Epidemiology of Hepatitis B in Germany

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“Prevention of viral hepatitis in Germany and Scandinavia: lessons learnt and the way forward”
Berlin, 13-14 October 2003
## Sources of information

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<th>Sources of Information</th>
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<td>Notification system</td>
<td>annual incidence</td>
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<td>demographics</td>
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<td>risk factors</td>
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<td>Serosurveys</td>
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<td>seroprevalence</td>
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<td>incidence</td>
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<td>morbidity, mortality</td>
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</table>
Notification of hepatitis B in Germany

- mandatory since 1980 (West), 1983 (East)
- 2001: new Infectious Disease Law introduces specific case definition
- clinicians and laboratories report to local health department
- local health department merges information
- information is passed on to state, then to national level
Case definition

Clinical picture + laboratory findings

(acute infection)  HBs-Ag confirmed
               HBc-IgM
               HBV-DNA

=reference definition

Also reportable

• laboratory findings positive, symptoms absent
• laboratory findings positive, symptoms unknown
Advantages of the new surveillance system (2001)

• standardised case definition

• reporting of
  • risk factors*
  • travel history
  • vaccination status
  • hospitalisation data

* enhanced surveillance of hepatitis B and C (in collaboration with HepNet, a German network of competence)
[www.kompetenznetz.hepatitis.de]
## Serosurveys in general population

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Sample size</th>
<th>Prevalence (%)</th>
<th>95% CI</th>
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<tbody>
<tr>
<td>Thelfeld</td>
<td>1990-92</td>
<td>7430</td>
<td>anti-HBc</td>
<td>6.1</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>West</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>East</td>
<td>5.2</td>
</tr>
<tr>
<td>Thierfelder</td>
<td>1998</td>
<td>6748</td>
<td>anti-HBc</td>
<td>7.0 (7.0-7.6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>West</td>
<td>7.7 (7.0-8.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>East</td>
<td>4.3 (3.2-5.3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HBs-Ag</td>
<td>0.6 (0.4-0.8)</td>
</tr>
<tr>
<td>Jilg</td>
<td>1993-96</td>
<td>5305</td>
<td>anti-HBc</td>
<td>8.7 (7.9-9.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HBs-Ag</td>
<td>0.6 (0.4-0.8)</td>
</tr>
</tbody>
</table>

Thefeld W; Bundesgesundheitsblatt 1994
Thierfelder W; Eur J Epidemiol 2001
Jilg W; J Medical Virol 2001
Prevalence of anti-Hbc antibodies by age groups, Eastern and Western states, Germany, 1998 (n=6748)

Thierfelder W: Eur J Epidemiol 2001
Incidences of hepatitis B in Eastern and Western states, Germany, 1993-2002 (Notification data)
Notified cases of hepatitis B, Germany, 1997-2002

No. of cases


Incidence

IgM IgM

1 2 3 4 5 6 7 8

0 1 2 3 4 5 6 7 8
Incidences of hepatitis B by age and sex, Germany, 2002
(Notification data)

(crude incidence: 1.7/100,000)
Number of deaths due to hepatitis, hospitalisation data, Germany, 1998-2001

No. of treated patients

- acute hepatitis B
- chronic viral hepatitis
- unspecified hepatitis

Data source: National Bureau of Statistics
Main reported exposures for hepatitis B
(German notification data, 2002, n=578)

- Household with person chronically infected: 34
- Homosexual intercourse: 36
- Injection drug use: 91
- Heterosexual intercourse: 240
Blood donors

• since 1970, HBs-Ag-screening of blood products
• calculated residual risk for transfusion-transmitted hepatitis B (´97/´98): 1: 200 000¹
• suspected cases of transfusion-transmitted infections are reported to the Paul-Ehrlich-Institut (since 1995, 11 reports of transfusion-transmitted hepatitis B)

¹ Glück D; Infusionsther Transfusionsmed 1999
# Prevalence and incidence of hepatitis B markers in blood donors, 2001

<table>
<thead>
<tr>
<th>Population</th>
<th>Prevalence (HBs-Ag)</th>
<th>Incidence (HBs-Ag)</th>
</tr>
</thead>
<tbody>
<tr>
<td>blood donors</td>
<td>0.16%</td>
<td>1.43</td>
</tr>
<tr>
<td>2 Offergeld R: Bundesges.blatt Ges.forsch Ges.schutz 2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>general population</td>
<td>0.6%</td>
<td>2.96</td>
</tr>
<tr>
<td>3, 4 Thierfelder W; Eur J Epidemiol 2001; German Notification data; Yearbook 2001</td>
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</tr>
</tbody>
</table>

\[ \text{Incidence} = \frac{\text{Prevalence} \times \text{Rate} \times \text{Population}}{\text{Time}} \]
### Prevalence and incidence of hepatitis B markers in injection drug users, 1993-94

<table>
<thead>
<tr>
<th>Population</th>
<th>Prevalence (antiHBc)</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>injection drug users⁵</td>
<td>64%</td>
<td>26.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 person-years</td>
</tr>
<tr>
<td>general population⁶,⁷</td>
<td>7%</td>
<td>1.7</td>
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<tr>
<td></td>
<td></td>
<td>100 000 inhabitants x year</td>
</tr>
</tbody>
</table>

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⁵ Stark K; Int J Epidemiol 1997
⁶ Thierfelder W; Eur J Epidemiol 2001 ⁴
⁷ German Notification data; Yearbook 2002
Vaccination for hepatitis B

- STIKO (German Standing Committee on Immunisation) provides guidelines
- until 1995, recommendation only for risk groups
- since 1995, in addition, standard vaccination for infants, children, adolescents
- vaccination coverage measured at school entry
- in 2000, two hexavalent combination-vaccines including hepatitis B were approved (EC)
Vaccination coverage for hepatitis B at school-entry, Germany, 1996-2002

% of children with vaccination documents
Vaccination coverage for hepatitis B at school-entry, 1997-2002
Eastern and Western states

- **West**
- **East**
Antenatal screening

- routine screening of pregnant women for HBs-Ag (after 32 week of gestation)
- if positive, the newborn receives HB-Ig and active immunisation
Clustering of cases of hepatitis B, German notification data, 2001-2002

• in 2001, 33 clusters with less than 5 cases and one cluster with 18 cases were reported
  • long-term care facility
• in 2002, 9 clusters with less than 5 cases and one cluster with 6 cases were reported
  • dialysis practice
→ violation of hygiene standards
Summary

• new Infectious Disease Law allows for improved surveillance of hepatitis B
• incidence of reported hepatitis B cases decreased
• serosurveys provide valuable information on seroprevalence
• since 1995, standard vaccination for hepatitis B (infants, children and adolescents)
• vaccination coverage reached 67% (children at school-entry)