Continuing changing profile of infective endocarditis
Results of a repeat 1-year population-based survey in France in 2008

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**Study objectives**

**Primary objective**
- Update the description of epidemiologic, clinical, and microbiologic characteristics of infective endocarditis (IE) in France

**Secondary objectives**
- Study the impact of source of acquisition of infection on IE characteristics
- Compare current data with those obtained from similar French surveys performed in 1991 and 1999
- Assess the impact of the IE prophylaxis guidelines changes in 2002

**Methods**

- Population-based prospective study conducted from Dec 1, 2007 to Mar 31, 2009 in 7 French regions (total population: 15 million inhabitants, 32% of the French population)
- Only patients whose first hospitalization date fell in 2008 were retained in the analysis
- Study publicized and recalled by mail to all hospital physicians likely to take care of patients with IE
- Only Duke-Li definite cases of IE were kept in the study
- Comparison of community acquired and healthcare-associated IE (drug addicts excluded)
- Analysis of evolution of annual age- and sex- standardized IE incidence among the 3 French surveys according to underlying heart disease and microorganisms

**Results**

<table>
<thead>
<tr>
<th>Patients characteristics</th>
<th>Age</th>
<th>Sex (men)</th>
<th>At least one comorbidity</th>
<th>Intravenous drug users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole population 497</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community 335 (73.3%)</td>
<td>N/mean</td>
<td>%/SD</td>
<td>N/mean</td>
<td>%/SD</td>
</tr>
<tr>
<td>Healthcare related 122 (26.7%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, y</td>
<td>62.3</td>
<td>15.9</td>
<td>62.9</td>
<td>15.4</td>
</tr>
<tr>
<td>Sex (men)</td>
<td>369</td>
<td>74.2</td>
<td>260</td>
<td>77.6</td>
</tr>
<tr>
<td>At least one comorbidity</td>
<td>237</td>
<td>47.7</td>
<td>145</td>
<td>43.3</td>
</tr>
<tr>
<td>Intravenous drug users</td>
<td>29</td>
<td>5.8</td>
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</table>

**Cardiac history**

- Underlying heart disease (HD)
  - Prosthetic valve HD
  - No previously known HD
  - PKHD without prosthesis
  - Stimulძen operations (n=165)

**Clinical and biological features**

- Fever
- Heart failure
- NYHA class II/III
- Cerebral complication
- Cerebral emboli
- Cerebral haemorrhage
- Other emboli
- Extracardiac complication
- V 1 vascular phenomena
- >1 immunogenic phenomena
- Septic shock
- Creatinine >150 umol/L

**Source of acquisition**

- Whole population 497
- Community 335 (73.3%)
- Healthcare related 122 (26.7%)

**Incidence**

<table>
<thead>
<tr>
<th>Source of acquisition</th>
<th>Whole population 497</th>
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<th>Healthcare related 122 (26.7%)</th>
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</table>

**Microorganisms**

- Microbiological data:
  1) Staphylococci are now the first group of responsible microorganisms in France, and *S. aureus* is the first species of IE pathogens
  2) Oral streptococci incidence did not increase since the 2002 French prophylaxis guidelines
  3) Incidence of group D streptococcal IE decreased

**Conclusion**

- Within a few years IE shifted from an infectious disease mostly of dental origin to mostly a healthcare-related infection - often related to staphylococcal bacteremia - which should therefore become the focus of new IE prevention guidelines

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**Funding**

- PHRC 2007, CHU de Besançon; SFC; ESCMID; Novartis

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**Patients flow chart**

- 1003 notifications
- 910 patients
- 278 excluded: <18 yrs (6) out of time (151) out of region (104) unavailable data (17)
- 632 patients
- Possible IE (105) rejected IE (30)
- 497 patients with Duke-Li definite IE

**Comments**

- The major strength of this observational study relies on its population-based design, which minimizes the impact of a potential referral bias
- Although IE global incidence remained stable, main features of IE dramatically changed over time

- Underlying HD: incidence rates increased in pts with no previously known HD and decreased markedly for pts with PKHD
- Source of acquisition: healthcare-associated IE accounted for 25% of the cases of IE with a specific profile (older age, major comorbidities, less complicated profile, *Staphylococci* +, poorer prognosis)