Medical system in Futaba region after the Fukushima Daiichi Nuclear Power Plant accident
- Moving forward toward the recovery of Fukushima -

Koichi Tanigawa, MD
Director, Futaba Medical Center
March 29 2011
Namie-town and Iitate-village stay indoors for as long as possible

Before the accident
Immediately after the accident

<table>
<thead>
<tr>
<th>Medical Facility</th>
<th>Before the accident</th>
<th>Immediately after the accident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Clinic</td>
<td>60</td>
<td>3</td>
</tr>
<tr>
<td>Dentist</td>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td>Number of medical facilities</td>
<td>100</td>
<td>4</td>
</tr>
</tbody>
</table>
Municipalities and population in areas lifted evacuation order (2019)

- Total population of areas lifted evacuation order is 20,229 (20.5%)
- 41,000 people remain dislocated including voluntary evacuees, 76% of them are outside the Fukushima prefecture
- During daytime, approximately 20,000 personnel are engaged in decontamination/reconstruction projects, and decommission of the plant.

Total population of the evacuation area before the accident: 99,200

Reconstruction Agency, Japan
Number of EMS call in Futaba region

Data provided by Futaba Fire Department

Reasons of EMS call

National data

Futaba regional data
### Results of a questionnaire for residents in Tomioka Town

#### Intension about returning to Tomioka Town

<table>
<thead>
<tr>
<th>Age</th>
<th>Wish to return</th>
<th>Not decided yet</th>
<th>Decided not to return</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>160</td>
<td>25.4</td>
<td>57.6</td>
<td>1.1</td>
</tr>
<tr>
<td>&lt;30 y</td>
<td>4.9</td>
<td>29.6</td>
<td>65.4</td>
<td>-</td>
</tr>
<tr>
<td>30-39</td>
<td>8.2</td>
<td>17.2</td>
<td>74.6</td>
<td>-</td>
</tr>
<tr>
<td>40-49</td>
<td>10.4</td>
<td>29.6</td>
<td>60.0</td>
<td>-</td>
</tr>
<tr>
<td>50-59</td>
<td>15.0</td>
<td>27.7</td>
<td>57.0</td>
<td>0.3</td>
</tr>
<tr>
<td>60-69</td>
<td>17.3</td>
<td>26.3</td>
<td>55.5</td>
<td>1.0</td>
</tr>
<tr>
<td>70&lt;</td>
<td>20.8</td>
<td>23.0</td>
<td>53.9</td>
<td>2.4</td>
</tr>
</tbody>
</table>

Results of a questionnaire for residents in Tomioka Town

Major reasons for “decided not to return” or “not decided yet”

- Poor access to medical services
- Concern about safety of the nuclear power plant
- Severe damages of old houses
- Concern about safety of tap water
- Returning of commercial facilities unlikely
- More convenient for living than home towns
- Already established life in new towns
Issues in re-establishing medical system in Futaba region

- Marked increase in traffic as well as decontamination and reconstruction projects
  ⇒ increase of motor vehicle and occupational accidents
- Acceleration of population aging after the accident
  ⇒ increase proportion of elderly residents with multiple medical problems requiring multiple medications (polypharmacy)
- Shortage of medical resources after the accident
  ⇒ significant difficulties in securing human resources due to loss of living environment
- Increase of middle and old aged workers in reconstruction and decontamination projects
  ⇒ health management and prevention of illnesses needs to be more focused
- Staggering development of public transportation system in a large area
  ⇒ poor access to medical facilities
<table>
<thead>
<tr>
<th></th>
<th>April. 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>2</td>
</tr>
<tr>
<td>Clinic</td>
<td>23</td>
</tr>
<tr>
<td>Dentist</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
</tr>
</tbody>
</table>

**Medical facilities in Futaba region (2019)**

- Hospital: 2
- Clinic: 23
- Dentist: 6

**Dates**
- Futaba Medical Center Hospital opened in April, 2018
- Fukushima Daini NPP
- Fukushima Daiichi NPP

**Regions**
- Minami-soma
- Katsurao
- Namie
- Futaba
- Okuma
- Tomioka
- Kawauchi
- Iwaki
- Naraha
- Iitate

**Areas**
- Difficult-to-return zone
- Residence restriction zone
- Zone in preparation for the lifting of the evacuation order

**Note**
- Fukushima
- March 31, 2014

**Map Highlight**
- Futaba Medical Center Hospital (Opened in April, 2018)
- Futaba
- 20km
Fukushima Medical University
Futaba Medical Center Hospital
Tele-medical support
FMC contributes to reconstruct the Futaba region

- FMC responses to disasters and nuclear emergencies
- FMC functions as a safety net and promotes health of residents and workers;
  - deals with a wide variety of emergency medical problems by an effective use of manuals, guidelines, telemedicine and air transportation to overcome shortage of medical resources and geographical disadvantages
  - addresses local medical needs by providing outpatient rehabilitation, care of patients with multiple medical problems, home-visit medical care/nursing for those with poor medical access
  - prevents deterioration of pre-existing diseases by use of proactive approaches targeting high-risk residents with untreated and/or multiple medical problems in collaboration with local health professionals
  - supports prevention of illnesses and promotes health of residents and workers by engaging with health promoting activities organized by municipalities and various organizations
Major challenges: human resources

Needs to secure staff by • •

✓ collaborating with academic institutions and other hospitals
  ⇒ personnel training and human resource development

✓ appealing to medical/nursing students
  ⇒ collaboration with academic institutions

✓ featuring FMC and Futaba to attract personnel, establishing living environment
  ⇒ refining uniqueness of FMC/Futaba, obtaining support from municipalities and local organizations
Re-building a sustainable society in the post-nuclear power plant accident site is unprecedented. Our experiences would provide a basis for future planning following a nuclear accident.

To counteract depopulation and aging society which became very common in Japan, tele-medicine, proactive approaches are suitable for regions with similar problems.