

TOOL OF PROTOCOL OF SERVICE AND POSSIBLE RECORD OF DONORS FOR CENTRAL TRANSPLANTATION

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Abstract

This work consists of showing an electronic record tool, developed to assist the Pancreas Project of the Faculty of Medicine, Federal University of Rio de Janeiro and Transplantation Center of the State of Rio de Janeiro, specially as a source of regulation and control of possible donate organs and tissues.

Nowadays, the transplantation of organs requires a hard control of documentation, archive and a high human resources, logistics and financial investment. The combination between technology and the Internet, facilitates the integration and distribution of the cases occurred, and it might become an effective tool of support for donor and enhance the effectiveness of documentary evidence.

Key words: education, medicine, transplantation, Information Technology, Audit, Systems, Telemedicine, and so on.

Introduction

We have been tested and studied ways to provide this material and ways to control and report cases of possible donation between health units. Among the items available, we can mention the protocols developed by the Transplantation Center, to which the hospitals reported and shared the cases.

Video conferencing, service protocols, and chats among the hospitals, are some examples of methods that can work to format the

events between health units and thereby make it clearer to the users and society.

The objective is to present the model system designed to provide protocols of care, documentation and communication among health units, that record the whole analysis process of organs donors, which the company can access the material and view the events at any time.

Material and Methods

1 - Equipment used to develop this tool

Until now, the team was formed by 7 people: a Doctor from the State of Rio de Janeiro, a doctor of the Faculty of Medicine (UFRJ), three Programmers Systems, a Database Administrator and a Computer Engineer.

To develop it, we have used 5 PC: 4 with Windows operating system and one with Ubuntu operating system (version of Linux); WAMPAR as the management of the system, program management database PostgreSQL version 8.2, program for development of Internet pages "Eclipse developed in java.

2 – Tools used to check availability and access to the system produced

To create the system, we have used a web server, a microcomputer (DELL Server), with Windows 2003 Server operating system, PostgreSQL database, WAMP, 10/100 Ethernet network adapter 3COM, connected through a network of outsourced company (ALOG) , and which have 24 hours assistance , 7 days a week.

The system is accessible trough any personal computer, with any operating system (Windows, Linux, etc.); a web browser, Mozilla, Internet Explorer or another program for browsing the Internet; and Internet access, trough ADSL connection (Assymetrical Digital

Subscriber Line), 3G, or by phone, which allows remote access by hospital employees through users and passwords, pre-recorded.

3 – Record of the Protocols and events documentation

The protocols were raised by one of the doctors of this project, using a common laptop.

Initially, the files were created in Microsoft Word 2000, used in the laptop, and all records were made based on existing material in the Transplantation Center of Rio de Janeiro. Some protocols scanned gone through a process of editing, in an appropriate text-edition program, resulting in a quality improvement, and then, removing the inconsistencies and repetitions found. At the end of the investigation, protocols have been created, as well as a questionnaire, applied at the units. This material was generated through the language program PHP, with Ajax and is available in Hyper Text Markup Language (HTML) format.

The protocols were divided into protocols to capture data, diagnosis of brain and organs death, Physical Examination, serology, Records, "Data basis of evaluation of death", among others. They are available for access through Conference-Video, chats, SMS and PDF, that generates all the answers.

The system was also divided, as well as pre defined, into questions, responses, answers options (Multiple Selection, Selection Simple, Boolean, etc.) and the protocols created from the relationship of the items mentioned above, according to each answer needs.

To make this material available in HTML / PHP / Ajax format, we needed to create a security

mechanism that does not allow other users to access its contents. It has been developed in PHP with JavaScript / Ajax, where users must be registered before answering any item.

Results:

1 - Structure and tool presentation

Once a tool, that assist all parts of "Pancreas" Project of Transplantation Center, has not been found, we developed a system that meets the demands of the Surgery Department, Faculty of Medicine, UFRJ and other departments, with the aim of meeting the items of the project. Using the language program PHP, Ajax, HTML, JavaScript (script language often used in web pages constructions) and Database Postgres SQL, a management tool of construction, recording and registration of protocols was built, divided into hospital and Transplant Center. The model used in this relational database has several tables, including donor, protocol, type of issue, type of response, team, message, video, chat, item type response, sms, sms matter, Protocols donor, and others.

Vision of Unity Hospital

Accessing

<http://201.49.216.106/rjtransp/> , shown in Figure 1, the user must enter the Intranet menu option, in the right side. After that, will write his username and password (Figure 2), then will have the handler registered "login name and a password. The identifier is registered previously, releasing the access of people from hospitals and password is generated by the system and sent to the e-mail.



Figure 1 – input screen of record system of Transplant Center



Figure 2 Intranet, on the right side of the screen.

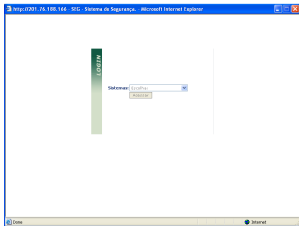


Figura 3 –accessing the systems available in accordance with the user's access.

After entering your ID and password, the user will see a list of systems available to him. Then he must enter in the system

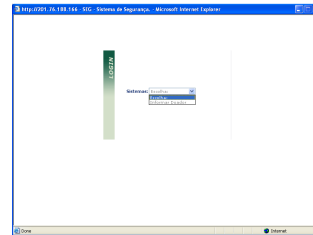


Figure 4 – Only one access system for users of hospitals. available, clicking in *Access* (Figure 5). Upon his access, it will open a new screen with the available items (Figure 6).

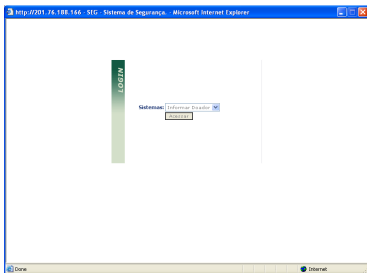


Figure 5 - List of available systems.

The tool for hospitals' users only have the opportunity to inform donors (Figure 7). Clicking on the item, *Report Donors* will appear the list of possible donors registered

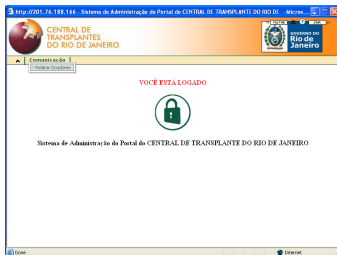


Figure 7

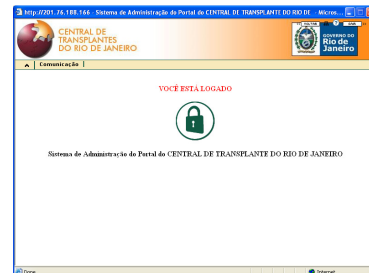


Figure 6 – Available Items .

by the unit and the situation of each donor (Figure 8 – information used as example, only).

Data	Nome	Nome do Doador	Profissão	Situação	Excluir
2008-11-10	14:32:00	THIAGO SILVA		Inscrito	
2008-08-20	09:25:00	DEBORA SILVA MOURO		Inscrito	
2008-08-24	05:15:00	MARIA DAS GRACAS SILVA		Inscrito	

Figure 8 - Potential donors list and the situation of each of them.

In the described item APPEAR, highlighted in red, the hospital may report a possible new donor (Figure 9) and clicking on the item, will appear the screen shown below (Figure 10). At this point the user



Figure 09 – Include a new donor.

must inform the name, date and time of donor's death. When the user clicks the calendar will show the screen described below (Figure 11). After that, h must click the button *include* (Figure 12)..

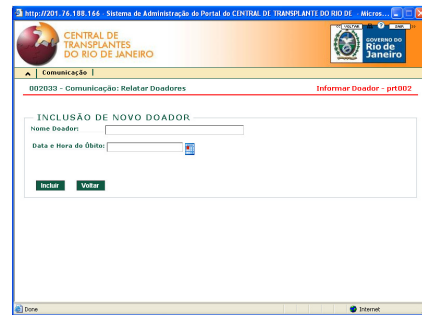


Figure 10 – New donor's inclusion screen



Figure 11 – Calendar to inform date and time of the death.



Figure 12 – Incluir bottom: add informations.

In other options from possible donors'list, the user can delete some information that was not started, and also can change some information posted and the system will record all these events for

possible audits (Figure 13) or change it (Figure 14). Using the change button, allows to change some minor problems reported and even change the situation of possible donor (Figures 15 and 16).



Figure 13 – Delete.

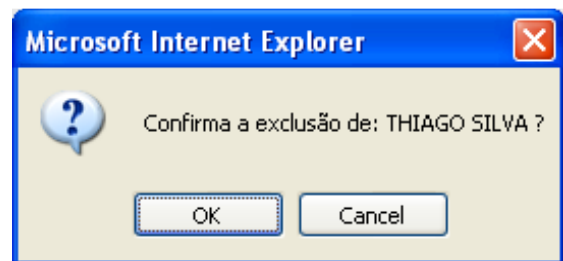


Figure 14 Delete confirmed.



Figura 15 – Change

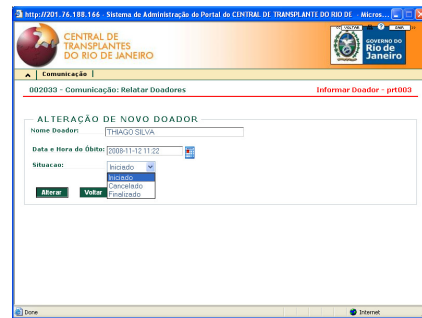


Figura 16 – Confirm the status and the change.

Overview of Regulatory Unit

We can see in the screens below that the regulatory unit can see the potential donors in any unit. She controls the communication between the unit and the

central government controls the procedures of the units, communication between units and also the communication with the teams of transplants.

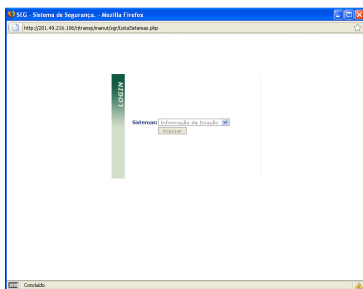


Figure 17 – Entry System for Regulatory Unit



Figure 18 - Donors and units' list

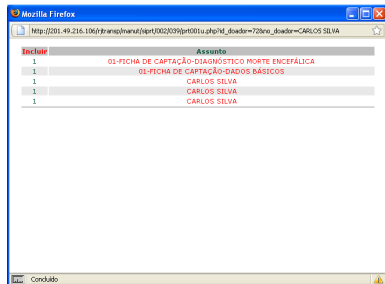


Figure 19 - Videos made in a particular donor, when you click the name of the possible donor.



Figure 20 – The list of protocols responded to a possible donor

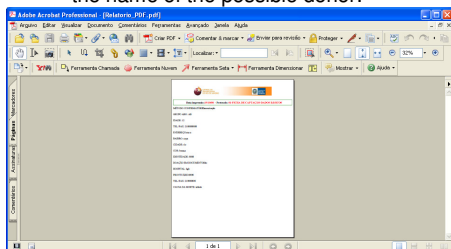


Figure 21 - PDF generation of protocols responded to be printed and documented and stored for at least 5 years

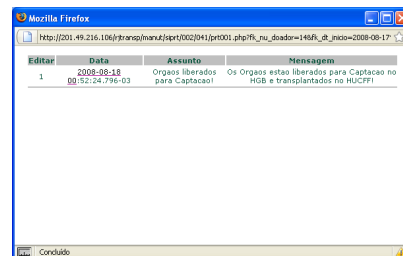


Figure 22 – SMS (mobile phone - Short message service) sent a team. SMS is documented.

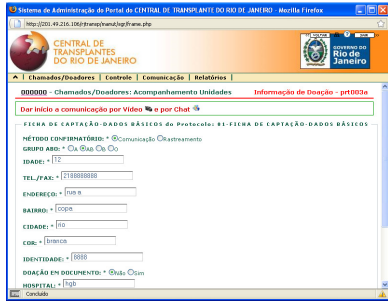


Figure 23 - Form to respond to the protocol for a donor.

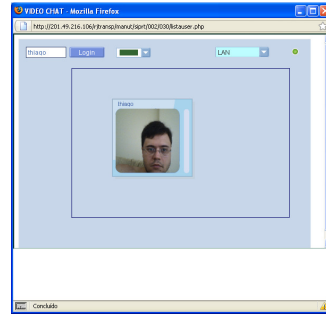


Figure 24 - Videoconferencing associated with the protocol.

The communication between the units is recorded and documented associated with the donor that I can just enter.

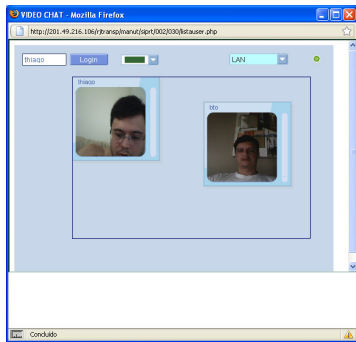


Figure 25 - Communication between the Central Regulatory and a hospital, chatting, removing doubts about a possible donor.

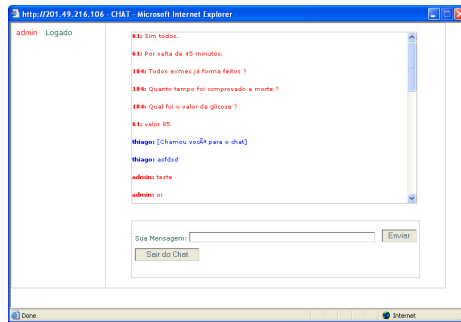


Figure 26 - Chat enter the unit and Central Regulator on a donor.



Figure 27 - Protocol to be answered.

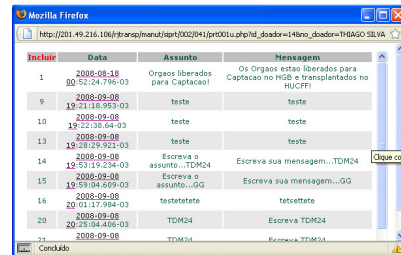


Figure 28 - List of the communication sent by SMS held.

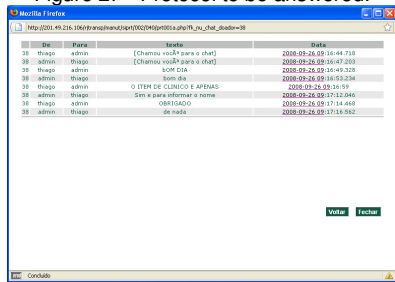


Figure 29 - recorded conversation by CHAT.

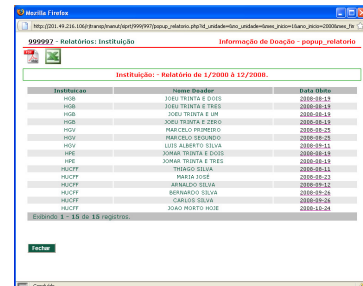


Figure 30 - Example of a report by unit and its donors.

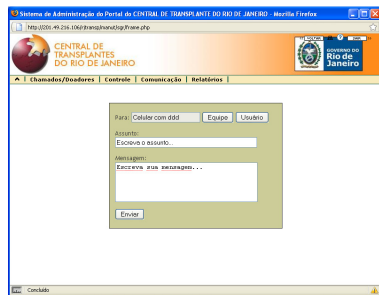


Figure 31 - of sending SMS to the people, is documented and linked to the donor.



Figure 32 - Assembly dynamics of protocols



Figure 33 - Registration of a protocol.



Figure 34 - Create a version of the protocol.



Figure 35 - Assemble the body of the Protocol.



Figure 36 - Create a new question in the protocol.

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