Developing and Piloting Electronic Continuing Professional Development for Medical Doctors in Rural and Remote Areas of Indonesia

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Abstract

The biggest challenge facing Indonesia's health system is the distribution and retention of human resources, including doctors. Electronic Continuing Professional Development (e-CPD) is one such effort to provide qualified doctors. In this article, we describe the development and piloting of e-CPD for doctors, focusing on those in rural and remote areas. The development of e-CPD was based on ADDIE frameworks: (1) analysis of needs and demands, (2) designing the module, (3) developing the system, (4) implementation and piloting, and (5) program evaluation.

A mixed-methods approach was applied. Qualitative research was performed with focus group discussion (FGD) to identify the needs and demands of e-CPD and determine the content. The FGD participants were medical doctors working in remote and rural areas. For the pilot project, the participants were 46 doctors, selected by total sampling.

Phase 1 addressed learner characteristics, need or problem statements, and task analysis. In Phase 2, experts in family medicine and public health drafted the e-CPD content and converted it to an online module. A three-month online module was implemented with 46 participants from rural areas. The results showed that Continuing Professional Development (CPD) benefits learners if the content is acceptable, feasible, and based on real health problems.

Introduction

Health systems are created to produce and deliver quality health services.[1] The quality of health systems affects the patients' health status. The components of a national health system include health workers, health facilities, health technologies, health financing, information, and leadership and governance. A good health system includes competent health workers with adequate numbers, distribution, and retention. Qualified health workers have a close association with the health outcomes of a country by improving quality and access to essential health services.[2–4]

Recently, the number of medical doctors in Indonesia has been increasing. Most doctors (57.4%) are located in the islands of Java and Bali, serving 36.7% of the population. The lowest percentage (4.6%) is located in the eastern part of Indonesia (East Nusa Tenggara, Maluku, and Papua).[5] In order to improve the distribution of health workers in the eastern areas, particularly rural and remote areas, governmental policies and actions are needed.[4,6] The World Health Organization launched an intervention aimed at strengthening the retention of health workers in rural and remote areas by improving education, regulations, financial incentives, and personal and professional support.[3] Previous studies suggested that strategies to improve retention are attention to living environments and working conditions as well as development opportunities.[2,6] Development opportunities can be provided through Continuing Professional Development (CPD) to facilitate heath workers' update of their knowledge and skills, particularly in remote areas.[3]

For health workers who cannot attend regular CPD owing to barriers related to time, access, and transportation, CPD can be offered through distance learning. Distance learning is

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performed remotely using various electronic media and communication platforms. It includes various topics that students can access online anytime and anywhere.[7,8] In this article, we describe the process of developing and piloting Electronic Continuing Professional Development (e-CPD) for medical doctors who work in rural and remote areas and are able to access online materials using a computer or a mobile device.

Materials and methods

Development of e-CPD

This was a research and development study using a mixed-methods approach. The development of e-CPD was based on ADDIE frameworks: (1) analysis of needs and demands, (2) designing the module, (3) developing the system, (4) implementation and piloting, and (5) program evaluation.[9]

Qualitative research was performed with focus group discussion (FGD) to identify the needs and demands of e-CPD and determine the content. The FGD participants were medical doctors who worked for professional organizations, the Ministry of Health, and District Health offices in rural and remote areas. The outputs derived from this phase were the identification of learner characteristics, problem statements, and needs and task analysis. An expert panel was formed in order to determine the content of e-CPD and the required resources. District Health office staff and experts in community and family medicine were invited to join the expert panel session.

The researchers collaborated with an information technology (IT) team to develop the system, which included a storyboard and courseware.

Setting, participants, and pilot study design

The pilot study was conducted in the southern part of West Java Province, which covers 10 subdistricts. There were 46 medical doctors from 10 districts who were invited to participate in the study after an explanatory meeting about the research, and all volunteered to join. Most of them (65%) were females and have been in the practice for more than five years (55%). The pilot study ran for three months. The data were collected and analyzed for quality improvement purposes.

Results

Analysis of the need and demand

The FGD revealed the need and demand for e-CPD. Some issues addressed in this process were learner characteristics, need or problem statements, and task analysis. Several problems and needs were identified, such as (1) the most common diseases, which are respiratory infections, diarrhea, hypertension, diabetes mellitus, and malnutrition; (2) willingness to attend the seminar or conference; (3) geographical access; and (4) strategies to increase the retention of medical doctors.

There were interest and expectations from professional organizations and District Health offices to use e-CPD and offer accredited Continuing Medical Education (CME) for medical doctors, particularly those who had limited access to seminars or conferences. Stakeholders in FGD recognized the demand for health workers to maintain and update their professional competencies.

Designing the module

In the design phase, the expert panel discussed the measurable objectives, instructional strategies, and specifications for e-CPD. The e-CPD content was drafted by experts in family medicine and public health. Comments and feedback from reviewers were addressed. The final revision of the module was adapted to online education resources.

The objective of the module is to provide health workers with skills in holistic and comprehensive approaches in order to manage the top five diseases in primary healthcare. There were 14 sessions covering eight topics. The chosen delivery method consists of self-paced courses that focus on various concepts. The module provides materials, PowerPoint presentations, assessment tools, and references for learners. Learners have to complete activities and assignments every week, with the freedom to schedule study sessions anytime during that week.

Developing the system

The outputs from this phase were a storyboard, a script, and e-content package instructions. There are three domains in the online module, which are the objective, the schedule and topics, and the learner's account. Figures 1–3 show the webpages for each domain.

Figure 1. Front page of an e-CPD course (in Bahasa).

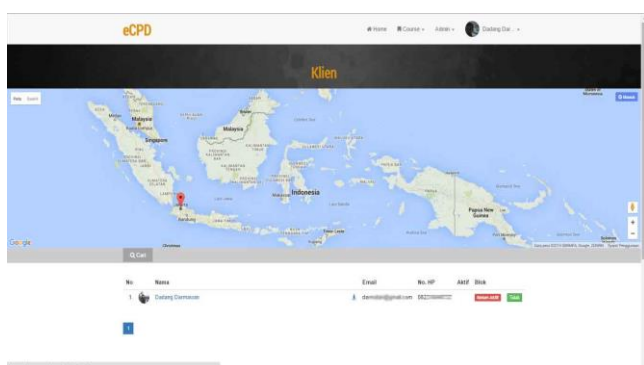**Figure 2.** Webpage showing the e-CPD courses (in Bahasa).

Figure 3. Example page showing a learner's account information (in Bahasa).

The trial for the online model was conducted with 10 medical doctors from different subdistricts where the pilot study was implemented. Feedback was addressed, and the online model was implemented after the team's approval.

Implementation and piloting

e-CPD for medical doctors was implemented over a three-month period. There were two steps in the implementation: (1) recruiting doctors from the southern part of West Java Province and (2) piloting the project over a three-month period with medical doctors from 10 subdistricts in West Java Province.

Discussion

In the current era, IT plays an important role in healthcare as it leads to improved diagnoses and patient management.[10] Good training for medical doctors is essential to sustain the workforce and facilitate effective knowledge sharing. Online training provides benefits to reduce professional and structural isolation.[11]

Before implementing e-CPD, it is necessary to prepare the process effectively, and this requires a comprehensive assessment of the main components of e-learning and medical education in general.[12] Situation analysis needs to be performed, as it is the foundation for the next stage. At this stage, the team must identify problems and possible solutions. In this study, we found several problems in the remote and rural areas, such as the doctors' inability to attend educational or professional development events because of geographical barriers. This issue was a factor that influenced their preference for working in remote and rural areas. A previous study in Indonesia, in which medical students' preferences concerning rural practice were investigated, showed that opportunities for career development made the students less willing to work in rural areas.[13] Online training such as e-CPD provides opportunities for career advancement and is effective for training healthcare professionals [14], especially those working in remote and rural areas.

The e-CPD in this study provides various teaching–learning modalities such as PowerPoint presentations, handouts, cases, and references to facilitate learners' utilization of the system. Various modalities and technical devices to support the lectures will contribute to the program's success.[12] In order to make the e-CPD more interactive, improvements should be made on the basis of learners' inputs. In addition, several articles suggest that e-learning should be enhanced by face-to-face interactive lectures in a blended learning approach.[12,15]

Moreover, course developers should consider the features that are beneficial for knowledge and skill acquisition and engage learners in the use of technology.[7,15] The e-CPD in this study was developed in such a way that would make it easy for learners to register, utilize the system, follow the lectures, and complete the tasks. To this end, the system has a simple form and is written in Indonesian. In a previous study, it was found that social media platforms have become acceptable and sustainable media for CPD [16], and this may hold suggestions for future improvements to e-CPD.

The implementation started with the dissemination of the program's objective, knowledge of how to use the system, and a time frame. Learners completed the course in three months. In order to determine whether the program is running well, an evaluation of e-CPD should be performed regularly to identify the benefits and barriers in using the system. However, the evaluation process is beyond the scope of this study.

Conclusions

e-CPD for medical doctors should be implemented on the basis of real problems, situations, and participants' needs. Further work is needed to evaluate and maintain the program with greater advocacy and collaboration among stakeholders.

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Declaration of Interest

The authors report no conflict of interest.

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