Evaluation of innovative health IT applications: importance of usability studies in hospital settings

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Abstract and Objective

This poster addresses the problem of the necessary evaluation of innovative Information Technology applications to ensure their safe transfer to the actual care providing environment. It focuses more specifically on the usability dimensions of such an evaluation. It describes at a national institutional level the installation of new centers for innovative technologies in charge of designing and applying proper evaluation methodologies to health IT applications.

Keywords:

Usability, Medical informatics applications, Evaluation, Certification

Introduction

In most developed countries, the continuous improvement of healthcare systems is highly correlated with the integration of innovative technologies such as Information Technologies (Health IT). Some certification procedures of these products exist like those required by the CE marking. These procedures address safety aspects and respect of norms and standards, but they do not ensure the clinical benefit for the patient, neither the usability for the professionals. As a consequence, some innovations that are very promising at the research level end up useless or unusable when proposed to clinicians and patients or when actually integrated in the healthcare workflow. Health authorities have identified a missing step of "translational research" that would ensure an efficient transfer of innovative technologies from the field of research to that of actual care production. Evaluation of technological innovations in the healthcare setting is a mandatory part of this translational research, but it also proves challenging.

Methods

In France, to address this issue, the Ministry of Health and the National Agency for Research in Medicine (INSERM) have installed new "Innovative Technologies" centers attached to existing Clinical Research Centers (CRC). Eight CRC-IT (in short, CIT) have been accredited in different technological domains. They are in charge of designing and developing new methodologies and methods for the technical, pre-clinical and clinical evaluation of innovative technologies for healthcare. Blind RCTs are rarely applicable to innovative technologies and the evaluation in real healthcare settings is difficult to organize. CITs are expected to bring solutions to this problem.

Results

The University Hospital of Lille has been accredited in the domain of e-health and biosensors. As part of this CIT the Human Factors and usability lab Evalab is more specifically involved in the e-health domain and committed to the evaluation and optimization of health IT applications. As far as translational research is concerned, the role of the CIT is to design and apply usability and usage studies of innovative IT tools in hospital settings in cooperation with researchers, designers, developers and vendors. The issuing reports or usability files may be used to support CE marking application and declaration or certification procedures. This methodology has already been applied successfully to Clinical Information Systems for Anesthesia. In cooperation with the Health Authority who is currently designing a certification procedure for CPOE and medication related CDS in the hospital setting, we aim at adapting the methodology for these products. The resulting usability evaluation could be integrated in the file submitted by the vendors to pass the certification procedure.

Conclusion

Current norms or certification procedures such as the US Certification Commission for Healthcare Information Technology (CCHIT) have recently included usability dimensions, as it is now well established that human factors and usability are key factors of success or failure [1]. Initiatives for designing and applying usability evaluation methodologies to health IT tools in order to support standard evaluation or certification of these products should be shared at an international level and result from an international cooperation of specialized teams and usability labs.

References

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