European Centre for Disease Prevention and Control

Training activities for prevention and control of healthcare-associated infections

Pete Kinross, Expert in Healthcare-Associated Infections
Surveillance and Response Support Section, ECDC
EUNITIPS Winter Meeting, Amsterdam; 7 December 2016
ECDC training activities relevant to EUNITIPs

1. ECDC training-of-trainers
2. HAI-Net HALT
   - Point Prevalence Surveys (PPSs) of healthcare-associated infections (HAIs) and antimicrobial use in long-term care facilities (LTCFs)
3. ECDC directory of online resources
4. Infection control and hospital hygiene (ICHH) Wiki
5. Repository of training material
6. Courses
7. Extranet
8. Exchange of senior professionals
ECDC training-of-trainers
ECDC training-of-trainers for HAI-Net surveillance

ECDC mandate: interact with National contacts in 31 EU/EEA Member States. Official national contacts designate attendees. Train-the-trainer workshops present and discuss protocol updates.

<table>
<thead>
<tr>
<th>Surveillance activity</th>
<th>Date</th>
<th>Attendees / country</th>
<th>Trained by trainers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital PPS (2011–2012)</td>
<td>28-31 Mar 2011</td>
<td>2</td>
<td>&gt;2 800</td>
</tr>
<tr>
<td>LTCF PPS (HALT-2; 2013)</td>
<td>25-26 Feb 2013</td>
<td>1</td>
<td>&gt;1 000</td>
</tr>
<tr>
<td>LTCF PPS (HALT-3; 2016-2017)</td>
<td>1-2 Dec 2015</td>
<td>1</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Hospital CDI surveillance</td>
<td>14 Sept 2016</td>
<td>1</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Hospital PPS (2016–2017)</td>
<td>20-21 Nov 2016</td>
<td>&lt;1</td>
<td>Ongoing</td>
</tr>
<tr>
<td>CDI lab diagnostics/typing</td>
<td>11-12 May 2017</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>ICU surveillance</td>
<td>May 2017</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>SSI surveillance</td>
<td>2018</td>
<td>1</td>
<td>NA</td>
</tr>
</tbody>
</table>
Train-the-trainer for the ECDC PPS in European acute care hospitals, 2011–2012

Train-the-trainer activities:
• 28-31 March 2011; 2 attendees/country.

Follow-up questionnaire:
• 30/31 countries replied.

Training by trainers (mean):
• 4 courses/country; 9.2 hours/course
• 104 participants/country (range: 5–436)
• 40 hospitals/country (range: 1–177)
• **Total:** >2 800 people in 31 EU/EEA countries
Point prevalence surveys of healthcare-associated infections and antimicrobial use in long-term care facilities (HAI-Net HALT)
Estimated annual burden of HAIs, EU/EEA Member States, 2011–2013

Acute care hospitals: 3.5 million patients with ≥1 HAI

LTCFs: 4.2 million HAIs in LTCF residents

Ireland: 4.6 million people

2012 Commission report on implementation of Council Recommendation (2009/C 151/01)

**Member State level** (3/11 recommendations):

- **Extend patient safety strategies** and programmes from hospital care to non-hospital care.
- **Repeat national point prevalence surveys** of HAIs as a means to monitor the burden of HAI in all types of healthcare institutions, to **identify priorities and targets for intervention**, to **evaluate the impact of interventions** and to raise awareness.
- **Reinforce tailored basic IPC structures and practices** in nursing homes and other LTCFs.

**EU level** (1/6 recommendations):

- **Continue the development of guidance** on the prevention and control of HAIs, including **tailored guidance for nursing homes and other LTCFs**.

Reference: Com(2012) 658
### HALT Projects: history

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>Surveillance of HAIs in Europe transferred to ECDC, which created the Healthcare-Associated Infections Surveillance Network (HAI-Net).</td>
</tr>
<tr>
<td>2008–2010</td>
<td>Protocol for PPSs in LTCFs developed, integrating IPSE study and variables from the European Surveillance of Antimicrobial Consumption in Nursing Homes (ESAC-NH)</td>
</tr>
<tr>
<td>May–Sept 2010</td>
<td>Data collection for the HALT Project</td>
</tr>
<tr>
<td>Apr–May 2013</td>
<td>Data collection for the HALT-2 Project</td>
</tr>
<tr>
<td>Apr 2016–Nov 2017</td>
<td>Data collection for the HALT-3 Project</td>
</tr>
</tbody>
</table>
HAI-HALT objectives

General objectives
• Provide EU/EEA MS and LTCFs with standardised tool to follow trends in HAIs and antimicrobial use
• Identify national/local intervention priorities; evaluate implementation
• Estimate and monitor burden at national and European level.

Specific objectives (HALT, HALT-2, HALT-3)
• Estimate prevalence of HAIs and antimicrobial use in European LTCFs
• Measure structure and process indicators (SPIs) of IPC in LTCFs.

Validation study objectives (HALT-2 and HALT-3)
• Calculate European-level sensitivity and specificity of detection of HAIs and antimicrobial use, thus enabling the adjustment of European estimates
• Assess quality of selected SPIs of IPC, contributing to interpretation.
Point prevalence surveys of healthcare-associated infections and antimicrobial use in long-term care facilities (HAI-Net HALT) HALT (2010); HALT-2 (2013)
HALT and HALT-2 projects overview & key results and data representativeness in HALT-2, 2010–2013

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>HALT May-Sept 2010</th>
<th>HALT-2 Apr-May 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating EU/EEA countries</td>
<td>28</td>
<td>17</td>
</tr>
<tr>
<td>LTCFs recruited</td>
<td>720</td>
<td>1 181</td>
</tr>
<tr>
<td>Residents recruited</td>
<td>61 932</td>
<td>77 264</td>
</tr>
<tr>
<td>Residents with ≥1 HAI (country range*)</td>
<td>2.4% (0.0–7.4%)</td>
<td>3.4% (0.4–7.1%)</td>
</tr>
<tr>
<td>Residents receiving ≥1 antimicrobial agent (country range*)</td>
<td>4.3% (0.8–12.7%)</td>
<td>4.4% (1.0–12.1%)</td>
</tr>
</tbody>
</table>

Representativeiveness of national LTCF sample

HALT-2 (2013)

HALT (2010) participation:
Range: 2-111 LTCFs/country
Median: 8.5 LTCFs/country

Source: HALT and HALT-2 reports. * direct comparison of national data is often not permitted by the data
Results from HALT and HALT-2 Projects
- Reports on ECDC website

Results from HALT and HALT-2 Projects - ECDC interactive database

<table>
<thead>
<tr>
<th>Hospital PPS</th>
</tr>
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<tbody>
<tr>
<td>LTDCF PPS</td>
</tr>
<tr>
<td>ICUs</td>
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<tr>
<td>SSIs</td>
</tr>
<tr>
<td>Etc………</td>
</tr>
</tbody>
</table>

Source: tessy.ecdc.europa.eu/TessyWeb/Reports/ReportsView.aspx
Results from HALT and HALT-2 Projects
- ECDC interactive database

**Categories of available reports**
1. LTCF characteristics
2. Characteristics of LTCF residents
3. IPC indicators
4. HAI indicators
5. Antimicrobial stewardship indicators
6. Antimicrobial use indicators

Source: tessy.ecdc.europa.eu/TessyWeb/Reports/ReportsView.aspx
Interactive reports from HALT projects

Source: tessy.ecdc.europa.eu/TessyWeb/Reports/ReportsView.aspx
Interactive reports from HALT projects

Median number of IPC elements in place in LTCFs, selected LTCF types, HALT point prevalence survey, 2013

- IPC training of nursing/paramedical
- IPC training of GPs/medical staff
- Development of care protocols
- Registration of MDRO+ve residents
- Designated lead for Outbreak management
- Feedback of surveillance data to clinical staff
- Supervised device desterilisation/sterilization
- Precautions for MDRO+ve residents
- Annual flu vaccination
- Appropriate hand hygiene audits
- Regular review of IPC policy/procedures

Source: tessy.ecdc.europa.eu/TessyWeb/Reports/ReportsView.aspx
Interactive reports from HALT projects

Source: tessy.ecdc.europa.eu/TessyWeb/Reports/ReportsView.aspx
Interactive reports from HALT projects

Median alcohol hand rub consumption (L/1000 patient days) in LTCFs, selected LTCF types, HALT point prevalence survey, 2013

Source: tessy.ecdc.europa.eu/TessyWeb/Reports/ReportsView.aspx
Interactive reports from HALT projects

Percentage of LTCFs with internal or external IPC practitioner, selected LTCF types, HALT point prevalence survey, 2013

Selected LTCF types: Only general nursing homes, residential homes and mixed LTCFs.

* Poor or very poor national representativeness of LTCF sample

Source: tessy.ecdc.europa.eu/TessyWeb/Reports/ReportsView.aspx
Promoting HALT-3 participation: Protocols

1. Main protocol:
   • Participation in up to 4 waves of surveillance
     ✓ Apr–June 2017 ✓ Sept–Nov 2017

2. Validation protocol:
   • Fewer questions in HALT-3 vs HALT-2
   • Purposive sampling of wards permitted
   • Focussed on HAIs and SPIs of IPC, e.g. FTEs, AHR

3. External validation protocol:
   • Assist national validation study; qualitatively verify inter-country validity
   • Survey national IPC needs/challenges and usefulness of HALT
   • Obtain denominators

Source: ECDC website; HAI-Net Extranet.
Intention of EU/EEA Member States regarding participation in PPSs of HAIs and antimicrobial use, 2016-2017 (as of 4 May 2016)

**Participation**
- **Yes, 2016**
- **Yes, 2017**
- **No**
- **Unclear**

**Acute care hospitals**

**Long-term care facilities**

Provisional data

Administrative boundaries: ©EuroGeographics ©UN-FAO ©Turkstat ©GADM
Promoting HALT-3 participation: Tools

**HAI-Net Extranet**
- Q&A section
- all protocols and training materials
- data entry software

**Training materials**
- 1–1.5 day training curriculum and TTT presentations

**Email helpdesk** (HALT@wiv-isp.be)

**ICHH Wiki** (femwiki.com): protocols, training materials

**Advocacy**
- ECDC Advisory Forum presentation (May 2016)
- ‘National Survey Coordinators’ urged to promote HALT-3 e.g. national/international meetings/conferences

**Online refresher training**
Promoting HALT-3 participation: Tools

HAI-Net

• Extranet
  • HAI-Net
  • Questions & Answers
  • Protocols
  • Training materials
  • Software
  • Meetings
  • Other

Training materials

• Evaluation form HALT One day training
  • Lecture 1 One day 2016-2017
  • Lecture 2 One day 2016-2017
  • Lecture 3 One day 2016-2017
  • Lecture 4 One day HAI Case studies A 2016-2017
  • Lecture 5 One day HAI Case studies B 2016-2017
  • Lecture 6 One day Indicator Case studies 2016-2017
  • Lecture 7 One day 2016-2017
  • Lecture 8 One day 2016-2017
  • Lecture 9 One day 2016-2017
  • Suggested Schedule for One day HALT training course

Email helpdesk

HALT@wivisp.be

ICHH Wiki

femwiki.com: protocols, training materials

Advocacy

• ECDC Advisory Forum presentation (May 2016)
  • ‘National Survey Coordinators’ urged to promote HALT-3
  • e.g. national/international meetings/conferences

Online refresher training
HALT training 2016

Lecture 1 – HALT 2016 powerpoint for local use [Powerpoint presentation]
File Size: (3.3MB)

Lecture 1 – HALT 2016 Introduction
File Size: (555kB)

Lecture 2 – HALT 2016 Questionnaires Part 1
File Size: (605kB)

Lecture 3 – HALT 2016 Questionnaires Part 2
File Size: (1.2MB)

HALT 2016 Case Studies
File Size: (541kB)

Lecture 4 – HALT 2016 Case Studies 1 to 5 Student Version
File Size: (397kB)

Lecture 5 – HALT 2016 Case Studies 6 to 9 Student Version
File Size: (285kB)

Lecture 6 – Preparing for HALT 2016
File Size: (188kB)

Lecture 7 – HALT 2016 Software & Data Entry
File Size: (586kB)

Lecture 8 – Actions after HALT 2016
File Size: (463kB)
Exchange of senior professionals
Exchange of senior professionals
Part of ECDC Continuous Professional Development Programme (CPDP)

Scope: Multilateral exchange of senior public health experts within EU/EEA, appointed by official National Focal Points for Training.

Objectives:
1. Create opportunity for public health experts to familiarise themselves with working methods of other EU countries;
2. Promote sharing of good practices; foster mutual learning, networking and trust.
3. Improve MSs national, regional or local capacity and competence in the specific area targeted by the training.
4. Support the European dimension in public health cooperation and training.

Profiles of target group: officially-appointed public health experts, e.g. epidemiologists, microbiologists, infection control professionals

Planned activity: Pilot exchange in 2017 (parameters TBA)
Training needs assessment in infection control
TRICE and TRICE-IS Projects
Training Needs Assessment in Infection Control in Europe (TRICE)

Meeting of National Representatives in Infection Control Training (Udine, Italy, 2010)

- **Surveys on Infection Control (IC) capacity, training resources and needs in Europe**
  Based on 2006 ISPE survey
  Administered in 2010 & 2014

- **Inventory of IC courses, training programme and training materials** for nurses and medical doctors – evaluated against CC in IC/HH

- **Development of core competencies** for IC/HH professionals in the EU (Mar 2013)
  - Nurses and medical doctors
  - Expert and junior levels

- Development of **IC/HH Wiki**
Training needs assessment in infection control - Implementation Strategy (TRICE-IS; 2014)

Survey Content

Response rate: 100% countries (EU/EEA)
Same respondent in 2010 & 2014: 36.7%... (low)

Curriculum: Section 1 - Human resources for infection control
• Chapter 1. National context
• Chapter 2-3. ICHH Doctors & Nurses
• Chapter 4-5. Status of IC/HH Doctors & Nurses

Section 2 – Training in infection control
• Chapter 1. National curriculum or programme
• Chapter 2. IC/HH training programmes
• Chapter 3. Evaluation of competencies
• Chapter 4. Basic training of HCWs and Link professionals

Section 3 – The Future
• Chapter 1. National plans
• Chapter 2. EU-level training
Figure 1

Presence of a national curriculum or programme for training of infection control and hospital hygiene doctors and nurses in European countries, 2006 (IPSE; 31 countries) and 2010 (TRICE; 33 countries)

A. For IC/HH doctors, IPSE, 2006

- Yes (at national or professional level)
- No
- Not answered
- Not included in the survey

B. For IC/HH doctors, TRICE, 2010

C. For IC/HH nurses, IPSE, 2006

D. For IC/HH nurses, TRICE, 2010
Presence of national curriculum or programme for training of doctors in Europe

2006 (IPSE)

2010 (TRICE)

2014 (TRICE-IS)
Infection control & hospital hygiene Wiki

URL: wiki.europa.eu
Field Epidemiology Manual

A set of training materials for professionals working in intervention epidemiology, public health microbiology and infection control and hospital hygiene.

FEM Wiki

The FEM Wiki content is divided into a number of chapters. Pages in each of the chapters have a latest community version (corresponding to the version of the page that was most recently edited by a member of the FEM), and an expert reviewed version (the last version that was reviewed by a domain expert).

Taxonomy Browser

expand all / collapse all

- Assessing the burden of disease and risk assessment
- General Communication
- Infection control and hospital hygiene
- Introduction to Public Health and basic concepts
- Statistical Concepts
- Uncategorised

FEM CONTRIBUTE

Join us and Contribute!

Do you work in Public Health? Do you have experience in applying field epidemiology to guide disease prevent & control actions? Help us improve FEM Wiki!

FEM Wiki is a leading source of training materials and documentation for field epidemiologists that is maintained up-to-date by its active community. However, there is still much to do! Join FEM Wiki and help make FEM Wiki even a better resource for everyone.
Infection Control & Hospital Hygiene (ICHH) Wiki

Field Epidemiology Manual
A set of training materials for professionals working in intervention epidemiology, public health microbiology and infection control and hospital hygiene.

Core Competencies

Taxonomy Browser

- Assessing the burden of disease and risk assessment
- General Communication
- Infection control and hospital hygiene
- Introduction to Public Health and basic concepts
- Statistical Concepts
- Uncategorised

e.g. ICHH 2013 (ECDC TRICE project)
Incorporated:
- IPSE-ESCMID (2008)
- Consultation rounds with National teams

Also available on the ECDC website

Source: wiki.europa.eu
Wiki articles
- publicly viewable
- registered users can edit
- Editorial board & Admin approve changes

Taxonomy and content:
- implemented by TRICE-IS team

Key:
- blue: some content
- red: no content
Infection Control & Hospital Hygiene (ICHH) Wiki

Please consider: **Providing technical content**
- Adding content to red sections
- Reading/editing in blue sections

**Editorial role**
- Joining Editorial Board, or
- Forming small teams to peer-review your own technical content prior to upload

**Advocacy**
- Tell everyone!

---

Source: wiki.europa.eu
Requirements:
- any email address

Acquire extra rights:
- Editing
- Post discussion points

Taxonomy and content:
- Editorial board & Admin approve changes
- implemented by TRICE-IS team

Key:
- blue: some content
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Infection Control & Hospital Hygiene (ICHH) Wiki

Requirements:
- any email address

Acquire extra rights:
- Editing
- Post discussion points

Contains:
- Help.
- FAQs
- Guide to code of conduct
- Forum
- **Apply to be on Editorial Board** (email: FEMWiki@ecdc.Europa.eu)

Source: wiki.europa.eu
Less relevant for ICHH than other public health competencies, e.g. Legionnaires, risk assessments for air travel...

**Relevant content:**
- ECDC HAI-Net surveillance protocols,
- all also available on the ECDC website,
  i.e. PPS acute care hospitals, PPS LTCFs (HALT), CDI, SSI, ICU
Infection Control & Hospital Hygiene (ICHH) Wiki

Field Epidemiology Manual
A set of training materials for professionals working in intervention epidemiology, public health microbiology and infection control and hospital hygiene.

Functionality:
- Forum for restricted group discussions, to facilitate development of content in small team
- To apply, click on this link

Very low utilisation by ICHH community
Publicly accessible HAI-Net Training material

Current content:
- MDRO course (5-day course)
- PPS acute care hospitals ‘one-day course’ (2011–2012)

Planned for Q1 2017:
- PPS LTCFs (HALT-3; 2016–2017)
ECDC MDRO course

Multidrug-resistant organisms
Attribution

This presentation is a derivative of the training materials for the course on the ‘Control of multi-drug resistant micro-organisms in health care settings’ commissioned by the European Centre for Disease Prevention and Control (ECDC) in 2011 to a consortium of institutions comprising:

Health Protection Scotland  
University of Chester  
NHS National Services Scotland  
University of Dundee

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The revised 2016 version is also licensed CC BY-SA 4.0 and is attributed to Professor Vera Vlahovic-Palcevski, Dr. Michael Borg, Dr. Diamantis Plachouras.

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ECDC Multidrug-resistant organisms (MDRO) course

Objectives: Capacity build, share knowledge and best practice, strengthen network for MDRO prevention, surveillance, control, outbreak management in healthcare settings


Curriculum:
1. Central role of laboratory
2. Antibiotic stewardship.
   - Policies, formularies and guidelines.
   - Measures to promote improvement.
3. Surveillance of antimicrobial resistance & prescribing
4. Evidence based interventions
5. Understanding behavioural drivers and modifiers
6. Application of interventions
   - control of MDROs; control of antibiotic prescribing
   - outbreak control and responses
ECDC Multidrug-resistant organisms (MDRO) course

Participants

“What is your professional profile”
Director Regional Public Health Office; Clinical specialist; Epidemiologist at NIPH, surveillance; Consultant in internal medicine; Microbiologist, Consultant in antibiotic therapy; Hospital epidemiologist, Infectologist; Director, public health services; Internist, IC committee; ATB consultant; Researcher.

“What do I have to offer?”
Experience in microbiology lab; Knowledge of surveillance systems and genetics; Experience in behaviour changes in organisations; Field experience in outbreak investigations; Outbreak support team experiences; Knowledge and experience; National point of view; Use of IT in IC.

Participatory teaching methods:
interactive lectures, group discussions, case scenarios.
ECDC 5-day course in hospital epidemiology
Epidemiological methods in healthcare-associated infection with a focus on point prevalence surveys
5 days / 35hrs (CPD points); available @ICHH wiki

Objectives:
Strengthen skills of EU/EEA Member State workforce in HAI epidemiology.

Design: lectures/group work, paper/computer practicals.

Audience:
Experienced infection control professionals with responsibility for surveillance in healthcare settings.

Learning objectives:
1. Choose, design, perform and analyse epidemiological studies,
2. PPS aims, methodology and limitations
3. Questionnaire design and analysis – use of EpiData.
4. Bias and confounding: understand and counter
5. Sampling strategies and hypothesis testing
6. Interpreting and communicating study results (ORION and STROBE).
ECDC directory of online resources

URL:
## ECDC Directory of Online Resources

The directory lists strategies, guidance documents and training courses on the prevention and control of antimicrobial resistance and healthcare-associated infections available online. These documents were published by ECDC, EU/EEA Member States, international and national agencies and professional societies to support healthcare professionals, hospital administrators and public health professionals. In addition, the directory lists ongoing research projects and their corresponding websites.

**ECDC welcomes suggestions and further information on existing guidance. Comments can be provided to: arhai@ecdc.europa.eu.**

### Strategies, action plans, projects

<table>
<thead>
<tr>
<th>Strategies, action plans, projects</th>
<th>Prevention and control of infections</th>
<th>Prudent use of antibiotics</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multidrug-resistant organisms and Clostridium difficile</td>
<td>Organisation of infection prevention and control</td>
<td>Antimicrobial stewardship</td>
<td>Training courses on infection control and hospital hygiene</td>
</tr>
<tr>
<td>Antimicrobial resistance strategies and action plans</td>
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</tbody>
</table>

### Antimicrobial resistance strategies and action plans

- Carbapenem-resistant Enterobacteriaceae (CRE)
- Meticillin-resistant *Staphylococcus aureus* (MRSA)
- Hand hygiene in healthcare
- Perioperative antimicrobial prophylaxis
- Training courses on antimicrobial stewardship

### Healthcare-associated infections

- Colonisation with multidrug-resistant *Clostridium difficile* (CDI)
- Healthcare-associated and ventilator-associated pneumonia
- Training courses on antimicrobial resistance

### Surgical site infections

- Endoscope decontamination and infections in endoscopic surgery

## ECDC Directory of Online Resources

*Added 2016*

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<tr>
<td>Projects on antimicrobial resistance and healthcare-associated infections</td>
<td>Carbapenem-resistant Enterobacteriaceae (CRE)</td>
<td>Organisation of infection prevention and control</td>
<td>Perioperative antimicrobial prophylaxis</td>
</tr>
<tr>
<td></td>
<td>Meticillin-resistant Staphylococcus aureus (MRSA)</td>
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<td></td>
<td>Clostridium difficile (CDI)</td>
<td>Healthcare-associated and ventilator-associated pneumonia</td>
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<td><em>Surgical site infections</em></td>
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<td><em>Endoscope decontamination and infections in endoscopic surgery</em></td>
</tr>
</tbody>
</table>
Hospital organisation, management and structure for prevention of health-care-associated infections: a review and expert consensus

Walter Zingg, Alison Holmes, Markus Dettunkofer, Tim Goetting, Federica Secc, Lauren Callewaert, Didier Pittet, for the systematic review and evidence-based guidance on organization of hospital infection control programmes.

Despite control efforts, the burden of health-care-associated infections in hospitals remains high. In the European Union (EU) alone, the estimated number of patients affected is 37,000 deaths each year. We did a systematic review to identify crucial components for effective infection-prevention programmes in hospitals and key components of the control system that were published from 1996 to 2012 were assessed and ten key components identified: hospital-level; bed occupancy, staffing, workload, and employment of personnel; access to materials and equipment and optimum ergonomics; appropriate auditing, surveillance and feedback; multimodal and multidisciplinary behavioural change; engagement of champions; and positive organisational culture. This review is intended to provide manageable and widely applicable ways to reduce health-care-associated infections.

Introduction

Health-care-associated infections (HAIs) affect millions of patients worldwide every year. In the European Union (EU) alone, the estimated number of HAIs is 154,410, and the direct healthcare costs are estimated to be 6.5 billion Euros. This systematic review aims to identify key components of the control system that can further reduce the burden of HAIs. The key components are: management, organizational culture, leadership, surveillance, and feedback.
## Accredited training courses (n=22)

<table>
<thead>
<tr>
<th>Course Count</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 course</td>
<td>Austria, Croatia, Czech Republic, Finland, Germany, Hungary, Malta, the Netherlands, Poland, Slovenia, the United Kingdom</td>
</tr>
<tr>
<td>2 courses</td>
<td>France, Lithuania</td>
</tr>
<tr>
<td>7 courses</td>
<td>Ireland</td>
</tr>
</tbody>
</table>
## Accredited training courses (n=5)

- **1 course:** Belgium, Germany, Ireland
- **2 courses:** United Kingdom
Planned updates:

**Current** (deadline 16 Jan)
- Guidance on antimicrobial stewardship in long-term care facilities

**Planned for 2017**
- Strategies and action plans on HAIs
- Guidance on prevention of catheter-associated urinary tract infections (CAUTIs)
- Guidance on prevention of central line-associated bloodstream infections (CLABSIs)
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**HALT-2 and -3 Management Team** (Consortium Lead: **Bea Jans**; WIV-ISP, Belgium)

**HALT-3 Advisory Committee members**

**HAI-Net PPS Expert Group**

National Focal Points for Training
National Focal Points for Healthcare-Associated Infections
HAI-Net Disease Network Coordination Committee (Chair: Jacqui Reilly; NHS Scotland)