Infection control in Germany – present situation and future developments

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Germany
Old coal and steel producing area. Now service and energy industries. 600,000 inhabitants. Cultural capital of Europe in 2010.

University Clinics Essen. 1,300 beds.
Regulations of infection control in Germany started about 30 years ago.
The law

**Federal infection prevention law** (Infektionsschutzgesetz, IfSG):
- 15 infectious diseases must be reported to state authorities, also outbreaks.
- No have to be counted, also multiresistant bacteria.
- Written standards of infection control (hygiene plan) in all healthcare settings.
- Inspection of all hospitals by state authorities (local board of health).

**Medical devices law** (Medizinproduktegesetz, MPG):
- High standards for reprocessing of medical devices:
  - Validation of washing disinfectors and autoclavs,
  - Courses for staff.

**Social Code Book V** (SGB V):
- Quality management in all hospitals.

**Hospital laws** on state level, e.g. North Rhine Westfalia:
- Each hospital needs an infection control (hygiene) commission, also fulltime infection control nurses.
Staphylococcus aureus
Oxacillin

Grenzwerte:
Sensibel: <= 1
Resistent: > 1 mg/l
(DIN 58940)
Paul-Ehrlich-Gesellschaft für Chemotherapie: AG "Empfindlichkeitsprüfungen & Resistenz"
Figure 5.8. *Staphylococcus aureus*: proportion of invasive isolates resistant to oxacillin (MRSA) in 2006.

* These countries did not report any data or reported less than 10 isolates.
Recommendations

Technical standards:
  Reprocessing of medical devices (DIN EN).
  Water supply (DVGW, Federal Environment Agency).
  Air supply (DIN, VDI)

Hospital hygiene commission of Robert Koch Institute (RKI):
  Since 1976.
  Evidence-based since 1997.
  Not in English available.

Infection control societies:
  German Society for Hospital Hygiene (DGKH).
  German Society for Sterile Goods Supply (DGSV).
Reality (Structure quality)

**Infection control nurses** are working in nearly all hospitals:
Infection control nurse/bed ratio only in 4 states – e.g. North Rhine Westfalia 1/400 beds.
Tendency to buy the knowledge from external services (better knowledge and more experience – less time available).

**Infection control doctors** only fulltime in university clinics.
All other hospitals only doctors “responsible for infection control” (5 day course).

**Infection control commission** in all hospitals.
Activity and quality of work varying very much.

Written infection control **standards** in all hospitals.
Quality varying.
Reality

Process quality – examples of surveillance
   Water: colonies/ml, Legionella, Pseudomonas, E. coli; lead, copper
   Endoscopes after reprocessing
   Washer-disinfectors: Thermologger, biological indicators
   Autoclavs: Validation, biological indicators
   Kitchen: Swabs, freeze all meals for some days

Outcome quality - indicators
   Bacteria and resistance data
   NI rates
      Method: KISS (like CDC)
      Surgical site infections, device-associated sepsis, pneumonia, urinary tract infections
   Problems:
      Influence of the persons doing surveillance
      Problem of small numbers in short observation periods
      Sepsis: the more cases the more blood cultures
      Pneumonia: who makes the x-ray diagnosis?
In 2000, financing of hospitals was completely changed to DRGs (diagnoses related groups).

Hospitals must finance themselves now.

Some big city hospitals have a deficit of 10 – 30 million € each year.
Hospital proceeds: Daily calculation and DRG case rates

- Proceeds
- Costs
- Daily calculation
- DRG
- Stay (days)
**Hospital ownership:**

- 26 % private companies
  - Asklepios, Rhön (first university clinics), Helios, Sana
- 36 % public (e.g. cities)
- 38 % public welfare (e.g. church)

**Nurses:**

- 50,000 from 1995 to 2005

**Prognosis:**

Less nurses, more staff with low qualification.

<table>
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<th>Year</th>
<th>Hospitals</th>
<th>Beds</th>
<th>Patient days</th>
<th>Patient stay</th>
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<td>1991</td>
<td>2,411</td>
<td>666,000</td>
<td>14.6 mio</td>
<td>14.0 days</td>
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<tr>
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<td>2,104</td>
<td>511,000</td>
<td>16.8 mio</td>
<td>8.5 days</td>
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<td>2014</td>
<td>1,500 – 1,800</td>
<td>↓</td>
<td>?</td>
<td>↓</td>
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</table>

(estimation)
Federal Joint Committee (G-BA)

Main decision making body in German health care.

Issues legally binding directives.

Established in 2004.

Represents physicians, hospitals, sickness funds and patients.

Evidence-based coverage decisions regarding innovations for outpatient care and hospital care (which therapy, drugs... sickness funds have to pay for)
Quality directives according to Federal Joint Committee (G-BA)

Quality reports of all hospitals every 2 years (mainly structure, most important DRGs).

BQS quality report every year.

Minimum rates for treatment.

Neonatology regulations.
Quality directives according to Federal Joint Committee (G-BA)

Quality reports of all hospitals every 2 years (mainly structure, most important DRGs).

BQS quality report every year.

Minimum rates for treatment, e.g.
  - Liver transplantation: 20
  - Renal transplantation: 25
  - Esophagus surgery: 10
  - Pancreas surgery: 10
  - Bone marrow transplantation: 25
  - Knee endoprothesis: 50

Neonatology regulations, besides other requirements:
  - NI infection rates.
BQS: Federal institute for quality management

Outcome data for 24 treatments.

Quality report each year – only on federal level, no individual hospital data public.
Discussion with hospitals out of accepted range.

From 2007 on some hospital outcome data will have to be made public (benchmarking).

Some NI data included.
Infection control in Germany:
Since 30 years.
Fulltime nurses in most hospitals.
Fulltime doctors only in university clinics.
Only little knowledge of medical students.

Multiresistant bacteria as growing problem.
Also some viruses (like norovirus).

Discussion in media growing at the moment.
Greater importance of costs – more importance of infection control?
Coming up discussion in Federal Joint Committee (G-BA):

NI for benchmarking? (…yes…) 
How to measure NI? 
    KISS/CDC criteria or 
    routine data (DRGs, BQS)? (…yes…) 

Legislation of EU would help to develop IC in Germany.