

PROJECT REPORT

Using information and communication technology to revitalise continuing professional development for rural health professionals: evidence from a pilot project

JF Mugisha

Uganda Martyrs University, Kampala, Uganda

Submitted: 26 April 2009; Revised: 29 July 2009; Published: 4 November 2009

Mugisha JF

Using information and communication technology to revitalise continuing professional development for rural health professionals: evidence from a pilot project
Rural and Remote Health 9: 1222. (Online), 2009

Available from: <http://www.rrh.org.au>

ABSTRACT

This project revitalised continuing professional development (CPD) among rural health professionals in Uganda, Africa, using information and communication technology (ICT). The project was piloted in 3 rural hospitals where CPD activities were failing to meet demand because activities were not properly coordinated, the meetings were too infrequent, the delivery methods were inappropriate, and the content was highly supply-driven and generally irrelevant to the performance needs of the health workers. The project intervention involved the installation of various ICT equipment including computers, liquid crystal display (LCD) projectors, office copiers, printers, spiral binders and CDs. A number of health workers were also trained in ICT use. Three years later, an evaluation study was conducted using interviews, focus group discussions and document review. The results indicated that there had been a rapid increase in the number of staff attending the CPD sessions, an increased staff mix among participants, improved quality of CPD presentations, increased use of locally produced content, more relevant topics discussed and an increased interest by hospital management in CPD, manifested by commitment of staff training funds. Staff motivation, attitude and responsiveness to clients had also improved as a result of the invigorated CPD activities.

Key words: continuing professional development, information and communication technology, staff development.



Introduction

Continuing professional development (CPD) is an instrument for updating and expanding professional knowledge, skills and competencies to enhance performance¹⁻³. Reasons for employees undertaking CPD include: maintaining up-to-date professional knowledge and experience; for career advancement; to meet requirements for annual professional licensure; and to improve organisational performance⁴. Continuing professional development is also necessary because health professionals face constant socio-political and epidemiological change and challenges in their work⁵. The meaning of the term CPD varies among professions. In the health sector, CPD encompasses all professional learning by healthcare providers after basic or pre-service training⁶. It should be systematic, with the aim of improving the technical capacity of health professionals in their multifaceted functioning⁷.

Most health professionals in Ugandan rural and remote health units are underserved in terms of CPD. They lack institutional libraries and access to medical journals due to geographical, economic and technological isolation. They do not have the personal resources to acquire up-to-date information. This situation is compounded by a heavy workload due to understaffing in most rural health facilities. It is therefore difficult for such staff to fulfil the professional requirements of annual licensure, which requires proof of undertaking CPD. It also compromises quality of care. For these reasons health professionals may be discouraged from working in a rural setting. However this article shows how information and communication technology (ICT) was used in Uganda to rejuvenate CPD in a rural setting, transforming rural health facilities into enviable workplaces due to the learning and benefits this provided.

Information and communication technology broadly refers to all technologies that facilitate communication and the processing and transmission of information by electronic

means, including radio, television, telephone, computers, CD-ROMs and the internet^{8,9}.

The project

Background information

Under the auspices of International Institute for Communications and Development (IICD), the Faculty of Health Sciences (FHS) at Uganda Martyrs University designed a project to revitalise CPD among rural health professionals through the use of ICT. The project was piloted between 2005 and 2008 in 3 rural hospitals: Nkozi in Mpigi District (100 beds); Mutolere in Kisoro District (210 beds); and Itojo in Ntungamo District (108 beds). Nkozi and Mutolere are Catholic Church founded hospitals, while Itojo is a public hospital. All are located in a rural setting and isolated geographically and technologically.

This project was a response to identified shortfalls in the health sector in general, but particularly in CPD in East and Central Africa, in forums that included the WHO meeting in Ethiopia¹⁰ and regional conferences on the use of ICT in continuing medical education in Moshi, Tanzania¹¹, and Kampala, Uganda in 2002. At these meetings CPD was observed to be critical to improving the quality of healthcare; however, presentations and workshop-based approaches to CPD delivery were costly, inefficient, poorly coordinated, supply driven and irrelevant to the needs of the rural health workers. In addition, incentives to and the motivations of rural health workers participating in CPD were queried¹¹.

The role of information and communication technology

This project reflects the role of ICT in bringing information resources to rural health workers in their work place, providing opportunities for interactive communication and networking, and assisting in the generation of health



information suited to local situations by bringing current ideas from the world-over to a rural setting¹²⁻¹⁵.

Goal and objectives

The overall aim of the project was to use ICT to stimulate CPD activities among rural health workers. In particular, the project sought to:

- promote the use of ICT and multi-media for the development of CPD in the pilot hospitals
- improve the availability of CPD materials and information in the participating hospitals
- promote utilization of CPD by health staff for increased knowledge and skills through the use of ICT
- create capacity among rural health professionals to determine their own CPD needs, and to search for and repackage relevant materials to suit their specific needs.

The state of continuing professional development in the hospitals before the project

The project commenced with a needs assessment using a semi-structured questionnaire administered to health workers. This established CPD needs in the 3 hospitals, clarified problems that needed to be addressed, identified ICT-related learning initiatives already in use, and explored how ICT could contribute to more effective professional development.

The CPD activities of the 3 hospitals were found to be inadequate. A workshop approach dominated the mode of CPD delivery but this was costly and inefficient. Staff attendance disrupted hospital activities, exacerbating understaffing. The CPD activities were poorly coordinated, supply driven and often irrelevant to the immediate performance needs of rural health professionals. Several respondents to the baseline survey mentioned attending training courses that were irrelevant to their work setting (JF Mugisha, pers.data, 2005).

The ICT infrastructure was found to be inadequate for production and delivery of CPD material. Each hospital had two computers that were located in the managers' offices and used only for administrative work. The hospitals lacked sufficient materials for CPD.

The CPD meetings were infrequent and staff participation was irregular. The subjects discussed depended on staff volunteering to make a presentation. The CPD activities were not recorded in detail and this made quality evaluation and improvement difficult. Most participants were junior, with senior staff uninvolved. Most survey respondents reported that the topics discussed did not match their immediate knowledge and skill requirements for patient care. This lack of needs assessment reduced the CPD meetings to scheduled 'talking clubs' which were nominally compulsory but low in attendance.

This situation had an indirect negative impact on the quality of care provided. For instance bed occupancy in the 3 hospitals was 23%, 56% and 70%, with an average length of stay of 7 days, 4 days and 5 days, respectively (JF Mugisha, pers.data, 2005). The low occupancy rate of the first two hospitals demonstrates inefficient use of resources due to patients rejecting health facilities offering poor quality services. This is also so for the average lengths of stay in hospitals where malaria and diarrhea are the major causes of morbidity.

Project interventions

The project was effectively implemented using a three-pronged approach to revitalising CPD activities in the hospitals: (i) providing ICT equipment; (ii) training the hospital staff in basic ICT skills; and (iii) re-organising the CPD system at the hospital level. These interventions were implemented in a series of chronological steps:

1. Establishing a project structure which included:
 - a project steering committee with representatives from the Ministry of Health, professional health councils, the Catholic



Medical Bureau and the FHS, Uganda Martyrs University. This was the project's policy-making body that approved project activities, work-plans and reports.

- a project implementation team (PIT) at the FHS responsible for policy implementation. This involved searching for CPD materials, and repackaging and distributing them to the rural hospitals. The PIT also managed the project, trained hospital staff and assisted hospitals in completing CPD needs assessments.
 - a hospital-level PIT was responsible for oversight of hospital CPD activities.
2. Signing a memoranda of understanding between the FHS and the 3 hospitals whereby the hospitals would release staff for training and provide safe custody and servicing of the ICT equipment.
 3. Conversion of hospital CPD committees into PITs. Unlike traditional CPD committees, the PITs were accountable for mobilizing staff for CPD, assessing needs, distributing CPD materials, supervising the use of CPD resources, ensuring the safety of resource centres and keeping records of CPD activities. After training in basic ICT use they were also to train others.
 4. Visiting of the hospitals by members of the project steering committee to publicise the project to staff and brief them about their roles, in order to assist rural health workers organise CPD to meet the criteria for annual professional licensure and accreditation.
 5. Installation of ICT equipment. Every hospital was given 5 desktop computers, 1 laptop computer, 2 printers, 1 office photocopier, 1 liquid crystal display (LCD) projector, 1 digital camera, 1 spiral binder, several rewritable CDs, computer tables and seats, spare cartridges, papers and memory sticks etc.
 6. Training of hospital staff in the use of ICT for CPD. Hospital PITs were trained first and they trained their hospital colleagues. The skills provided

included finding information on the internet, making Power Point presentations, performing learning needs assessments, reading electronic information stored on CDs and preparing CPD materials.

7. Equipping the hospitals with reference materials such as text books in order to produce quality electronic materials for distribution, and as a back-up materials.
8. Visiting of the hospitals by ICT and CPD experts quarterly to support supervision by the FHS.

Impact of the project on continuing professional development

The project was evaluated after a 3 year period using focus group discussions, observation and records analysis. There was evidence that the CPD activities in these rural hospitals had improved as a result of the project intervention, in the dimensions of staff participation, quality and relevance, and according to other measures.

Increased staff participation in the CPD meetings: The hospitals were now holding weekly CPD sessions and staff participation had improved from an average of 35% to 80%. The staff mix of attendees included doctors and senior nurses who participated actively in both presentations and discussions.

Development of cadre-specific sessions: Increased staff participation changed the mode of CPD delivery from group sessions to tailored CPD discussion groups for different categories of staff, accommodating the differing staff needs of various departments.

Improved quality of CPD presentations: The use of ICT made it possible to archive all presentations, including the discussion that followed. An evaluation of presentations' design, content and relevance established improvement over time. The electronic record keeping also facilitated learning from mistakes.



Improved relevance of the CPD topics: The majority of CPD topics were relevant to the immediate needs of hospital staff. This improvement had been achieved by needs assessments (staff surveys) and the selection of relevant topics.

Increased availability of CPD materials: The project led to increased accumulation of electronic materials from the internet, and the use of electronic libraries on CD. Health workers were stimulated to search for internet references from textbooks, creating a positive reading culture.

Ability to produce local CPD content: ICT equipment such as digital cameras and internet-facilitated generation of local CPD content resulted in providing information relevant to staff needs. For instance, images from local patients' skin infections could be discussed and improvement due to certain interventions demonstrated.

Early involvement of other hospitals: Even before the pilot phase concluded, other hospitals invited PITs to teach CPD needs assessment, monitoring and evaluation, leading to demand-driven changes in CPD management beyond the project precincts.

Information sharing: Access to the internet made it possible for rural health staff to keep abreast of current and emerging trends in health problems and management. Pictorial records of unique cases were shared with colleagues elsewhere, improving service delivery and facilitating quality care in various hospitals.

Recognition of rural hospitals as learning centres: The project created new elements in the relationships among rural hospitals and districts. Districts health staff who once visited hospitals as CPD providers were now attending to learn.

Other benefits from the project

Although the project targeted the impact of a rejuvenated CPD program on improving the capacity of health workers,

some other indirect benefits impacted positively on the quality of care.

Improved motivation: Improved motivation was observed by hospital managers among the staff who were trained in basic ICT applications (generally over 60%). Proxy indicators of increased staff motivation included improved punctuality, willingness to attend for unscheduled shifts and readiness to work overtime.

Acquisition of personal ICT equipment: The acquisition of personal ICT equipment (especially computers, CD-ROMs, memory sticks and digital cameras) by health workers increased due to the training they received. This equipment assisted self-directed learning, and health workers use their mobile telephones for tele-consultation with senior colleagues.

Conclusion

Lessons learned

After the pilot phase of this project a number of positive lessons were apparent:

- ICT has the capacity to stimulate CPD for health workers through use of interactive technology.
- ICT can bridge the gap between the urban- and rural-based health facilities through information access and sharing, and this assists in health worker retention in rural health facilities.
- The application of ICT must be accompanied by prudent management to produce good results.
- For success and sustainability all stakeholders must be involved. For instance, the participant hospitals now make budgetary provision for maintaining the ICT equipment because the Ministry of Health was involved.

In conclusion, this project has demonstrated that ICT can play a vital role in stimulating CPD activities in rural and



remote health facilities. It has shown that a rejuvenated CPD program can increase information access and sharing; and employee motivation and retention which indirectly improves the quality of care. However, the application of ICT must be combined with good planning, training, monitoring and continuous support in order to achieve these positive outcomes.

Acknowledgements

The project evaluation leading to this report was facilitated by the Faculty of Health Sciences of Uganda Martyrs University, with funding from the International Institute for Communications and Development (IICD).

References

1. CIPD. *Performance management, an overview*. (Online) 2006. Available: <http://www.cipd.co.uk/subjects/perfmangmt/general/perfman.htm> (Accessed 10 January 2007).
2. Levine HG, Moore DE, Pennington HC. Continuing education for health professionals: developing, managing and evaluating for maximum impact on patient care. In: JS Green (Ed.). *Evaluating continuing education outcomes*. San Francisco, CA: Jossey Bass, 1984.
3. Richards T. Continuing medical education. *BMJ* 1998; **246**: 316-246.
4. Megginson D, Whitaker V. *Continuing professional development*, 2nd edn. London: Chartered Institute of Personnel and Development, 2007.
5. Cervero, R. Place matters in physician practice and learning. *Journal of Continuing Education for Health Professionals* 2003; **23(Suppl1)**: S10-S18.
6. Pakenham-Walsh N. Discussion paper. *Regional conference on Information and Communication Technologies and continuing medical education in East and Central Africa*; 8-10 April 2003; Moshi, Tanzania; 2003.
7. Jaafar R. Continuing professional development: roles of the individual lecturer and the institution. *Malaysian Journal of Medical Sciences* 2006; **13(1)**: 1-2.
8. BBC. *ICT coach*. (Online) 2008. Available: <http://www.bbc.co.uk/ictcoach/kb/alanclarke.shtml> (Accessed 10 March 2008).
9. Kent CC. *What is ICT?* (Online) 2004. Available: <http://www.kented.org.uk/ngfl/ict/definition.htm> (20 December 2007).
10. WHO and World Bank. *Building strategic partnerships in education and health in Africa. Report of a consultative meeting held in Ethiopia*. Brazzaville: WHO and World Bank, 2002.
11. CEDHA/CORDAID/IICD. *Report on Continuing Medical Education for East and Central Africa Conference*, 8-10 April 2003; Moshi, Tanzania; 2003.
12. Cervero RM. Trends and issues in continuing professional education. In: V Mott, B Daley (Eds). *Charting a course for continuing professional education: reframing professional practice*. New Directions in Adult and Continuing Education Series, no. 86. San Francisco, CA: Jossey Bass, 2000.
13. Cervero R. Continuing professional education in transition, 1981-2000. *International Journal of Lifelong Education* 2001; **20(1)**: 16-30.
14. Ely JW, Osheroff JA, Ferguson KJ, Chambliss ML, Vinson DC, Moore JL. Lifelong self-directed learning using a computer database of clinical questions. *Journal of Family Practice* 1997; **45(5)**: 382-388.
15. Shahabudin SH. Life-long learning and continuing education. Assessing their contribution to individual and organisational performance. *Studies in Health Service Organisation and Policy* 2003; **21**: 347-374.

