Tele-emergency, teleconsultation and telehomecare in Belo Horizonte

Tele-emergency, teleconsultation and telehomecare in Belo Horizonte

Objective

- To describe the process of building a telehealth project in Belo Horizonte, Brazil, identifying the different phases and driving factors of its development.

Method

The different components of the main telehealth projects carried out in Belo Horizonte were described.
Method

- The following primary sources were used:
  - official documents submitted to the financing institutions
  - reports of activities
  - internal documents of the Belo Horizonte City Health Department related to the projects development.

- The projects were gathered in phases by the group responsible, which also identified the main conducting factors of each phase.

- The results were described.
The resources incorporation came from significant interactions:

- between the Federal University of Minas Gerais, Ministry of Health and the Municipal Health Department.

- a continued interaction with international projects starting in 2003 within the context of the @LIS Project of the European Community.
BHTelehealth Project

The idea of this project was to work together in order to set up a telehealth model applicable to the Brazilian public network with features concentrated on low cost, primary care and that could be implemented later on in the whole country.

Dengue Symptoms

This project was created in order to support the family health program teams both in terms of assistance support and permanent education. Its main goal is to strengthen the central role of primary care in patient care managing.
CURRENT SITUATION

It is already implemented in:

<table>
<thead>
<tr>
<th>Distrito</th>
<th>Unidades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oeste</td>
<td>15</td>
</tr>
<tr>
<td>Centro-Sul</td>
<td>12</td>
</tr>
<tr>
<td>Venda Nova</td>
<td>11</td>
</tr>
<tr>
<td>Barreiro</td>
<td>20</td>
</tr>
<tr>
<td>Norte</td>
<td>16</td>
</tr>
<tr>
<td>Noroeste</td>
<td>20</td>
</tr>
<tr>
<td>Nordeste</td>
<td>17</td>
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<td>Leste</td>
<td>14</td>
</tr>
<tr>
<td>Pampulha</td>
<td>8</td>
</tr>
<tr>
<td>Administração Distrital</td>
<td>9</td>
</tr>
<tr>
<td>Centro de Especialidade Médica</td>
<td>2</td>
</tr>
<tr>
<td>Outros</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>151</strong></td>
</tr>
</tbody>
</table>

The model developed used a 64 kbps network that connects the healthcare units to the Federal University of Minas Gerais, with only one computer, a webcam and a multimedia kit at the primary care units.

This process enabled teleconsultations and webconferencing every fortnight in the field of medicine, dentistry and nursing.
Bhtelehealth: model for national telehealth project in Brazil

This Project served as a model for the larger national telehealth project which nowadays is implemented in 900 Brazilian municipalities.

Assessment of the webconferencing project

Total of videoconferences

<table>
<thead>
<tr>
<th>Year</th>
<th>Nursing</th>
<th>Medicine</th>
<th>Oral Health</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>11</td>
<td>18</td>
<td>23</td>
<td>0</td>
<td>66</td>
</tr>
<tr>
<td>2006</td>
<td>19</td>
<td>18</td>
<td>13</td>
<td>1</td>
<td>67</td>
</tr>
<tr>
<td>2007</td>
<td>25</td>
<td>18</td>
<td>11</td>
<td>1</td>
<td>67</td>
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<td>2008</td>
<td>19</td>
<td>20</td>
<td>17</td>
<td>15</td>
<td>66</td>
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<tr>
<td>2009</td>
<td>16</td>
<td>23</td>
<td>12</td>
<td>15</td>
<td>66</td>
</tr>
</tbody>
</table>
You would recommend it to other health centers

- Yes: 92%
- No: 4%
- Did not answer: 4%

Teleconsultation and Impact on Care

- Case resolution
- Qualified Diagnosis
- Therapeutic Behavior
- Propedeutics
1st Phase – Developing teleconsultation and webconferencing projects

- The participation of countries with concrete experiences was an essential factor for the feasibility of the project, especially through the international cooperation that took place within the @lis Project.

- Besides training technical groups, another important factor of this international cooperation was its contribution to the exchanging of experiences involving the health department coordinator and the mayor on the importance of this subject.

- The model developed with the significant participation Federal University of Minas Gerais introduced a high quality added value in structuring the public network.
2nd Phase: e-learning using 3D organic modeling, videos and animations and tele-emergency project

• In the second phase, the Belo Horizonte health department created the structure to incorporate the latest development in education involving organic modeling and animations in e-learning courses focused on family health program and the emergency network.

• This process was carried out in close partnership with the Medical School of the Federal University of Minas Gerais.
Digital electrocardiograms were installed at the healthcare units. They are sent to the Electrocardiography Central Unit at the University of Minas Gerais Clinical Hospital responsible for issuing the reports. At the same time, medical professionals were trained on remote electrocardiogram interpretation using 3D modeling, animation and video, developed by CETES/Medical School of UFMG.
Emergency course

• The use of 3D modeling of organic structures makes possible building virtual objects to e-learning able to simulate at one single moment, physiological, pathological and anatomic events in a dynamic way.

• Basic life support and use of defibrillator
• Risk classification and urgency network
• Airway and ventilation principles
• Early management of Respiratory Failure
• Early management of Shock
• Cardiopulmonary arrest management with advanced life support
Telemedicine resources into the mobile emergency care service (SAMU) in Belo Horizonte

OBJECTIVES

- To incorporate telemedicine resources into the mobile emergency care service (SAMU) in Belo Horizonte in order to speed up and qualify the process provided to the patients of this service.

- To enable a better assistance interaction between emergency units and the pre-hospital system.
Telemedicine resources into the mobile emergency care service (SAMU) in Belo Horizonte

• Vital signs multi-parametric monitor:
  - Esfigmomanometer, thermometer, oxygen saturation meter, glucometer, electrocardiogram

• This experience shows solutions that enable the regulating physician of SAMU to be virtually present at the remote location and to take part in the pre-hospital care given to the patient.

• The results of the experience are quite promising with regard to the quality of pre-hospital care and the speeding up of the process.
2nd Phase: e-learning using 3D organic modeling, videos and animations and tele-emergency project

- Several committees of telehealth management were created on medicine, nursing, dentistry and emergency fields, involving technical groups of the Health Department and the Federal University of Minas Gerais.

- This process reflects an institutionalization of actions within the health department making possible an interface with assistance and educational processes integrated with telehealth projects.
3rd Phase: Consolidating telehealth actions in Belo Horizonte

- In the current phase, the incorporation of telehealth resources is gradually starting to be included into the planning of the assistance activities of the city health department, reflecting the degree of awareness acquired on the subject in a highly shared way.

- The continuity of prospecting actions at the international level done by the different committees had enabled new and daring projects on telehealth.
Diabetes and hypertension telemonitoring project in Belo Horizonte

Processing Central Unit

Family Health Program Team

Telemonitoring unit at the Medical School of Federal University Federal of Minas Gerais
Diabetes and hypertension telemonitoring project in Belo Horizonte

• Scope: 45 Healthcare Units with 990 patients being monitored at home

• Connectivity:
  – 3G mobile telephony
  – Wimax
  – Dialed line
Laboratory of Excellence and Innovation in Telehealth Latin America-Europe

GENERAL OBJECTIVE

☐ Building a permanent forum for experience exchanging in telehealth among countries and institutions in Latin America and Europe.

SPECIFIC OBJECTIVES

☐ Enabling the exchange of practices, results and services.
☐ Encouraging the structure for national policies on telehealth.
☐ Promoting innovation on the telehealth field.
☐ Supporting the development of national experiences.
Laboratory of Excellence and Innovation in Telehealth Latin America-Europe

1. Regional Guidelines on Telehealth, Latin America - Inter-American Development Bank Project

2. Focus on the formulation and implementation of a cooperative project in the Amazon region
Laboratory of Excellence and Innovation in telehealth – Latin America/Europe

Site of the Latin American Journal of Telehealth

Latin American Journal of Telehealth
Conclusion

• The close relationship with the Federal University of Minas Gerais improves quality healthcare model provided to citizens.

• Telehealth development anchored in appropriating international experiences, re-elaborating them for the Brazilian reality has allowed Belo Horizonte to contribute to the development in Brazil and others Latin American countries.

• Despite some difficulties, the incorporation of telehealth resources has gradually contributed to a better quality healthcare for the population.
Thank you very much!

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