Mongolian Emergency Service
Hospital Hygiene Project
MeshHp.mn

Control of Hospital hygiene

Mongolia 2011

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Legislation

Structure quality

Process quality

Outcome quality

Examples from Essen

MeshHp project

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Infection control	Prevention
Legislation and recommendations	(primary)
Structure quality	Primary
Process quality	Primary
Outcome quality	Secondary
External audits	(secondary)

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Legislation and recommendations

Legislation
- Transnational, e.g. EU (e.g. medical devices)
- National level (e.g. Infection prevention law in Germany)
- State level (US state regulations for MRSA)

Recommendations, guidelines
- National institutions, e.g. CDC, RKI
- Societies for infection control, e.g. APIC, CHICA

State of technics
- DIN EN ISO (e.g. water, air, sterilisation)

Occupational safety regulations
- Transnational, e.g. EU (Biological agents…)
- national

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Indicators of Structure quality
- Only description, no measurement -

Is there an infection control body in the institution?
- Members (Doctors, nurses, cleaning staff, technics, farmacy, administration …)
- Meetings how often?
- Agenda and documentation?

Are there infection control doctors and nurses?
- Qualification?
- Do they have enough time?
- Additional infection control link doctors and nurses?

Rooms and technical support for infection control staff
- Own rooms?
- Own (microbiological) laboratory?
- Computers, internet support?
- Own department?

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Structure quality also influenced by other factors

Building structure
- How many beds per room?
- Sanitary situation.
- Medical products and devices.
- Operating theatre.

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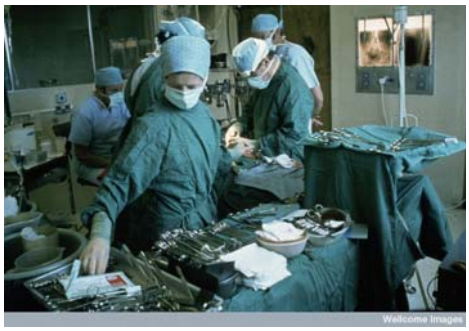
Structure quality depends on country.



Structure quality also influenced by other factors

Building structure
- How many beds per room?
- Sanitary situation.
- Medical products and devices.
- Operating theatre.
- Water supply.
- Air supply.
- Food supply.

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Structure quality also influenced by other factors

Building structure
- How many beds per room?
- Sanitary situation.
- Medical products and devices.
- Operating theatre.
- Water supply.
- Air supply.
- Food supply.

Patient structure
- How many?
- Immunocompromised?
- Highly infectious patients?
- Multidrug resistant bacteria?

⇨ High influence on outcome quality!

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Two main principles

Surfaces must withstand cleaning and disinfection (more corrosive!)!
… and organise that cleaning is possible at all!

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Not to be cleaned

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Wood not to be disinfected.
Varnish must withstand disinfectants!

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Chaotic organisation – no cleaning possible

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Wood, textiles – not to be disinfected

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Space behind the waste not to be cleaned

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Two main principles

Surfaces must withstand cleaning and disinfection (more corrosive!)!
… and organise that cleaning is possible at all!

Separate dirty and clean work:
Separate in rooms or
At least as far as possible.

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Clean and dirty linen

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Sterilisation and disinfection areas too near to each other

Clean linen – but mould on the wall

Indicators of process quality

Infection manual: Written standards how to work (isolation practices, hand disinfection, handle wounds, reprocess instruments, skin disinfection, invasive procedures …)

- Best of all
  - Evidence based
  - Available in intraweb
  - (otherwise on paper)

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Indicators of process quality

Written standards how to work (to take blood, make hand disinfection, handle wounds, reprocess instruments, skin disinfection, handle catheters …)

- Best of all
  - Evidence based
  - Available in intraweb

Training of standards (central and on wards)
Education, e.g. in nursing schools, of students

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Risk of needlesticks

No towels for the whole staff – best of all single use paper towels

Storage of food –
How long?
Temperature control?
Documentation of storage time?

Medical devices – who has to clean and how?

Indicators of process quality

Written standards how to work (to take blood, make hand disinfection, handle wounds, reprocess instruments, skin disinfection, handle catheters …)

- Best of all
  - Evidence based
  - Available in intraweb

Training of standards (central and on wards)
Education, e.g. in nursing schools, of students

Process surveillance: examination of surfaces, medical products, water …

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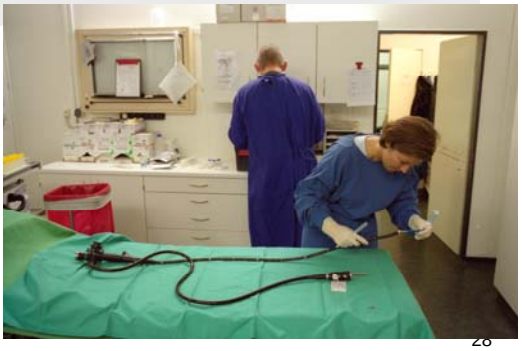
Process surveillance - examples

Water: colonies/ml, Legionella, Pseudomonas, E. coli; lead, copper

Endoscopes after reprocessing: sterile water passage, swabs



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Process surveillance - examples

Water: colonies/ml, Legionella, Pseudomonas, E. coli; lead, copper

Endoscopes after reprocessing: sterile water passage, swabs

Thermo-disinfectors: Thermologger, biological indicators

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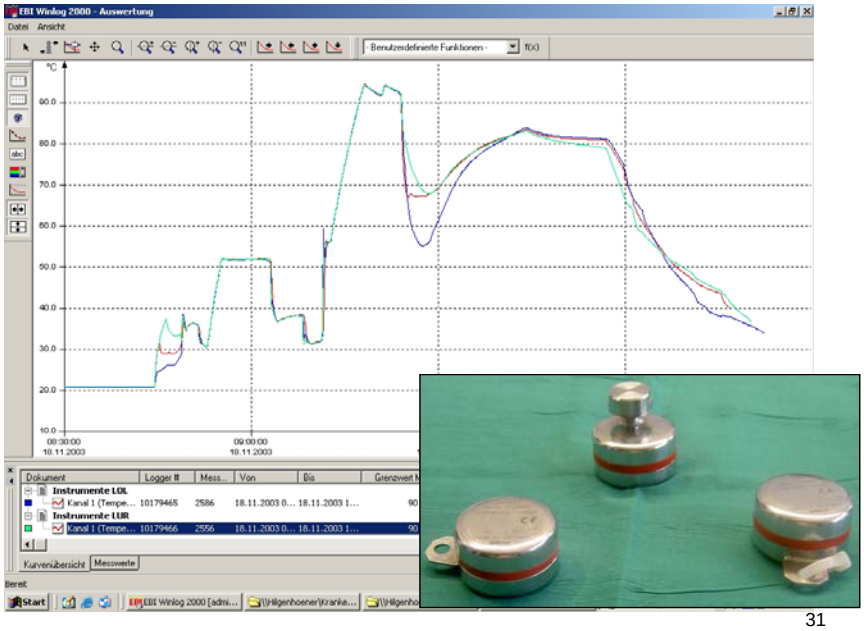

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Process surveillance - examples

Water: colonies/ml, Legionella, Pseudomonas, E. coli; lead, copper

Endoscopes after reprocessing: sterile water passage, swabs

Thermo-disinfectors: Thermologger, biological indicators

Autoclavs: Validation, biological indicators

Kitchen: Swabs, freeze all meals for some days

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Sterilised instruments ready to use – but not clean after complete reprocessing

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A very important part of process surveillance:

Compliance!

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Indicators of outcome quality

Healthcare-associated infection rates

Germs and resistance reports

Statistics of multiresistant bacteria

… depends on structure and process quality!

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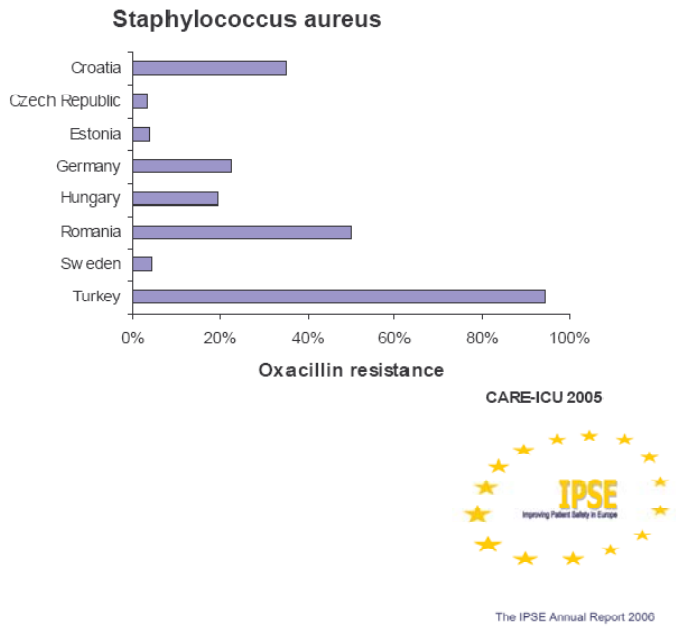

Healthcare-associated infection rates

All infections by clinical diagnosis

Prevalence – incidence

Formal definitions of healthcare-associated infections (e.g. CDC):
- Surgical site infections
- Device-associated infections like sepsis, pneumonia, urinary tract infections

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Table 2. Pooled means and key percentiles of the distribution of central line-associated BSI rates and central line utilization ratios, by type of location, DA module, 2006

Central line-associated BSI rate*	No. of locations	No. of CLAB	Central line-days	Pooled mean	Percentile				
					10%	25%	50% (median)	75%	90%
Type of location									
Burn ICU	14	127	18,612	6.8					
Coronary ICU	53	181	63,941	2.8	0.0	0.0	2.0	4.2	6.5
Surgical cardiothoracic ICU	51	150	92,484	1.6	0.0	0.0	1.2	2.8	4.1
Medical ICU	73	489	170,719	2.9	0.0	0.8	2.2	4.2	6.2
Medical/surgical ICU									
Major teaching	63	304	128,502	2.4	0.0	0.6	1.9	3.1	5.5
All others	102	431	198,551	2.2	0.0	0.0	1.0	2.3	4.5
Pediatric medical/surgical ICU	36	255	48,144	5.3	0.0	1.1	3.5	6.5	9.4
Neurosurgical ICU	19	75	21,412	3.5					
Surgical ICU	72	378	137,484	2.7	0.0	0.9	2.0	4.4	7.4
Trauma ICU	21	182	39,635	4.6	0.0	0.4	3.3	6.5	8.5
Inpatient medical ward	18	51	24,218	2.1					
Inpatient medical/surgical ward	26	58	38,340	1.5	0.0	0.0	0.0	1.8	3.6

National Healthcare Safety Network (NHSN) Report, data summary for 2006, issued June 2007

Jonathan R. Edwards, MS, Kelly D. Peterson, BBA, Mary L. Andrus, BA, RN, CIC, James S. Tolson, BS, Joy S. Goulding, Margaret A. Dudeck, MPH, Randy B. Mincey, BA, Daniel A. Pollock, MD, Teresa C. Horan, MPH, and the NHSN Facilities
Atlanta, Georgia

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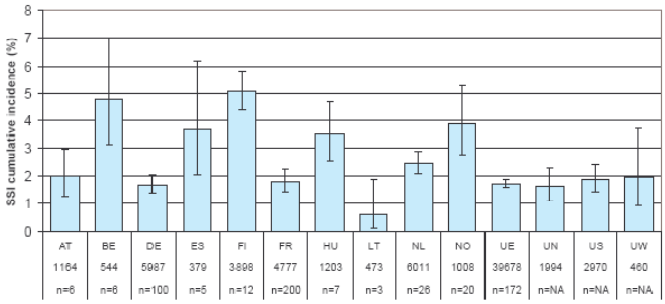
Figure 3 Comparison between cumulative incidence and incidence density of SSI for hip prosthesis by country. ***Bars represent 95% confidence limits. Numbers represent the number of interventions and the number of hospitals***



The IPSE Annual Report 2006

Problems

Influence of the persons doing surveillance (standing/reputation in the hospital staff?)

Problem of small numbers in short periods (e.g. 3 months)

Problems of diagnosis:
- Sepsis: the more cases the more blood cultures
- Pneumonia: who makes the x-ray diagnosis?
- Politics of antibiotics

Numbers of indicator operations big enough?
- e.g. infection rate about 2 % in Germany

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External audits

Inspection by state authorities

Certification of the hospital oder parts of it (e.g. DIN ISO 9001: 2000)

Benchmarking by national or state institutions, e.g. by health insurance companies

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Example: Hospital Hygiene in Essen

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University Clinics of Essen
Hospital Hygiene

Service unit, responsible to Medical Director

Hygiene commission
- Meetings twice a year (each up to 2 hours)
- Protocol about each meeting

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Hygiene commission – members

- Medical director
- Director of administration
- Nurses director
- Hospital hygiene doctors and nurses
- Microbiologist
- Virologist
- Employees´ doctor
- Work protection unit
- Pharmacist
- Technic department
- Purchasing department
- Cleaning unit
- 3 link doctors
- CSSD
- Quality manager

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Hospital hygiene unit

Recommendation of RKI:
Fulltime hospital hygiene doctor over 400 beds
Fulltime hospital hygiene nurse for each 150-200 beds

Essen: 1.280 beds
3 doctors (Prof. Popp, Dr. Hansen, Dr. Ross soon)
    Specialisation 5 years
6 hospital hygiene nurses
    Specialisation 2 years
Secretaries, student on hour basis

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Hospital hygiene

Link doctor for each department

Link nurse for each ward and section (e.g. endoscopy)

5 day course

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Hygiene plan
- Available in Intranet
- Search function

Newsletter per mail to all staff members who are interested

Short tips every month in Hygiene plan and newsletter

Own intraweb of Hospital hygiene with a lot of documents and documentation of all important calls, visits, decisions …

Internal **audits** of all departments

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Control – by audits and visits

Yearly audit of all wards, sections…
Written reports

On site visits for special reasons (questions from ward)
Documented in Hospital Hygiene Intraweb

Projects about special questions
e.g. how to disinfect ultrasonic head – survey on wards
e.g. questionaire to link nurses

Sometimes also survey by nurses department

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Control - Training of staff

Once a year whole day symposium

Every two years whole day symposium with firebrigade

5 one day tools for link doctors and nurses

Different half day training tools, e.g.
- Hygiene on ICU, hygiene in operating theatre
- MRSA and other multiresistant bacteria
- Hygiene for wound experts, hygiene for ambulant care

Lessons in different schools of hospital (school for nurses, physiotherapists …)

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Control investigations	Number in 2009
Water (cfu/ml, no Pseudomonas, no E. coli)	77
Water (legionella/100 ml)	135
Water (lead, copper, nickel)	29
Endoscopes (sterile water through channels, swabs)	92
Mechanical ventilation in operating theatre: particles, air flow	115, 232
Workbench - particles	136
Washer disinfector - thermologger	38
Washer disinfector for endoscopes - water	11
Bedpan washer - thermologger	159
Central bed reprocessing area – swabs, thermologger	2, 1
Bed linen from laundry - swabs	1
Physiotherapy, fangio	4
Water-Cooler	27
Bloodbank - swabs	4
Cornea laboratory - swabs	4
Training of hand disinfection with blackbox	150
Different swabs in small projects, e.g. blood pressure cuffs, doctors´ ballpens, cordless phones	62
Hand swabs	96

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