

Point-of-Care Clinical Decision Support Software Impacts Medical Education in Public Hospitals in Lima, Peru

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BACKGROUND

Medical knowledge grows at an exponential rate, doubling every few months and expanding faster than our ability to assimilate and apply it effectively. Textbooks can no longer keep up with the pace at which new scientific evidence is published, and increasingly electronic resources are available to permit searchable, multimedia presentations of the latest medical evidence. Lack of access to the most current research and updated guidelines limits the practice of evidence-based medicine. KidsCareEverywhere (KCE) is a California-based non-governmental organization that donates DynaMed Plus (DMP), an electronic clinical reference tool, to healthcare professionals in resource-limited settings to bridge these gaps. DMP is gifted to KCE for donation in low income geographical areas by EBSCO Health, Ipswich, MA.

DMP is a virtual clinical reference library accessible through an internet-based desktop portal and a smartphone mobile application (app) that does not require web access for use after the initial download. The software is designed as a point-of-care medical resource for pediatric and adult medicine across all practice specialties. Its vast medical knowledge base includes overviews and guidelines, medical calculators, graphics and images, drug formulary, and precise search capability. DMP is updated daily with new medical information, with links to primary sources to further guide diagnosis and management.



OBJECTIVE

The purpose of this study was to assess the role of point-of-care clinical decision support software for patient care, teaching and education in public hospitals in Lima, Peru.



KCE team with healthcare providers after a training session at Hospital Nacional Arzobispo Loayza in Lima, Peru

METHODS

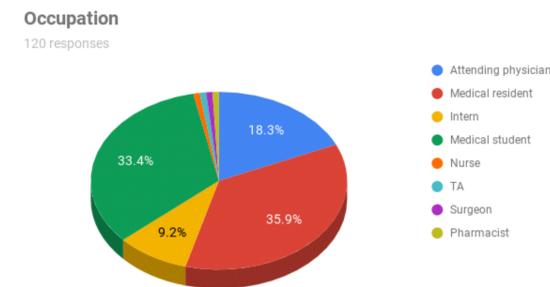
In August 2018, KCE trained 458 health professionals at 3 public hospitals and 2 medical schools in Lima, Peru to use DMP, providing a tutorial in Spanish to highlight special features of web access and the mobile app. Trainees completed initial surveys to query their baseline familiarity with medical information software, comfort levels with electronic medical knowledge acquisition, and routine practices for answering clinical questions. A one-month follow-up survey, distributed by email, received 120 responses from which DMP's impact on clinical care, medical teaching, and medical learning was assessed.



Peruvian healthcare providers learning to use the DMP mobile app

RESULTS

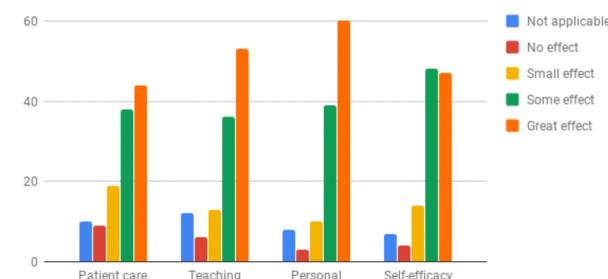
- On initial survey, 91% of respondents were already familiar with some kind of electronic medical software, 82% felt comfortable using computers or smartphones, and 81% felt comfortable understanding written English



At one-month follow-up,

- 62% reported using web-based DMP at least weekly
- 80% used the mobile app at least weekly inside the hospital
- 78% used the app at least weekly outside of the hospital
- 87% said the app was easy to use
- 93% said using the app improved patient care

Now that you have used DMP for one month, how do you think the software affects the following?



DISCUSSION

Physician access to computers, internet, and mobile phones is nearly ubiquitous. Spanish-speaking Peruvian medical providers feel that electronic medical software is easy to use and improves clinical care. Most clinicians prefer the mobile app over the web-based platform, but both were quickly adopted into regular practice, especially among those still in medical training. Although limitations of this study include self-report and response bias, the preliminary data show that access to a web-based and mobile app-based medical reference tool not only improves patient care, but also enhances physicians' attitudes toward teaching medicine, continuing personal learning, and self-efficacy.



Mother and child at Instituto Nacional de Salud del Niño in Lima, Peru

CONCLUSIONS

Access to on-demand, point-of-care medical decision support software is pivotal for quality patient care in the current age of medicine. Future projects to provide such technology should target populations still in training, such as medical schools and residency programs, to further assess impact on evidence-based medical education.