Overview of Telemedicine
BHUTAN

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Why Telemedicine

- Difficult terrain/topography.
- Shortage of medical doctors and specialists.
- Increasing expenditure in patient referrals.
- Uniformity in management of patients.
- Need for Continuing Medical Education (CME).
History of Telemedicine in Bhutan

- Initiated when Dr. H. Nakajima, the then DG of WHO had an audience with the 4th King.

- It was further strengthened when internet was introduced in the country in June, 1999.

- A teleradiology project was conducted in 1999-2000 by connecting the district hospital at Bumthang to the Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) in Thimphu.
In November 2000, the two major referral hospitals (the Mongar Regional Referral Hospital (MRRH) and the JDWNRH) were connected.

Gelephu Hospital was provided with X-Ray digitizer and digital camera to carry out telemedicine consultations when connected with the internet.
History contd:

- **March 2003:**
  - East Bhutan Tele-ECG project was carried out in close collaboration with the Tokai University of Medical Sciences, Japan.

- **2007:** 10 centres connected.

- **2008:** SAARC Telemedicine network launched mainly for CME Sessions between PGI Chandigarh and SGPGIMS, Lucknow India.
Present Situation

➢ The Rural Telemedicine Project for Primary Health Care was implemented in April 2009 in 14 rural sites through the supply of the following equipments:

➢ Laptops (Lenovo 3000 Y410)
➢ Non-invasive vital sign Monitor (Welch Allyn 45NTO-E2 SPOT LXI)
➢ Portable ECG Machines (Welch Allyn CPR-UI-UB-D PCR-100i PC based)
➢ Compatible software to interface the equipment.

1. Sipsu Hospital, Samtse District
2. Gomtu Hospital, Samtse District
3. Lhamoizingkha BHU I, Dagana District
4. Damphu Hospital, Tsirang District
5. Dagapela Hospital, Dagana District
6. Zhemgang BHU I, Zhemgang District
7. Nganglam BHU-I, Samdrup Jongkhar District
8. Riserboo Hospital, Trashigang District
9. Samdrup Jongkhar Hospital, District
10. Pema Gatshel Hospital, Pema Gatshel District
11. Trashigang Hospital, Trashigang District
12. Trashi Yangtse Hospital, Trashi Yangtse District
13. Lhuentshe Hospital, Lhuentshe District
14. Phuentsholing Hospital, Chhukha District
The Expert End for the Project was installed at Jigme Dorji Wangchuck National Referral Hospital but changed to Eastern Regional Referral hospital in Dec 2010 as the response from the experts were poor.
## Telemedicine Usage Report (BRTS)

<table>
<thead>
<tr>
<th>FY</th>
<th>Total Consultation</th>
<th>Replied</th>
<th>Pending</th>
</tr>
</thead>
<tbody>
<tr>
<td>14/04/2009- June 2009</td>
<td>24</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>July 2009 – June 2010</td>
<td>30</td>
<td>3</td>
<td>27</td>
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<tr>
<td>July 2010 –December 2010</td>
<td>2</td>
<td>0</td>
<td>2</td>
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<tr>
<td>Jan to December 2011</td>
<td>58</td>
<td>42</td>
<td>16</td>
</tr>
<tr>
<td>Jan-September 2012</td>
<td>26</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total =</strong></td>
<td><strong>140</strong></td>
<td><strong>64</strong></td>
<td><strong>76</strong></td>
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SAARC Telemedicine

- Project First Term (Dec 13\textsuperscript{th} 2008 - Dec 13\textsuperscript{th} 2009) – Govt. of India funding

- Project Second Term (Dec 13\textsuperscript{th}, 2009 - Dec 13\textsuperscript{th} 2010) – Govt. of India funding

- Project Third Term (Dec 13\textsuperscript{th}, 2010 – Dec 13 2011) – under RGoB funding
Barriers/Challenges

• **Budget constraints**
  - Expensive medical equipments
  - Recurrent cost for Telephone charges and Internet

• **Human Resource**
  - Retention of trained personnel at sites
  - Not enough technicians at sites for implementation of telemedicine
  - Health workers low literacy in computer usage
  - lack of technical expertise on telemedicine
  - **Poor commitment from users and experts**

• **Infrastructure**
  - Internet connection and power fluctuation
  - Equipment maintenance
Strengths

- Small number of doctors and know each other.
- Internet connectivity in all the hospitals.
- Availability of mobile phones.

Weakness

- Inadequate infrastructure at sites
- Poor user attitude on using the service.
- Delayed or no response from specialists.
- Lack of policy and procedural protocols.
Opportunity

- WHO support to boost with new strategy.
- Support from the Ministry.
Way Forward

- Tele consultation – between medical officers and specialists using mobile - will be piloted with the support of WHO.
- Email consultation
- Need to refurnish some of the sites with infrastructure
- Build in-house capacity to man the service at the health facilities
- Need of a strong policy framework to guide the utility of the service.
- Re-strengthen the Telemedicine service
- Evaluate impact of the Telemedicine services