The German Law on Prevention and Control of Communicable Diseases (Infektionsschutzgesetz)-

Surveillance System

VHPB - Meeting, Berlin, Germany, 13-14 October 2003

Michael H. Kramer

Federal Ministry of Health and Social Security
Bonn, Germany
Outline

- Country Profile
- New communicable disease act
- Surveillance system description
- Recommendations and compensation for vaccination
- Hepatitis C in Germany
Germany

- Population: 82 Million (235/km²)
- Federal Republic with 16 States
- 450 Counties (pop.: 35 000 - 1.7 Million)
- 1 local health department per county
- Mainly private health care providers
- Health services reimbursed by health security system
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Elements of the Law

- Coordination early detection
- Surveillance
- Prevention and control
- Schools and community facilities
- Drinking and recreational water
- Food handlers
- Working with pathogens
- ...
Coordination early detection

- Surveillance
  - Diseases
  - Pathogens
  - Data sets
  - Reporting pathways
  - International reporting
  - Sentinel-surveys
  - Adverse health affects
### Notifiable Diseases § 6

#### Suspected diagnosis, illness and death
- Botulism
- Cholera
- Diphtheria
- Human spongioform encephalopathy
- Acute virus-hepatitis
- Hemolytic-Uremic Syndrome (HUS)
- Viral hemorrhagic fever
- Measles
- Meningococcal disease
- Anthrax
- Poliomyelitis
- Plague
- Rabies
- Typhoid /paratyphoid fever

#### Illness and death
- Tuberculosis
<table>
<thead>
<tr>
<th>Notifiable Evidence of Pathogens (§ 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Adenovirus</td>
</tr>
<tr>
<td>2. Bacillus anthracis</td>
</tr>
<tr>
<td>3. Borrelia recurrentis</td>
</tr>
<tr>
<td>4. Brucella sp.</td>
</tr>
<tr>
<td>5. Campylobacter sp.</td>
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<tr>
<td>6. Chlamydia psittaci</td>
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<tr>
<td>7. Clostridium botulinum</td>
</tr>
<tr>
<td>8. Corynebacterium diphtheriae</td>
</tr>
<tr>
<td>9. Coxiella burnetii</td>
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<tr>
<td>10. Cryptosporidium parvum</td>
</tr>
<tr>
<td>11. Ebolavirus</td>
</tr>
<tr>
<td>12. a) EHEC</td>
</tr>
<tr>
<td>b) E. coli, enteropathogenic.</td>
</tr>
<tr>
<td>13. Francisella tularensis</td>
</tr>
<tr>
<td>14. FSME-Virus</td>
</tr>
<tr>
<td>15. Yellow fever virus</td>
</tr>
<tr>
<td>16. Giardia lamblia</td>
</tr>
<tr>
<td>17. Haemophilus influenzae</td>
</tr>
<tr>
<td>18. Hanta virus</td>
</tr>
<tr>
<td>19. Hepatitis A virus</td>
</tr>
<tr>
<td>20. Hepatitis B virus</td>
</tr>
<tr>
<td>21. Hepatitis C virus (non-chronic)</td>
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<tr>
<td>22. Hepatitis D virus</td>
</tr>
<tr>
<td>23. Hepatitis E virus</td>
</tr>
<tr>
<td>24. Influenza virus</td>
</tr>
<tr>
<td>25. Lassa virus</td>
</tr>
<tr>
<td>26. Legionella sp.</td>
</tr>
<tr>
<td>27. Leptospira interrogans</td>
</tr>
<tr>
<td>28. Listeria monocytogenes</td>
</tr>
<tr>
<td>29. Marburg virus</td>
</tr>
<tr>
<td>30. Measles virus</td>
</tr>
<tr>
<td>31. Mycobacterium leprae</td>
</tr>
<tr>
<td>32. Mycobacterium tuberculosis</td>
</tr>
<tr>
<td>33. Neisseria meningitidis</td>
</tr>
<tr>
<td>34. Norwalk-like virus</td>
</tr>
<tr>
<td>35. Poliovirus</td>
</tr>
<tr>
<td>36. Rabiesvirus</td>
</tr>
<tr>
<td>37. Rickettsia prowazekii</td>
</tr>
<tr>
<td>38. Rotavirus</td>
</tr>
<tr>
<td>39. Salmonella Paratyphi</td>
</tr>
<tr>
<td>40. Salmonella Typhi</td>
</tr>
<tr>
<td>41. Salmonella, sonstige</td>
</tr>
<tr>
<td>42. Shigella sp.</td>
</tr>
<tr>
<td>43. Trichinella spiralis</td>
</tr>
<tr>
<td>44. Vibrio cholerae O 1 and O 139</td>
</tr>
<tr>
<td>45. Yersinia enterocolitica</td>
</tr>
<tr>
<td>46. Yersinia pestis</td>
</tr>
<tr>
<td>47. Other pathogens of hemorrhagic fever</td>
</tr>
</tbody>
</table>
Case Definitions

- To be used by health departments
- Classified by diagnostic certainty
  - clinical picture
  - laboratory confirmation
  - epidemiologic link
- Compatible with EU-case definitions
Reporting Channels §11

<table>
<thead>
<tr>
<th>week of notification</th>
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<tbody>
<tr>
<td>1. Week after notification</td>
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<tr>
<td>2. Week after notification</td>
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<tr>
<td>3. Week after notification</td>
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</tbody>
</table>

1. Mo
2. Tu
3. We
4. Th
5. Fr
6. Sa
7. Su
8. Mo
9. Tu
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11. Th
12. Fr
13. Sa
14. Su
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17. We
18. Th
19. Fr
20. Sa
21. Su
22. Mo
23. Tu
24. We
25. Th
26. Fr
27. Sa
28. Su

lab

Local health dept.

State health dept.

Robert Koch-Institut

Weekly Epidemiologic Bulletin
Special Reporting

Directly to RKI:
1. *Treponema pallidum*
2. HIV
3. *Echinococcus* sp.
4. *Plasmodium* sp.
5. Rubellavirus (angebore Infektion)
6. *Toxoplasma gondii* (angebore Infektion)

EU and WHO early warning systems
Aktuelle Statistik meldepflichtiger Infektionskrankheiten
Stand v. 04.07.2001 (24. Woche)

<table>
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<th></th>
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<tbody>
<tr>
<td>Adenovirus-Infectionen +</td>
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<td>26</td>
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</tr>
<tr>
<td>Influenza +</td>
<td>3</td>
<td>2186</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legionellose +</td>
<td>6</td>
<td>88</td>
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<td></td>
</tr>
<tr>
<td>FSME +</td>
<td>0</td>
<td>13</td>
<td></td>
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<tr>
<td>Haemophilus-infl.-Infektion +</td>
<td>0</td>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humane spongiform. Enz. +</td>
<td>2</td>
<td>20</td>
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<tr>
<td>Listeriose +</td>
<td>6</td>
<td>92</td>
<td></td>
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<tr>
<td>Brucellose</td>
<td>0</td>
<td>6</td>
<td>8</td>
<td>27</td>
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<tr>
<td>Hantavirus-Infektion +</td>
<td>3</td>
<td>65</td>
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<tr>
<td>Leptospirose</td>
<td>1</td>
<td>11</td>
<td>10</td>
<td>45</td>
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<tr>
<td>Ornithose</td>
<td>0</td>
<td>8</td>
<td>43</td>
<td>86</td>
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<tr>
<td>Q-Fieber</td>
<td>6</td>
<td>175</td>
<td>88</td>
<td>206</td>
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<tr>
<td>Tularämie</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Echinokokkose</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Giardiasis +</td>
<td>67</td>
<td>1558</td>
<td></td>
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<tr>
<td>Kryptosporidiose +</td>
<td>9</td>
<td>167</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trichinellose</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>4</td>
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<tr>
<td>konnatale Röteln</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>konnatale Toxoplasmosis</td>
<td>*</td>
<td></td>
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</tbody>
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* z.Z. keine Angabe von Vergleichswerten
* Publikation von Daten zu einem späteren Zeitpunkt

Neu erfasste Erkrankungsfälle von besonderer Bedeutung:

- **Hämolytisch-urämisches Syndrom bei EHEC-Infektion**: Niedersachsen, 2 Jahre, weiblich
- **Virusbedingtes hämorragisches Fieber (VHF)**: Sachsen, 27 Jahre, männlich, Dengue-Fieber nach Rückkehr aus Indien (17. Dengue-Fall in diesem Jahr)

Neu erfasste Ausbrüche von besonderer Bedeutung:


- **S. Enteritidis/Salmoneellen-Gruppe**: Der Anstieg an Salmoneellenenerkrankungen in Brandenburg ist durch einen Ausbruch bedingt, der 41 labordiagnostisch gesicherte Fälle von Salmonella Enteritidis umfasst. Vermutliche Ursache ist der Verzehr von Knüppelkehl oder Knöb

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Das Epidemiologische Bulletin
gewährleistet im Rahmen des Infektions-
epidemiologischen Netzwerks einen raschen Informationsaustausch zwischen den ver-
schiedenen Akteuren – den Ärzten in Praxen, Kliniken, Laboratorien, Beratungsstellen und Einrichtungen des öffentlichen Gesundheits-
dienstes sowie den medizinischen Fachge-
schaften, Nationalen Referenzzentren und den Stützen der Forschung und Lehre – und dient damit der Optimierung der Prävention.
Herausgeber und Redaktion erhielten eine aktive Unterstützung durch die Übermittlung allgemein interessierender Mitteilungen, Analysen und Fallberichte. Der Einverständniserklärung mit einer redaktionellen Überarbeitung wird dabei vorausgesetzt.
Das Epidemiologische Bulletin erscheint in der Regel wöchentlich (50 Ausgaben pro Jahr). Es kann im Jahresabonnement für einen Unko-
stenpreis DM 96,- per Beginn des Kal-
nerjahres bezogen werden; bei Bestellung nach Jahresbeginn errechnet sich der Beitrag mit DM 8,- je Bezugsmonat. Ohne Kündigung bis Ende November verlängert sich das Abon-
nement um ein Jahr.
Die aktuelle Ausgabe des Epidemiologischen Bulle-
tlies kann über die Fax-Abruf-Funktion (Pulling) unter 030/754-2264 abgerufen werden. – Die Ausgaben ab 1993 stehen im Internet zur Verfügung unter:
http://www.rki.de/INFECT/EPUBLI/EP.htm
Druck
Paul Fleck KG, Berlin
Nachdruck
mit Quellenangabe gestattet, jedoch nicht zu wirtschaftlichen Zwecken.
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- Hepatitis C in Germany
Robert Koch-Institut (RKI)
- publishes variable plan
- develops “SurvNet” surveillance software

State health departments (Landesstellen)
- use “SurvNet”

Local health departments
- use “SurvNet” or
- commercial software
Health Department Search Tool
Key Elements

- Diseases/agents
- Case definition
- Minimal data set
- Electronic reporting
Outline

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German Advisory Committee on Vaccination Practices (STIKO)

- Secretariat at the Robert Koch-Institute
- Advise on vaccination and post-exposure prophylaxis
- Basis for state recommendations
- Costs for standard vaccinations usually reimbursed by health insurance
- Criteria for definitions of adverse reactions
Complication after Vaccination §6

- Suspected adverse health-affect exceeding normal reaction to vaccination--reporting to:
  - local health department
  - state health department
  - Paul Ehrlich-Institute and Robert Koch-Institute
Assessment of Vaccination Coverage (§34)

- At School Entry (age ≈ 6 years), health department records immunization status
  - aggregated data are reported to state health dept. and RKI
- However, basic immunization schedule should be completed by age 24 months
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Hepatitis C - Case Definition

- Clinical diagnosis
  - elevated TA or icterus
- Laboratory diagnosis
  - NAT (e.g., PCR) or
  - HCV antibodies (e.g., ELISA confirmed with immunoblot)
- Reportable unless known chronic hepatitis C:
  = newly diagnosed cases
# Classification of Hepatitis C Cases by Strength of Evidence

<table>
<thead>
<tr>
<th>Strength of evidence</th>
<th># cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab + clinical picture</td>
<td>2,185</td>
<td>33%</td>
</tr>
<tr>
<td>Clinical picture + epi. link</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Lab without clin. pict.</td>
<td>3,420</td>
<td>52%</td>
</tr>
<tr>
<td>Lab and unknown clin. pict.</td>
<td>995</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Total 2002, Germany</strong></td>
<td><strong>6,600</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

RKI, Infektionsepidemiologisches Jahrbuch 2002
Hepatitis C in Germany

- Incidence: 8 per 100,000
  - range: 1.7 - 12.6
  - male: 10.3, female: 5.8
  - peak: age 20-29 years

- Country of infection:
  - 89% Germany, 6% NIS

- Role of IVDU probably underestimated
  - ≥50% of new infections?
### Sero-prevalence of Hepatitis C

<table>
<thead>
<tr>
<th>Group</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons with hemophilia (&lt;1987)</td>
<td>80-90%</td>
</tr>
<tr>
<td>IVDU</td>
<td>60-80%</td>
</tr>
<tr>
<td>Persons with organ transplants</td>
<td>5-15%</td>
</tr>
<tr>
<td>Dialysis patients</td>
<td>4-10%</td>
</tr>
<tr>
<td>Children of HCV+ mothers</td>
<td>3-5%</td>
</tr>
<tr>
<td>General German population</td>
<td>0.5-0.7%</td>
</tr>
</tbody>
</table>

RKI, Gesundheitsberichterstattung des Bundes, Heft 15, 2003
Acknowledgements

Colleagues in
- Local health departments
- State health departments
- Robert Koch-Institute