WHO Regional Office for South-East Asia:
Regional consultation on Telemedicine

Pyongyang, DPRK;
30 July–1 August 2013
TELEMEDICINE: Opportunities and developments

Najeeb Al-Shorbaji
Director, KMS
WHO/HQ
eHealth: use of information and communication technology for health

- Health is the cost-effective and secure use of information and communications technologies in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge and research. World Health Assembly Resolution on eHealth, (WHA58.28, 2005).
Telemedicine: a definition

- “The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities”. WHO, 1998.
Four elements are germane to telemedicine

1) Its purpose is to provide clinical support.
2) It is intended to overcome geographical barriers, connecting users who are not in the same physical location.
3) It involves the use of various types of information and communication technology (ICT).
4) Its goal is to improve health outcomes.
The requisites of telemedicine

Telemedicine links

Telemedicine Infrastructure

TELEMEDICINE: Opportunities and developments
TELEMEDICINE: Opportunities and developments
The global telemedicine market grew from $9.8 billion in 2010 to $11.6 billion in 2011 and will almost triple to $27.3 billion in 2016, a compound annual growth rate (CAGR) of 18.6% over the next five years.

Source: BCC Research (Business Communications Company)
Global issues in telemedicine

- Reimbursement across borders;
- Inter-regional and cross borders licensing arrangements and medic-legal responsibility;
- Care management programmes;
- Training and skill sets between countries;
- Professional and cross professional practices;
- Data privacy and ownership issues;
Global issues in telemedicine

- Bandwidth across countries which obliges compliance with the narrowest segment one in data transmission;
- Language issues;
- Cultural issues in medical practices.
The Global Survey: 
Background and selected results
Global Observatory for eHealth

- World Health Organization (WHO) established the Global Observatory for eHealth (GOe) to review the benefits that ICTs can bring to healthcare and patients’ wellbeing.
- The Observatory is charged with determining the status of eHealth solutions, including telemedicine, at the national, regional, and global level, and providing WHO’s Member States with reliable information and guidance on best practices, policies, and standards in eHealth.
GOe survey: telemedicine module

- Four mechanisms that facilitate the promotion and development of telemedicine solutions were examined:
  - the use of a national agency,
  - national policy or strategy,
  - scientific development, and
  - evaluation.
- 114 countries (59%) completed the survey.
## Response rate by WHO region

<table>
<thead>
<tr>
<th>WHO region</th>
<th>Africa</th>
<th>Americas</th>
<th>South-East Asia</th>
<th>Europe</th>
<th>Eastern Mediterranean</th>
<th>Western Pacific</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total number of countries</strong></td>
<td>46</td>
<td>35</td>
<td>11</td>
<td>53</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td><strong>Number of responding countries</strong></td>
<td>31</td>
<td>12</td>
<td>8</td>
<td>36</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td><strong>Response rate</strong></td>
<td>67%</td>
<td>34%</td>
<td><strong>73%</strong></td>
<td>68%</td>
<td>67%</td>
<td>48%</td>
</tr>
</tbody>
</table>
GOe survey: telemedicine applications

- The telemedicine module examined the current level of development of four fields of telemedicine:
  - Tele-radiology,
  - Tele-dermatology,
  - Tele-pathology, and
  - Tele-psychology.
- Noting that the prefix "Tele" is used for almost all medical disciplines.
Phases of telemedicine project development

- Established
- Pilot
- Informal
- Not indicated
Teleradiology initiatives by WHO region

- **Africa**: Established: 50%, Pilot: 40%, Informal: 10%, No Stage Provided: 0%
- **Eastern Mediterranean**: Established: 60%, Pilot: 30%, Informal: 10%, No Stage Provided: 0%
- **Europe**: Established: 70%, Pilot: 25%, Informal: 5%, No Stage Provided: 0%
- **Americas**: Established: 65%, Pilot: 30%, Informal: 5%, No Stage Provided: 0%
- **South-East Asia**: Established: 80%, Pilot: 15%, Informal: 5%, No Stage Provided: 0%
- **Western Pacific**: Established: 75%, Pilot: 20%, Informal: 5%, No Stage Provided: 0%
- **Global**: Established: 75%, Pilot: 20%, Informal: 5%
Teledermatology initiatives by WHO region

- **Established**
- **Pilot**
- **Informal**
- **No Stage Provided**

Data visualized for regions:
- Africa
- Eastern Mediterranean
- Europe
- Americas
- South-East Asia
- Western Pacific
- Global
Telepsychiatry initiatives by WHO region

- Africa: Established
- Eastern Mediterranean: Established, Pilot
- Europe: Established, Pilot, Informal
- Americas: Established
- South-East Asia: Established, Pilot, Informal, No Stage Provided
- Western Pacific: Established
- Global: Established, Pilot, Informal, No Stage Provided
Key findings: Policy and strategy

- Globally, 25% of responding countries reported that their country had a national telemedicine policy or strategy.
- Only 20% of responding countries reported having fully implemented or begun implementation of a national telemedicine policy or strategy.
- Developed countries are more likely than developing countries to have, or to have begun implementing a national telemedicine policy or strategy; however, significant growth in this area is forecast for developing countries.
The African, Eastern Mediterranean, and South-East Asian Regions currently show the lowest rates of national telemedicine policy implementation, but the highest projected growth.
Policy implementation by WHO region

- **Implemented (2009)**
- **Implemented (2013)**

<table>
<thead>
<tr>
<th>Region</th>
<th>2009 Percentage</th>
<th>2013 Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>Europe</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td>Americas</td>
<td>25%</td>
<td>35%</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>80%</td>
<td>90%</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>50%</td>
<td>60%</td>
</tr>
<tr>
<td>Global</td>
<td>45%</td>
<td>55%</td>
</tr>
</tbody>
</table>
Key findings: Scientific development

- Half of responding countries reported that scientific institutions are currently involved in developing telemedicine solutions in their country.
- Low-income countries are just as likely to have a scientific institution engaged in the development of telemedicine solutions as high-income countries; there appears to be some collaboration between scientific institutions in high-income and low-income countries to develop and implement telemedicine solutions in low-income countries.
Key findings: Scientific development

- The African Region has the second-highest rate of scientific institutional involvement in telemedicine development, while the Eastern Mediterranean Region has the lowest reported rate of involvement.
- In many countries scientific institutions are involved in developing telemedicine solutions in the absence of national telemedicine agencies or policies.
Key findings: Evaluation and evidence building

- Only 20% of responding countries reported having evaluated or reviewed the use of telemedicine in their country since 2006.
- Low-income countries are almost as likely as high-income countries to have an evaluation of telemedicine use in their country published recently.
- The African, Eastern Mediterranean and Western Pacific Regions all have a smaller proportion of countries with recently-published evaluations of telemedicine use than the proportion found worldwide.
The most prevalent barrier to the implementation of telemedicine programmes globally is the perception that costs of telemedicine are too high.

Developing countries are more likely to consider resource issues such as high costs, underdeveloped infrastructure, and lack of technical expertise to be barriers to telemedicine.

Developed countries are more likely to consider legal issues surrounding patient privacy and confidentiality, competing health system priorities, and a perceived lack of demand to be barriers to telemedicine implementation.
Barriers to telemedicine globally

- High cost: initial investment and running cost;
- Absence of legal and regulatory frameworks;
- Cultural barrier: resistance to technology, lack of education and training;
- Lack of appropriate infrastructure: ICT mainly;
- Absence of national telemedicine polices;
- Low priority among other health care needs;
- Low perceived demands for telemedicine services;
Barriers to telemedicine globally

- Lack of standards and interoperability between equipment and services;
- Lack of knowledge of value, role and operating environment of telemedicine services;
- Lack of expertise in telemedicine project management;
- Other factors.
Barriers to telemedicine globally

Cost
Legal
Culture
Infrastructure
Policy
Priorities
No Demand
Standards
Knowledge
Expertise
Other
Telemedicine information needs of the South-East Asia Region

- **Cost**
  - South-East Asia: 80%
  - Global: 60%

- **Clinical**
  - South-East Asia: 70%
  - Global: 55%

- **Infrastructure**
  - South-East Asia: 60%
  - Global: 45%

- **Evaluation**
  - South-East Asia: 75%
  - Global: 50%
Barriers to telemedicine for South-East Asia Region

![Graph showing barriers to telemedicine in South-East Asia and globally. Barriers include cost, policy, infrastructure, and culture. The graph indicates that cost is the most significant barrier in both regions, followed by policy, infrastructure, and culture.]
Discussion

shorbajin@who.int