ATTENDANCE AND CERTIFICATION MODULES IN THE MANAGEMENT SYSTEM FOR TELE-EDUCATION OF THE TELEHEALTH CENTRE – HUUFMA

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Abstract

The Telehealth Brazil Networks Programme is a national initiative that seeks to improve the quality of care and primary care in the Unified Health System (SUS), through Tele-assistance and Tele-education. One of the major areas, Tele-education, is based on the use of information technologies to provide web conferences, courses, and classes. Due to the limitation of the broadcasting platforms to track detailed information of the users', it was necessary for the Telehealth Centre of the University Hospital of the Federal University of Maranhão (HUUFMA) to develop a web system to automatically gather this data. The current release of the system enables users to register for web conference activities, and the information such as professional area, location, and personal information is stored. The system can track all the activities the user has participated in and then automatically generate certificates at any time after the end of the activity.

Keywords: tele-education; telemedicine; information technology; management in health care; telehealth system; Brazil

Introduction

The Programa Telessaúde Brasil Redes (Brazil Telehealth Networks Programme) is part of the Upgrading Programme of the Basic Health Units (UBS), the objective of which is to broaden health professionals' interaction and promote improvement in the quality of primary care in the Sistema Único de Saúde - SUS - (Unique Health System). This is done by using information and communication technologies (ICT) to promote telecare, second formative opinion, remote diagnostics and tele-education.[1]

The programme was deployed in 2007. It started with nine centres which were responsible for investing in technology and human resources to supply the need of health assistance in places where the distance is a major factor. One of these centres was the Telehealth Centre (NTS) of the University Hospital of the Federal University of Maranhão (HUUFMA), which was established to promote and manage the areas of Teleconsultation and Tele-education in the state of Maranhão. Infrastructure and the technological resources were deployed by the University Network of Telemedicine (RUTE). Due to this initiative, the NTS-HUUFMA activities have resulted in the creation of projects that impact on health education in the state, such as courses on evidence-based health and continuing education in surgery of the digestive tract (NetGastro), participation in different special interest groups (SIG's) and the authoring and management of SIG Telecoloprocotology.[2]

Research at the centre on the use of technology tools to assist the centre's activities continues to grow. It has also focussed on creating systems to improve daily tasks and get the best results in terms of telehealth management. According to the technical note provided by the Brazilian Ministry of Health, a tele-education activity can be offered in different modalities, such as course, web class/lecture, web workshop, discussion forum, and professional meeting. A record must also be kept of any tele-education activity. its participants and discussed themes.[3]

Based on the requirements, the NTS-HUUFMA had started the development of an administrative management system for of tele-education activities provided by the centre. The Management System of Tele-education Activities (SGAT) of the NTS-HUUFMA is in the third stage of its development process. In the first two stages the system was built to;

keep a record of the Tele-education activities, from their scheduling request, to their completion; automatically generate statistical data, reports and certificates for course lecturers; and automate daily-based tasks done by the Telehealth Centre. In the third stage, the goal was to expand the system to register the attendance of participants online and to automate the provision of certificates of completion with all the necessary information.

Besides their e-mail, name, social security number (CPF), etc., the information about the participants also includes their field of work and where they are while attending the tele-education activity. With this information, the telehealth centre can use the system to build profiles and take better decisions about the themes discussed in the lectures.

The results of the development of the third stage of the SGAT is presented in this paper.

Methods

The development of the attendance and certification modules was built on the existing management system (SGAT), which works internally in the University Hospital for the NTS workers. Due to the need to automate attendance registration, the centre developed a public module that can be accessed from anywhere, as the tele-education activities can also be offered as web classes or web workshops. The existing feature of automated certification for lecturers was adapted to also cover the activities participants.[4] Lecturers or participants receive their certificates as PDF attachments in e-mails sent by the system when an activity is successfully finished.

Online attendance
In the SGAT, a tele-education activity is an entity in the database that has a status, type, modality, start time and end time, and other relationships that guarantees the integrity of the system. A person can be identified in the system as an entity, using their national security number (CPF) as the unique key for each person registered, including their professional information, if it exists.

When an activity is scheduled in the system the date and time are set. When the time comes, the system automatically enables online registration for any person who has Internet access. The centre's marketing team provides the password access (the activity id) on the Internet social networks and in the room where the activity is been broadcasted. Finally,

the participant inserts their CPF number and all their information is retrieved. After their confirmation, their attendance is registered for that activity. In the case the person is not registered on the database, a registration form is available to sign up. Under these circumstances, full filterable and dynamic reports can be generated from the data collected.

Certification module
One of the requirements is that each person's e-mail address is stored in the SGAT database is the e-mail. It can be used in the system for user login (in the case of the NTS workers), contact information, and for automated delivery of certificates. After the online attendance workflow and the activity is fully completed, the SGAT retrieves all the participants and lecturers details from the database, builds certificates in pdf format, with all the necessary information, such as duration, theme discussed, type of attendance, and sends them an e-mail with the pdf file attached. In addition to this module, one of the features implemented is the retrieval of past certificates for each person registered in the database, if need.

Results

The deployment of these new features in the SGAT started in July of 2016. The following two months served as a transition to establish a stable release of the attendance module. There was an increase in use of the online attendance module by month from July/2016 to September/2016. (Figure 1)
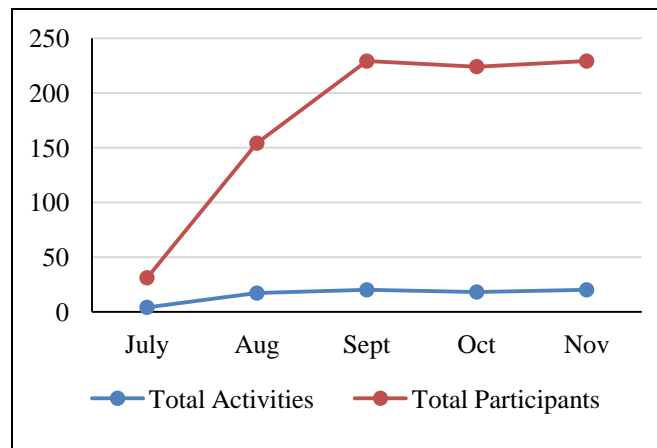

Figure 1. Online attendance module by month from July/2016 to September/2016.

The number of professionals who registered attendance in the online module of SGAT during the studied period is shown in Figure 2.
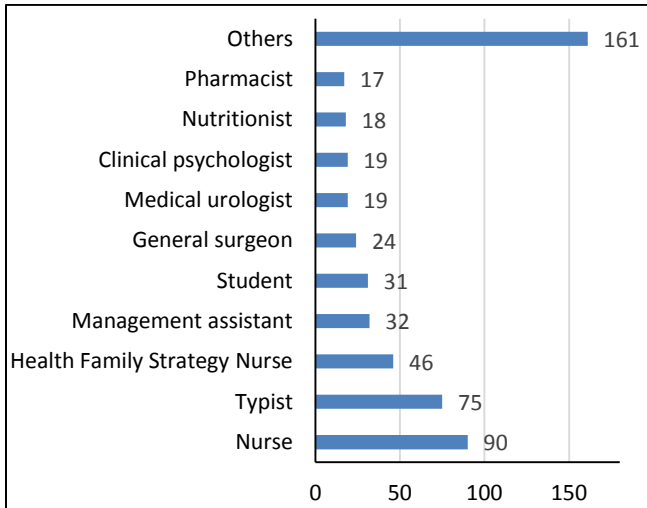
Figure 2. Professionals who registered attendance online.

In the online attendance module, the user also includes the location from where they are participating in the tele-education activity. This information enables the centre to create a heat map of the most accessed points in Brazil. (Figure 3)
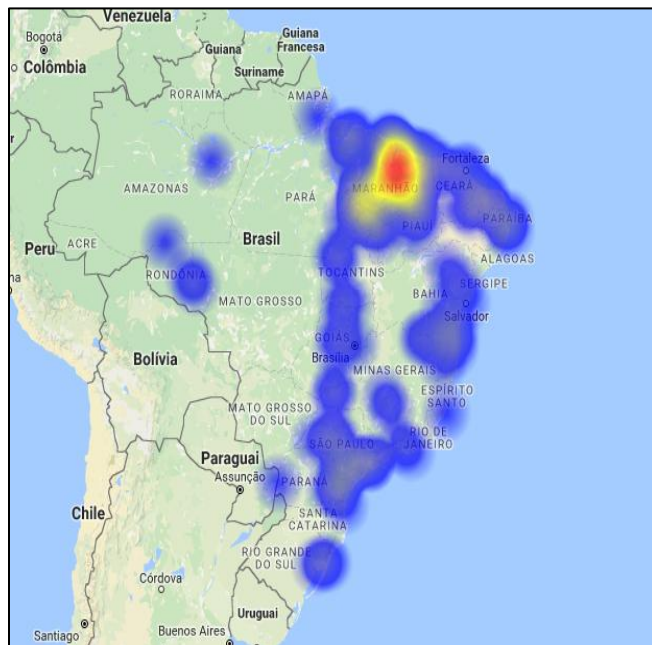

Figure 3. Heatmap of the most accessed points in the Brazilian territory.

Discussion

The NTS-HUUFMA has been offering Tele-education activities since 2007. At the time of the development of these modules in the SGAT the attendance registration was only done in a quantitative way, i.e. the only data collected was the number of people who were participating at the locations to which the tele-education activities were broadcast.

After deployment of the SGAT's attendance and certification modules, it was possible get an individual register of each participant as and automated delivery of certificates. These new features allowed the centre to identify our participants by professional categories, allowing us to focus our tele-education activities on our most frequent participant groups.

Furthermore, the location information permits the NTS-HUFMA to identify the most accessed places in Brazil, as it can been seen in Figure 3. The centre has transmitted its tele-education activities to almost all the country, mainly in the Northeast and Southeast regions, with its peak of participants in the state of Maranhão.

Conclusions

Since its first releases, the Management System of Tele-education Activities (SGAT) has made notable improvements in the Telehealth Centre's workflow in managing the tele-education activities. The development of the online attendance and automated certification modules has provided the centre the possibility of capturing information about the tele-education participants, such as professional field and location, and automatically certificating their attendance, which significantly improves the quality of content production and management of daily-based tasks.

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Conflict of interest. The authors declare no conflicts of interest.

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