MEDINFO 2007
HISA Ltd Australia
© 2007 The authors. All rights reserved.

Evolving a Second Opinion Software to Web 2.0

Marcello R. Mello[a,b], Magdala A. Novaes[a,c]

[a] *NUTES - Telehealth Center, Federal University of Pernambuco, Brazil*
[b] *Informatics' Center, Federal University of Pernambuco, Brazil*
[c] *Department of Internal Medicine, Federal University of Pernambuco, Brazil*

Abstract

This article describes the evolution needs of a second opinion software (HealthNet), which uses Java language with Web pages. The HealthNet was deployed in April 2004 and only a few clinical cases were started since then. In conclusion, besides the barriers to acquire technology in a poor region of an under development country, cultural barriers have to be undertaken by health professionals and a whole new set of functionalities has to be developed to achieve full potential of the HealthNet. This facts and the approach of the Web 2.0 made a second version necessary using new concepts such as communication and facilitating community.

Keywords:

telemedicine, family practice, medical second opinion

Introduction

HealthNet is a web based information system designed to support the evaluation of clinical cases, family practice professionals and reduce referrals to the Clinics Hospital (HC), of the Federal University of Pernambuco (UFPE), which admits around 1,000 inpatients and provides assistance to 13,000 outpatients per month [1], leading to faster and better care of high complexity level medical cases. Through the HealthNet, health professionals that are located in health basic assistance units can ask for support in diagnosis and therapeutically conducts to health professionals from Reference Centers.

The idea of constructing a Telehealth system occurred in 1999 within the ATM (Asynchronous Transfer Mode) Recife Network Project. From this period until nowadays, some prototypes were developed. Based on these experiences, a review from literature and meetings with health professionals from primary care, the initial requirements of a health information system to support the Family Health Program (FHP, a national program implementing family practice, started in 1994 [2]) in the state of Pernambuco were established and implemented. The first version of HealthNet system was constructed and implanted in Pernambuco Telehealh Network, in Recife city and its metropolitan area, in April 2004.

Despite of the good appearance evaluation made by the users themselves [3], the usability (easiness, errors and flaws) is the worse thing found in the current version of the system, and lacks of a better way of using.

Now, it is possible to improve the use of the HealthNet by making advantage of the Web 2.0 concept and its keywords such as: freeing of data, building of virtual applications, user participative, work for the user, modular, sharing, communication and facilitating community, remix, smart [4].

Materials and methods

HealthNet was constructed with Java language, using Servltes technology and structured in layers. Due to its design, HealthNet can be expanded to support the most of medical specialties. It uses a database server (MySQL), a Web and application server (Tomcat).

After development of the system, Health Units and professionals were recorded. A main telehealth center (NUTES-HC) coordinates the telehealth network maintaining the users' registers (solicitant and consultant), the Health Units and their relationship.

The pilot health areas considered were medical clinic, pediatrics, cardiology and nursing. There were training in the HC with nurses and doctors from this hospital as well as technicians from FHP units that are participating in this project. The technicians are trained in Loco, the doctors and nurses from their localities. After training process, the system was putted under utilization.

Based on a store-and-forward concept the users can type the information in almost any Web browser and it is planned to don't need a broadband connection – it is possible to have good use even with a dial-up connection.

Results

There was observed a low rate of utilization. Since its deployment there were submitted twenty eight clinical cases to be evaluated by specialists. Some factors are highlighted as contributions to this low usage: (i) Health professionals from primary care are not used to electronic information system, this fact can induce resistance to its

usage. Many of them think information systems can overload their already busy work routine. (ii) The nearness of the basic health units and Reference Centers motivate to a non alteration of the leading processes already established for many years. (iii) Fragility of telecommunication infrastructure between FHP units and specialized center. Besides, as part of the evaluation process of the system, there were pointed some functionalities and technological limitation.

Discussion and conclusion

Because of the problems found, planning to overcome the difficulties is to be adopted in a second version. About technological and functionality points, new requirements were identified and the system was redesigned. For the Web 2.0 interface it is intended to permit the development of a wide health cooperation network bringing notorious resources found in communication's software such as Windows Live Messenger [5]. Below are listed some highlights: synchronous (on-line) and asynchronous (off-line) communication; multimedia communication (text, sound and image) allowing users wish association; handling free use of its desktop, dragging components/services; modular components/services allowing future evolutions without program code need.

The second version of Healthnet is already under development.

Acknowledgments

TIS Group, Brazil´s Ministry of Health, FACEPE, CNPq, UFPE.

References

[1] http://www.ufpe.br/hc
[2] Falk JW. A Medicina de família e comunidade e sua entidade nacional: histórico e perspectivas. Revista Brasileira de Medicina de Família e Comunidade 2004: 1 (1)
[3] Mello M. R. et al "Estratégia para Avaliação de um Sistema de Cooperação em Saúde na Web" – 2006 – X CBIS
[4] P Miller "Web 2.0: Building the New Library" - 2005 - http://www.ariadne.ac.uk/issue45/miller/
[5] http://pt.wikipedia.org/wiki/Windows_Live_Messenger last access in 15/09/2006

Address for correspondence

Marcello Ramalho de Mello. Núcleo de Telesaúde (NUTES), Universidade Federal de Pernambuco (UFPE), Hospital das Clínicas, Av. Prof. Moraes Rego s/n, Cidade Universitária, Recife-PE, Brasil CEP 50.670-420, Tel. +55 (81) 2126-3903 Fax +55 (81) 2126-3904. Email: marcello.mello@nutes.ufpe.br