Preventing Healthcare-Associated Infection; a Worldwide Strategy

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In UK, nosocomial infections may be responsible for > 5’000 deaths/year
BMJ 2.12.2000

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US$17 to US$29 billion / year

at least £ 1 billion / year
Ignaz Philipp Semmelweis

Intervention

May 1847

- Students and doctors were required to:
  - clean their hands with a chlorinated lime solution when entering the labor room
  - in particular when moving from the autopsy to the labor room

Maternal mortality rates, First and Second Obstetric Clinics, GENERAL HOSPITAL OF VIENNA, 1841-1846

Semmelweis IP, 1861

Florence Nightingale, 1820 - 1907
Early days of infection control

1847
1863

Infection Control and Quality Healthcare in the New Millennium

What did we learn from the early days?

Recognize
Explain
Act

Does infection control control infections?
**SENIC study**  

**Study on the Efficacy of Nosocomial Infection Control**

Relative change in NI in a 5 year period (1970-1975)

Without infection control:
- 0%
- 10%
- 20%
- 30%

With infection control:
- 9%
- 14%
- 19%
- 26%
- 18%

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**SENIC**  
Study on the Efficacy of Nosocomial Infection Control

- 1 infection control nurse per 200 to 250 beds
- 1 hospital epidemiologist per hospital (1000 beds)
- Organized surveillance for nosocomial infections
- Feedback of nosocomial infection rates

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**Approach to infection control**

1847
1863
1958
1970
1980

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**1st principle of infection prevention**

35-50% of all nosocomial infections are associated with only 5 patient care practices:

- Use and care of urinary catheters
- Use and care of vascular access lines
- Therapy and support of pulmonary functions
- Experience with surgical procedures
- Hand hygiene and standard precautions
Relation between opportunities for hand hygiene for nurses and compliance across hospital wards

Observed reasons for not washing hands

Time and system constraints

• High demand for hand hygiene is associated with low compliance

• Full compliance with conventional guidelines is unrealistic

Handwashing ...

an action of the past
(except when hands are visibly soiled)

Alcohol-based hand rub is standard of care

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Alcohol-based hand rub is standard of care
Hôpitaux Universitaires de Genève

Alcohol-based hand rub at the point of care
Before and after any patient contact
Before and after glove use
In between different body site care

“Talking walls”

My son, if they don’t get me, you will become multiresistant
Handrub is the natural killer of cross transmission.

DIRTY STAPH out of hospital

Hospital-wide nosocomial infections; trends 1994-1998

www.hopisafe.ch
Key parameters for success

- System change
- Administrative support
- Education of healthcare workers
- Monitoring and feedback of performance
- Change in behavior
- Associated with compliance improvement and reduction in cross-transmission and infection rates

Infection control in developing countries

- Unfavorable social background
- Facilities badly structured and equipped
- Technological gap

Lack of adequate conditions in hospitals

- Inadequately/insufficiently equipped
- Inadequate hygiene conditions
- Lack of microbiological data
- Understaffing
- Overcrowding
  - Bed occupancy exceeding capacity: 140%
- Low staff preparedness
  - Unnecessary measures / lack of adequate measures

Consequences

- Unsafe invasive procedures
  - 50% injections = unsafe in 14 out of 19 countries
  - sepsis, hepatitis B and C, HIV, Ebola, Lassa and malaria
- Nosocomial outbreaks of introduced community pathogens
  - Shigella spp., Salmonella spp.
- Spread of multiresistant microorganisms
- Higher healthcare-associated infection rates
Preventing Healthcare-Associated Infection: A Worldwide Strategy
Professor Didier Pittet, University of Geneva
Sponsored by Maunco Medical www.mauncomedical.com

Consequences

Higher device-associated nosocomial rates

<table>
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<tr>
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<th>Setting</th>
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<th>VAP*</th>
<th>CR-UTI*</th>
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<td>Med/Surg ICU</td>
<td>4.9</td>
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</tr>
</tbody>
</table>

* Device-related rate= Number of infections/1000 device-days

Consequences

Inadequate use of technology

Review of cases of nosocomial Lassa fever in Nigeria: the high price of poor medical practice
- 34 cases (9 HCWs)
- 55% attack rate
- 65% fatality rate
- Outbreak linked to:
  - Hospitals inadequately equipped and staffed
  - Poor medical practice
  - Sharing of syringes
  - Staff contamination during emergency surgery

Perspectives

- Improvement in hygiene conditions
- Staff training
  - HAI rates
  - Savings: ~ US$ 2 million
  - 20% atb use
- Surveillance strategy
  - Selective surveillance
  - Feasible epidemiologic markers

Impact of hand hygiene education in the community in a developing country
Luby et al. JAMA 2004; 291: 2547-2554
- Cluster-randomized study (villages)
- Rural community in Pakistan
- Intervention: education with focus on hand hygiene and distribution of soap
- Results
  - ↓ diarrhoea
  - ↓ skin infections
  - ↓ respiratory infections
  - ↓ mortality among children

World Alliance for Patient Safety

Hosted by Paul Webber paul@webbertraining.com
A Webber Training Teleclass
www.webbertraining.com
World Alliance for Patient Safety

Global Patient Safety Challenge 2005

Healthcare-associated infections
- affect millions of patients worldwide every year
- more serious illness
- prolong hospital stay
- long-term disability
- high costs on humans and their families
- excess deaths
- massive additional financial burden

Clean Care is Safer Care

Major action areas
- Improve hand hygiene
- Injection safety
- Blood safety
- Safety associated with healthcare-related procedures
- Environment-related issues

Healthcare associated infection is a major patient safety problem

- Affects a large number of individuals worldwide
- Multifaceted causation related to
  - systems and processes of care provision
  - human behavior
  - political and economical constraints on systems/countries
- Patient safety gap (some healthcare institutions/systems control the risk to patients much better than others)
- Data to assess the size and nature of the problem and to create the basis for monitoring the effectiveness of actions

Clean Care is Safer Care

- Driven by WHO
- Association with key partners
- Countries invited to adopt the challenge for their own healthcare system
- Work closely with one healthcare area in each of the 6 WHO regions
Countries (almost 200 members) will be invited to adopt the challenge for their own healthcare systems with the following principles:

- Assess the scale and nature of HAI
- Adopt an internationally recognized approach to surveillance so that a baseline can be established and changes monitored
- Conduct root causes analyses with particular emphasis on «system thinking»
- Develop solutions to improve safety and reduce risk

To develop solutions to improve safety and reduce risk by focusing on 5 action areas:

- Clean hands
- Clean practices
- Clean products
- Clean environment
- Clean equipment

WHO guidelines for hand hygiene

Gather together WHO material for infection prevention

- injection safety
- blood safety
- procedure safety
- environment

Implementation of whole / part of WHO strategies for prevention of healthcare associated infections by members

Before / After evaluation in 6 WHO districts

From second part of 2005
Making healthcare safer

Global implications...

Easy infection control for everyone...

Other 2005 Teleclasses
For more information, refer to
www.webbertraining.com/schedule.cfm

- March 24 - Infection Control and Pre-Hospital Care with Margaret McKenzie
- March 31 - Voices of CHICA (a free teleclass)
- April 7 - Root Cause Analysis for the Infection Control Professional with Dr. Denise Murphy
- April 14 - Disinfectants and Environmental Impact with Dr. Franz Daschner
- April 19 - Methods for Testing Hand Disinfectants with Dr. Manfred Rotter
- April 21 - Creutzfeldt-Jakob Disease: Recommendations for Disinfection and Sterilization with Dr. William Rutala

Questions? Contact Paul Webber paul@webbertraining.com