

Introduction

The lack of efficient strategies and specific tools for process innovation in hospitals, may be a main reason behind slow implementation of available technology to health processes. eBlood is a web 2.0 tool that has been designed, implemented and assessed to help foster micro-innovation in hospitals through the development of virtual prototypes of new processes. "eBlood" is a simulation tool based on interactive video over internet that reproduces with fidelity the blood transfusion process, and is open to the participation of experts for the integration of available knowledge and data about where and when errors are produced during the process and their consequences for patients and costs. The tool is based in web 2.0 technologies, which allows a collaborative discussion by experts, till a consensus about the process is arrived and knowledge is aggregated and consolidated. All the information is shared in a system fully connected to the simulation of the process. The methodology is applied both to current processes and to new, modified and enhanced process. The tool may be applied to any similar hospital process like delivery of medicaments or in the surgical area.

CONTEXT WHERE WAS THIS IMPROVEMENT WORK DONE?

The improvement is at the level of the Catalan Health System. The areas involved are:

- Information Systems Department
- Blood Transfusion Unit

Two university hospitals have been involved in the creation of the solution. "Hospital Clinic" and "Hospital de Sant Pau" in Barcelona. Ten Spanish hospitals have participated in the validation of the solution.

PROBLEM WHAT WAS THE SPECIFIC PROBLEM TO ADDRESS?

The main problem we address is the lack of efficient strategies for process innovation in hospitals.

The particular case of blood transfusion process has been the first area where the tools and methodology has been applied.

Current process of blood transfusion is well known and patient consequences of errors are important. Quality of the process is difficult to improve without major changes, based on the introduction of technology. The difficulties and barriers for innovation based on the introduction of new technology are related with the variety of available solutions and the diversity and number of people involved in the implementation of a new process.

ASSESSMENT OF PROBLEM. CAUSES OF THE PROBLEM?

The barriers for innovation in hospitals and in the health system, has been widely

discussed in the literature and one of these barriers is related with the difficulties for an efficient collaboration between medical, management and engineering staff.

The project has been initiated following the recommendations of high qualified clinicians (haematologist, haemotherapist, and specialized nurses) of both hospitals

So, there are many processes and systems in the hospitals which require the convergence of knowledge and skills from health engineering and management. This is the case of blood transfusion process which may be improved with the application of RFID (Radio Frequency IDentification) and inter-

INTERVENTION DESCRIPTION

simulation tool based on interactive video over internet that reproduces with fidelity the blood transfusion process, and is open to the participation of experts for the integration of available knowledge and data about the errors produced during the process and their consequences over patients. The tool is based in web 2.0 technologies, which allows a collaborative discussion by experts till a consensus about the process is arrived and knowledge is aggregated and consolidated. The information is shared in a system fully connected to the simulation of the process. The methodology is applied both to current processes and to new and enhanced processes.

The tool may be applied to any similar hospital process, p.e. delivery of medicaments or in the surgical area.

STUDY DESIGN

The study follows a Delphi based method carried out through internet:

1. Two groups of experts on blood transfusion (5 and 10 participants respectively) applied consecutively
2. One group of health management experts (10 participants)

MEASUREMENT OF IMPROVEMENT

The impact is measured by the fact that a new project, of enhanced blood transfusion, is scheduled at the same time in different hospitals, which would eventually share and coordinate the implementation of the new process, previously validated and agreed in the simulator.

EFFECTS OF CHANGE

The model of innovation based on a web simulation approach which allows:

1. Objectivise and share the problem and consolidating the knowledge about it.
2. Agreement on the design and simulation of the new solution to be implemented

LESSON LEARNT

To improve the collaborative work of different professionals, for innovating in an efficient and productive way.

MESSAGE FOR OTHERS

The opportunities for innovation in the health sector are many, but specific tools, methods and strategy are needed to be efficient.

AUTHORS

Josep Ma. Monguet, i2Cat-UPC (SPAIN), jm.monguet@gmail.com; Miguel A. Brigos, Barcelona Tech-UPC (SPAIN), miguel.brigos@upc.edu@gmail.com; Josep Manuel Picas, Hospital Sant Pau (SPAIN), jmpicas@santpau.cat; Arturo Pereira, Hospital Clinic (SPAIN), APEREIRA@clinic.ub.es; Carme Valls, Hospital Sant Pau (SPAIN), cvalls@santpau.cat; Marco Ferruzca, UAM (México), mvfn@correo.azc.uam.mx