A DIABETIC PATIENTS REMOTE MONITORING SYSTEM IN A RURAL COMMUNITY OF BRAZIL: A REPORT OF THE TECHNOLOGICAL IMPLEMENTATION

I.C.T. Expert
Centro de Saúde da Reserva - CSR
São Lourenço do Sul - RS - Brazil

Info about Diabetes

- 347 million people have diabetes nowadays.
- In 2012, around 1.5 million deaths were directly caused by diabetes.
- More than 80% of deaths caused by diabetes happen in underdeveloped countries.
- The WHO estimates that diabetes will be the seventh (7º) cause of death by 2030.
- A healthy diet, regular physical activity, maintaining a stable weight and avoiding tobacco use can prevent or delay the onset of type 2 diabetes.
Demographic Information

Brazil
190.732.694 Inhabitants
27 States
5.565 Cities
Capital=Brasília FD

State of Rio Grande do Sul
10.187.798 Inhabitants
496 Cities
Capital=Porto Alegre

City of São Lourenco do Sul
44.000 Inhabitants
A DIABETIC PATIENTS REMOTE MONITORING SYSTEM IN A RURAL COMMUNITY OF BRAZIL: A REPORT OF THE TECHNOLOGICAL IMPLEMENTATION

Centro de Saúde da Reserva Hospital - CSR

Built in 1929

40 Clinical Beds
Geriatric sector (20 Beds)
Emergency room
2 Surgical wards
Alcohol/drugs prevention structure
Colaborators/volunteer teams

E-Health Strategies

A DIABETIC PATIENTS REMOTE MONITORING SYSTEM IN A RURAL COMMUNITY OF BRAZIL: A REPORT OF THE TECHNOLOGICAL IMPLEMENTATION

TeleDiabetes + Mediinspect

Dignity Project

TeleRadiology
TeleDiabetes
TeleInfectology
TeleCardiology
TeleMonitoring
TeleDermatology

Objectives

1) To implement the technical infrastructure of the TeleDiabetes network in the CSR.

2) To ensure that health care professionals of the Institution can analyze the clinical data of patients in the CSR server database.

Specific Objectives

3) To develop, refresh and verify the integrity of the clinical database of the patients.

4) To promote and facilitate the research development.
Metodology

Number of participants:

10 diabetic volunteers

Study period:

6 Months

Between October 2015 and March 2016.

Inclusion criteria:

Diabetic patients with a minimum age of 18, both genders, with DM type 2 and agreeing to participate in the study.

A technical analysis was made, in the volunteer’s residence.
A DIABETIC PATIENTS REMOTE MONITORING SYSTEM IN A RURAL COMMUNITY OF BRAZIL: A REPORT OF THE TECHNOLOGICAL IMPLEMENTATION

Logistics

Equipments and devices acquired for the Project:

- Processing Server
- Digital glucometer w/ bluetooth
- Smartphones w/ Android OS
- TV LED 60´ - Monitoring
- CPU – Workstation
- Office materials
Logistics

Softwares installed in the Server:
Linux Debian, MySQL, Apache, PHP
Inspectlife™ Software

Softwares installed in Workstations:
Microsoft Windows™, Google Chrome

Softwares installed in Smartphones:
Android Lollipop, Inspectlife™ App
Logistics

Stage I:
- Acquiring equipments and devices.
- Installation and configuration of softwares.
- Training of health professionals of CSR.
- Triage / selecting the volunteers to enter the project.

Stage II:
- Training of volunteers / relatives.
- Technical support / ongoing of the project.
- Glicemic data collection of volunteers.
A DIABETIC PATIENTS REMOTE MONITORING SYSTEM IN A RURAL COMMUNITY OF BRAZIL: A REPORT OF THE TECHNOLOGICAL IMPLEMENTATION

Glycemias (1 - 200 de 2016)

<table>
<thead>
<tr>
<th>Data</th>
<th>Hora</th>
<th>Nivel de glicose no sangue [mg/dL]</th>
<th>Atributos</th>
<th>Notas</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.2.2016</td>
<td>8:33</td>
<td>180.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2.2016</td>
<td>8:22</td>
<td>221.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.2.2016</td>
<td>8:26</td>
<td>187.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.2.2016</td>
<td>19:47</td>
<td>278.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.2.2016</td>
<td>8:04</td>
<td>263.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2.2016</td>
<td>8:18</td>
<td>229.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.2.2016</td>
<td>7:51</td>
<td>196.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.2.2016</td>
<td>7:46</td>
<td>200.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2.2016</td>
<td>18:42</td>
<td>219.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2.2016</td>
<td>7:54</td>
<td>202.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2.2016</td>
<td>8:01</td>
<td>116.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2.2016</td>
<td>18:42</td>
<td>176.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.2016</td>
<td>8:34</td>
<td>121.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.2016</td>
<td>15:42</td>
<td>228.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.2016</td>
<td>8:03</td>
<td>169.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.2016</td>
<td>7:56</td>
<td>169.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.2016</td>
<td>18:23</td>
<td>309.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.2016</td>
<td>8:06</td>
<td>185.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.1.2016</td>
<td>8:59</td>
<td>142.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A DIABETIC PATIENTS REMOTE MONITORING SYSTEM IN A RURAL COMMUNITY OF BRAZIL: A REPORT OF THE TECHNOLOGICAL IMPLEMENTATION
Stage I: Configuring the software
Training of health professionals of CSR
Stage II: Training the volunteers
A DIABETIC PATIENTS REMOTE MONITORING SYSTEM IN A RURAL COMMUNITY OF BRAZIL: A REPORT OF THE TECHNOLOGICAL IMPLEMENTATION

Presenting the Project to the population
Results:

• The glicemic data the 10 diabetic volunteers, as well as comorbidities, are available to the nursing and medical staff of the CSR.
• The expansion of the project is being organized, moving it to a new level, with a higher amount of patients monitored in the CSR.
• To develop this innovative project in other health institutions among the state / country.
Thank you!!

robert.timm@hotmail.com