Adaptation of a Computerized Patient Simulator for Continuous Medical Education of Isolated Care Professionals in Sub-Saharan Africa

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Objective

The aim of this study is to explore the feasibility of using a computerized patient simulator as a tool for continuous medical education and decision support for health professionals in district hospitals in Sub-Saharan Africa.

Keywords:

Computerized patient simulator, Telemedicine, Clinical reasoning, Capacity building, Isolated healthcare professionals, Africa.

Materials and Methods

Based on diagnosis pathways and decision analysis tools developed for improving skills of general practitioners in Switzerland, interactive clinical vignettes are developed using a computerized patient simulator (VIPS©, Virtual Internet Patient Simulation, http://www.swissvips.ch) taking into consideration the clinical problems encountered in the field. This computerized patient simulator presents patients and a query-reply interface simulating the various aspects of a consultation, including history, physical examination, laboratory tests, clinical investigations, and recording of various decisions. VIPS© serves as tool to test and train clinical reasoning. It is built as a Web application, accessible via the internet through a Java applet.

Adapting to the context of the study

Care professionals working in district hospitals in Africa are the key target audience of this study. This prospective pilot study is conducted in district hospitals of two members of the RAFT (Réseau en Afrique Francophone pour la Télémedecine, http://raft.hcuge.ch) network.

To carry out this study, we initially impregnated with clinical reasoning and medical decisions concepts taking into consideration the socio-cultural background of the health district environment. Discussing with experts and health professionals in the fields permitted to identify a number of problems which can be translated into patient simulation vignettes. These field data collected has enabled the configuration of the VIPS© database taking into consideration the local environment realities and resulted, the creation of an adapted context for simulating the clinical practice in a district hospital.

For each of these clinical situations, we associated international and local experts in that domain. Each group had to define the educational objectives, produce relevant clinical vignettes leading to clinical reasoning by associating the strength of this argument with existing literature, evidence based guidelines available, critical review articles, interviews with the local experts and multimedia teaching materials needed.

After this initial validation, each clinical vignette was introduced into the VIPS© program.

Within the next months, the study will validate the relevance and usability of these vignettes with local care professionals.

Expected results and discussion

We expect that the deployment of this tool in district hospitals and regular distance-education sessions of RAFT network will lead to an improvement of decision-making abilities of care professionals. It will also support the deployment of innovative diagnostic tools in these areas, such as portable ultrasonography and microscopy.

An improved ability for clinical reasoning and decision-making in isolated contexts should lead to the optimization of the use of clinical data in decision-making, the reduction of the misuse of diagnostic tests, improve the pertinence of drug prescription, and optimize the management of medical decisions such as evacuation.

A study assessing the impact of the computerized patient simulator VIPS© on diagnostic and decisional processes of health professionals in the care of patients will follow this work.

However, we could be confronted to some difficulties related to the African context, including limitations in the connectivity to the internet, but also the fact that the perception of this kind of pedagogy is still unfamiliar to many health professionals.

Thus, sufficient training and appropriation of these tools and concepts by health professionals, both at the local and the academic level are seen keys for the success of this project.

Conclusion

The computerized patient simulator (VIPS ©) is complementary to other methods of continuous medical training of health professionals. Its usefulness has been demonstrated in the developed world. Adaptation of the concept to address issues encountered in the isolated setting of district hospitals in Sub-Saharan Africa is possible. Impact on practices is the ultimate goal of this project and will require further evaluations.

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