EMS in Jeju

Dept. Emergency Medicine
Jeju National University School of Medicine
Juok Park
EMS station in Jeju

Single tiered system
1 EMS and Fire Agency
4 Fire stations
21 119 Centers
2 Local 119 Centers in daughter islands
## Population and EMS units

**Year: 2009**

<table>
<thead>
<tr>
<th>Fire station</th>
<th>Population (persons)</th>
<th>Area (㎢)</th>
<th>119 Centers</th>
<th>EMS Unit</th>
<th>EMS vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeju</td>
<td>321,793</td>
<td>250.829</td>
<td>7</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Seogwipo</td>
<td>83,533</td>
<td>254.89</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>West</td>
<td>81,594</td>
<td>556.59</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>East</td>
<td>80,992</td>
<td>774.023</td>
<td>5</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>567,912</strong></td>
<td><strong>1836.332</strong></td>
<td><strong>21</strong></td>
<td><strong>28</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>
Dispatch Center of EMS

1 Public-safety answering point for Fire, Rescue and EMS
= Only 1 centralized dispatch center
It’s me!!
Dispatch in Jeju

• Call taker : 15
  – No certified medical dispatcher
  – No medical dispatch protocol
  – Response time : about 60 sec

• Address and Phone-number: Auto-tracing
  – “Safety-Call Service” for high-risk patients
    • CRF, Stroke Hx, ACS Hx, Complicated DM, Chronic liver disease ..... 

• Computer-aided dispatch system
• GPS and location tracking
## EMS call in 2009

<table>
<thead>
<tr>
<th>Fire station</th>
<th>Call</th>
<th>No dispatched</th>
<th>Dispatched</th>
<th>Transport to hospital (Patient number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>34,619</td>
<td>7,019</td>
<td>27,600</td>
<td>29,061</td>
</tr>
<tr>
<td>Jeju</td>
<td>17191</td>
<td>3797</td>
<td>13394</td>
<td>13991</td>
</tr>
<tr>
<td>Seogwipo</td>
<td>5541</td>
<td>1174</td>
<td>4367</td>
<td>4619</td>
</tr>
<tr>
<td>West</td>
<td>5560</td>
<td>974</td>
<td>4586</td>
<td>4884</td>
</tr>
<tr>
<td>East</td>
<td>6327</td>
<td>1074</td>
<td>5253</td>
<td>5567</td>
</tr>
</tbody>
</table>

95 calls/day
Dispatched number of EMS Call


- No dispatched
- Dispatched
EMS Vehicle

32 Ambulances (3 MICU)
EMS Personnel

- Certified EMS personnel: 88 persons
  - Level 1 EMTs (EMT-I): 39 persons
  - Level 2 EMTs (EMT-B): 32 persons
  - Nurses: 17 persons

- More than 1 certified EMS personnel per 1 EMS Unit
  - With 1 or 2 general fire fighters
• No commercial EMS in Jeju
  – Interfacility transfer
    • Hospital ambulance or 119 ambulance
• Patients who is traveling
  – Need to transfer to out of Jeju island
    • Fixed wing transfer: 297 in 2009
      – 2 Private airline companies
    • Helicopter: 3 in 2009
      – National 119 rescue service (at Seoul)
Emergency Medical Centers

- 5 Local Emergency Medical Centers
  - Specialized Emergency Medical Centers
    - Major trauma: 1 in Jeju
    - Acute heart disease: 1 in Jeju
    - Stroke: 1 in Jeju
  - 4 in Jeju (North) and 1 in Seogwipo (South)

- 1 Local Emergency Medical Facility
Incidence rate of OHCA: 90.2/100,000 population in 2007
Cardiogenic: 53.6%, Non-cardiogenic: 36.7%
The highest level of incidence in Korea
• Total number of OHCA in 2007: 514
  – Call to field: 6.2±10.3 min
  – Field to Hospital: 26.0±24.2 min
  – Do CPR: 78.2%
  – BVM: 40.7%
  – LMA or Intubation: 3.3%
  – Application of AED: 5.3%
<table>
<thead>
<tr>
<th>Cerebral performance category</th>
<th>Total</th>
<th>Jeju</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>18,063</td>
<td>483</td>
</tr>
<tr>
<td>Death</td>
<td>16,918 (93.7%)</td>
<td>457 (94.6%)</td>
</tr>
<tr>
<td>Survival</td>
<td>470 (2.6%)</td>
<td>14 (2.9%)</td>
</tr>
<tr>
<td>CPC1</td>
<td>87 (0.5%)</td>
<td>5 (1.0%)</td>
</tr>
<tr>
<td>CPC2</td>
<td>24 (0.2%)</td>
<td>2 (0.4%)</td>
</tr>
<tr>
<td>CPC3</td>
<td>70 (0.4%)</td>
<td>3 (0.6%)</td>
</tr>
<tr>
<td>CPC4</td>
<td>159 (0.9%)</td>
<td>1 (0.2%)</td>
</tr>
<tr>
<td>CPC5</td>
<td>76 (0.4%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>36 (0.2%)</td>
<td>3 (0.6%)</td>
</tr>
</tbody>
</table>
Community EMS council
- 6 hospital in Jeju
- To decide important issues of EMS
- 2 time/year
- Perfunctory Vs. Practical

Education (since 2006)
- 3~4 times/year: certified EMTs and nurses
  - Lecture (4 hours)
- 1 time/year: Level 1 EMTs
  - Lecture with hand-on: 2 ~3 days course
Direct Medical oversight

  - Vital sign: ECG, RR, HR, BT, SaO2, BST
  - Audio-visual information
  - 3 ambulances
  - 5 hospital and 1 dispatch center

Vital sign and Information → Medical direction
Direct Medical Oversight

• Since 2010. 4.

• Mobile phone contact
  – From field to Emergency physician
  – For 24 hours
  – Hospital based

• Medical director in dispatch center
  – Emergency physician and resident
  – For 3~4 hours everyday
  – In dispatch center
Summary

• Large area
• Small population: dispersed
• Dispatch: no medical control
• EMS service and outcome: similar to other in Korea
• Medical Oversight
  – Just beginning state
  – Leadership and Harmony
  – To improve the level of prehospital care
THANK YOU FOR YOUR ATTENTION!!