and many others. ELM also started collaborations with regional librarians to conduct sessions online and share the experience of their institutions. Expanding those services and collaborating with regional and global organizations would add an extra layer of depth to users of ELM.

According to Frick et al. (14) and to "avoid being caught unprepared by future crises, digital transformation must be further driven to ensure collaboration".

Now, since lockdown measures are easing, a blended approach for sessions is recommended, in fact, depending only on online services may limit proper interaction and communication. Using a blended approach is much recommended for any health related services (15).

Updating knowledge center with other related topics and having a more interactive approach to knowledge management is also recommended. This will support all HCP's fight "infodemic" (16). This new way of digital communication will support in building better health literacy among the public too.

As with other middle- and lower-income countries, the major challenge for ELM is the budget, due to the economic hardship that Jordan economy is facing. Building a more robust and sustainable model is needed.

The digital transformation of the library work has voiced out the knowledge and spread communication easier than physical communication. Surprisingly, users have been interacting more and benefiting more than

before which is a great opportunity for ELM to expand its services and enhance patient care all across Jordan. Achieving a more sustainable model is key; this can be reached through collaborations and partnerships with other local, regional and international organizations, as well as start approaching users with fee paid services that can be provided by the library (17).

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