EPIDEMIOLOGY OF HOSPITALISED BURN PATIENTS IN FRANCE

Annabel Rigou, Bertrand Thélot
Institut de veille sanitaire - French Institute for Public Health Surveillance

Safety 2010 World conference, London
Wednesday 22nd September, Burn Injuries session
Introduction

• 500,000 persons injured by burns each year in France
  French population : 63 million inhabitants

• Individual consequences and high economic cost

• Objectives:
  → determine the demographic characteristics and incidence of hospitalised burn patients
  → better prevent and distribute health care services
Material and method (1/2)

- The French Hospital Information System (PMSI)
  Medical information system programme – PMSI
- Identification of all hospitalisation records belonging to the burns and corrosions group
  Principal diagnoses coded according to the International Classification of Diseases (ICD-10), i.e. T20 to T32
- Analysis on patients victims of burns
- Year 2008 in France (Mainland)
- 20 centres for burn injuries (CBI) + ~ 600 units
Material and method (2/2)

• **Burn severity defined using**
  - Burn size or total body surface area (TBSA) burned
  - Occurrence of inhalation injury
  - Age

• **Severe burns defined as one of the following criteria**
  - Children < 5 years old with TBSA burned ≥ 20%
  - Persons ≥ 5 years old with TBSA burned ≥ 30%
  - Inhalation injuries

• **Data analysis**
  - Descriptive statistics
  - Standardised incidence rates were calculated per 100,000 persons (using the 1999 French census data)
Results

France - 2008:

- ~ 13,000 admissions for burns
- ~ 9,000 patients $\rightarrow$ 1.4 admissions / patient
- General incidence rate: 14.5/100,000 inhabitants
- 64% men; 36% women $\rightarrow$ sex ratio: 1.8
- Average age: 30 years old; median: 27 years old
Results: age

Burn distribution by age

Burn distribution by age for children under 5 years old

- 27% in the 00-04 age group
- 37% in the 15-19 age group
- 23% in the 60-69 age group
Results: monthly burn distribution (1/2)
Results: monthly burn distribution (2/2)

- 2-14 years
- 15-49 years
- +50 years
- 0-1 year

Graphs showing burn distribution by age group and month.
## Results: burn severity

<table>
<thead>
<tr>
<th></th>
<th>Total (N)</th>
<th>Severe burns</th>
<th>Minor burns</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>8,944</td>
<td>448</td>
<td>8,496</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100 %</td>
<td>5 %</td>
<td>95 %</td>
<td></td>
</tr>
</tbody>
</table>

### Type of units

<table>
<thead>
<tr>
<th></th>
<th>Centres for burn injuries (CBI)</th>
<th>Others units</th>
<th>&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>3,362</td>
<td>5,582</td>
<td></td>
</tr>
<tr>
<td></td>
<td>38 %</td>
<td>62 %</td>
<td></td>
</tr>
<tr>
<td></td>
<td>68 %</td>
<td>32 %</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3,057</td>
<td>5,439</td>
<td></td>
</tr>
<tr>
<td></td>
<td>36 %</td>
<td>64 %</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Average length of hospit.</th>
<th>Median length of hospit.</th>
<th>Average age</th>
<th>Median age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.5</td>
<td>3</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>7</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>1</td>
<td>30</td>
<td>27</td>
</tr>
</tbody>
</table>

*Average age and Median age are equal to 0.4.*
Results: severe burns by age

<table>
<thead>
<tr>
<th>Age groups</th>
<th>00-04</th>
<th>05-09</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60-69</th>
<th>70 et +</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.7</td>
<td>1.5</td>
<td>2.0</td>
<td>4.2</td>
<td>5.5</td>
<td>5.1</td>
<td>7.3</td>
<td>7.6</td>
<td>7.1</td>
<td>7.5</td>
</tr>
</tbody>
</table>
Results: length of hospitalisation

Total: 8.6 days
Results: length of hospitalisation

- CBI: 14.4 days
- Total: 8.6 days
- Others units: 5.0 days
## Results: deaths by burns

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>110</td>
<td>84</td>
<td>57 %</td>
</tr>
<tr>
<td>Age groups</td>
<td>152</td>
<td>42</td>
<td>78 %</td>
</tr>
<tr>
<td>Length of hospit. (days)</td>
<td>50</td>
<td>32</td>
<td>17 %</td>
</tr>
<tr>
<td>Average length of hospit.</td>
<td>19</td>
<td>7</td>
<td>20 %</td>
</tr>
<tr>
<td>Average/median age</td>
<td>61</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For information:

~ 500 deaths by fire injury in France (death certificate)

~35-40 children < 14 years
Discussion

• The French Hospital Information System (PMSI) is a reference tool for burns analysis
  – Exhaustive
  – Specific coding for burns with T20 to T32 codes, ICD-10

• No information on the causes of hospitalisations for burns: chapter XX, ICD-10, is not used in PMSI

• Results in accordance with previous studies
Conclusion

• Developing prevention campaign
  → → → becoming aware of the risk
  – In children population, when they start walking
  – In elderly people, burns are more often severe and lead to the death

• Adopting regulation measures
  → → → making the environment safer, particularly households
  – Law 2005: reduction of domestic water temperature
  – Law 2010: obligation to install a home smoke alarm
Thank you!

→ www.invs.sante.fr
→ contact: a.rigou@invs.sante.fr