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Is there something so specific
about nosocomial infections
in Europe?



No

- **Around 3-4 millions of nosocomial infections** in Europe¹ ► One patient amongst 10 to 20.
- **Increased costs** (around 5-10 000€) linked to extra length of stay (2-20 days) and additional antibiotic therapy.
- An **high lethality rate**, often evaluated around 5% and for example generating annually 3 500 deaths in France²
- Most European countries have some **national programme** to reduced the burden of HCAI.

¹ Annual epidemiological report on communicable diseases in Europe.

Ed.: Andrew Amato-Gauci et Andrea Ammon. European Centre for Disease Prevention and Control, Stockholm (2007)

² Kaoutar B, Joly C, L'Héritieu F et al. Nosocomial infections and hospital mortality: a multicentre epidemiology study. J Hosp Infect. 2004 Dec;58(4):268-75.



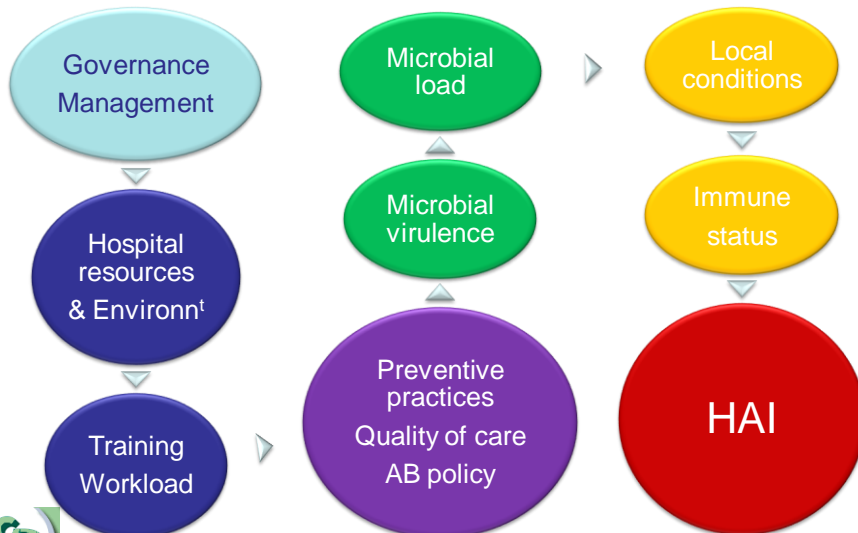
The control of nosocomial infections (purulence, putrefaction, pestilence, hospitalism...) has been tightly associated with the development of European hospitals

An European scientific challenge

- Frascator
- Ambroise Paré
- John Pringle
- JL Baudelocque
- JR Tenon
- Lavoisier
- I. Semmelweis
- F. Nightingale
- Louis Pasteur
- Joseph Lister
- Robert Koch
- A Fleming
- Mary Barber
- Etc



Complexity of the causal web



2



Is there a specific responsibility of Europe in the control of nosocomial infections?



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The background: the European co-operation

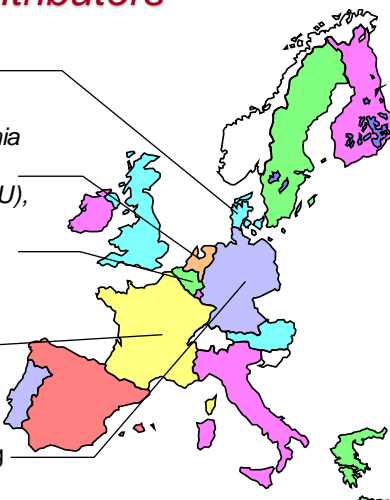

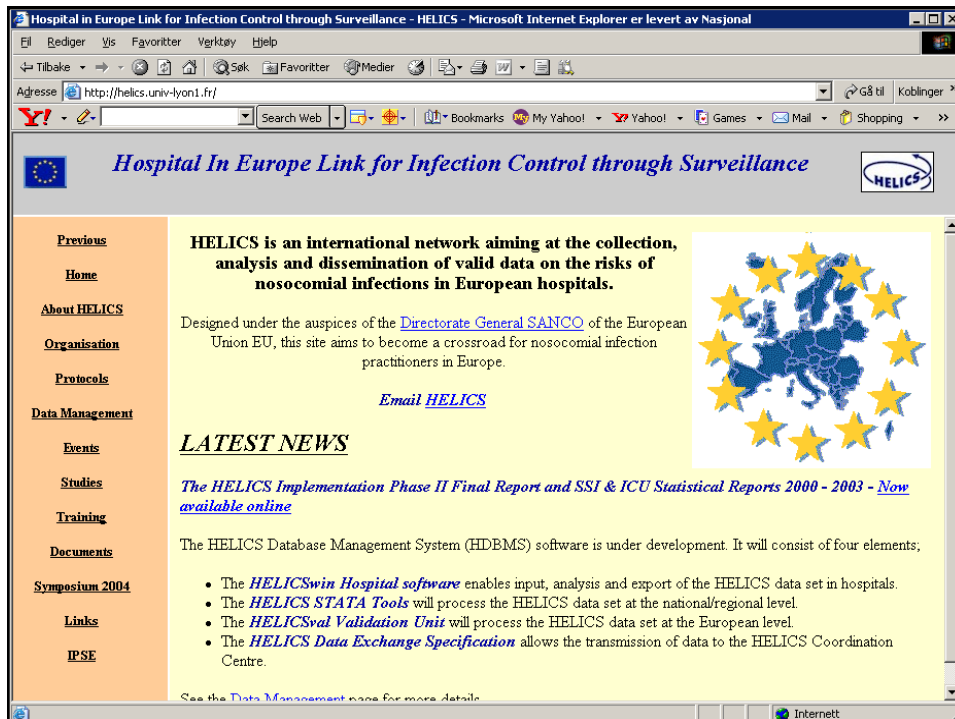
- HELICS I  94-95 First scientific collaboration
- HELICS II 97-99 Inventory - Recommendations
 ↑ 98 Decision 2119/98 on surveillance
- HELICS Implementation 1 00-01 Building the network
- HELICS Implementation 2 03-04 Organisation of surveillance
Routine activities
- IPSE project  05-07 Extension to a more
global approach



Improving Patient Safety in Europe

The HELICS cooperation *the first 5 contributors*

Denmark	Statens Serum Institute Nlth Centre Hosp Hygiene <i>Networks: (SSI), Bacteremia</i>
Netherlands	CBO & R.I.V.M. (Publ. Hlth) <i>PREZIES network: SSI, (ICU), Cath. Bacteriemia</i>
Belgium	SIPH / ISSP (Public Hlth) <i>Networks: SSI, Pneumonia, Bacteremia, UTI, + MRSA</i>
France	South-east CCLIN <i>Networks: SSI, ICU, Obst., (Bacteremia), M.R.O., Blood exposures...</i>
Germany	Ntl Ref Centre for Hosp Hyg Robert Koch Institute <i>KISS networks: SSI, ICU, HRN, ICP</i>

HELICS is an international network aiming at the collection, analysis and dissemination of valid data on the risks of nosocomial infections in European hospitals.

Designed under the auspices of the [Directorate General SANCO](#) of the European Union EU, this site aims to become a crossroad for nosocomial infection practitioners in Europe.

[Email HELICS](#)

LATEST NEWS

[The HELICS Implementation Phase II Final Report and SSI & ICU Statistical Reports 2000 - 2003 - Now available online](#)

The HELICS Database Management System (HDBMS) software is under development. It will consist of four elements:

- The *HELICSwin Hospital software* enables input, analysis and export of the HELICS data set in hospitals.
- The *HELICS STATA Tools* will process the HELICS data set at the national/regional level.
- The *HELICSval Validation Unit* will process the HELICS data set at the European level.
- The *HELICS Data Exchange Specification* allows the transmission of data to the HELICS Coordination Centre.

See the [Data Management](#) page for more details.



The decision 2119/98/EC
Network of epidemiological
surveillance and control of
communicable diseases

- Taken by the Euro Parliament and Council, in the context of the Maastricht treaty.
- “...to set up a network at Community level to promote co-operation and co-ordination between member states ... for epidemiological surveillance... early warning and response system, for the prevention and control of ... **communicable diseases**”.



The decision 2119/98/EC
Network of epidemiological
surveillance and control of
communicable disease

- Communicable diseases subjected to a co-ordinate European surveillance scheme:
 - Diseases preventable by vaccination, S.T.D., Viral hepatitis, Legionellosis, Food-borne diseases, Water-borne diseases, N.C.A., etc.
 - and **Nosocomial Infections** and **Antibiotic resistance**



The first surveillance schemes of infectious diseases in Europe

Name	Diseases/conditions	Coordinators
Enter-Net	Salmonellosis, VTEC infections	Ian Fisher
EuroHIV	AIDS	F. Hamers
EARSS	Resistant organisms	S. Bronzwaer
EISS	Influenza	K. Van Der Velden
HELICS	Nosocomial Infections	J. Fabry
EWGLI	Legionella	C. Joseph
SBME	Meningitis	N. Noah
EuroTB	TB	V. Schwoebel



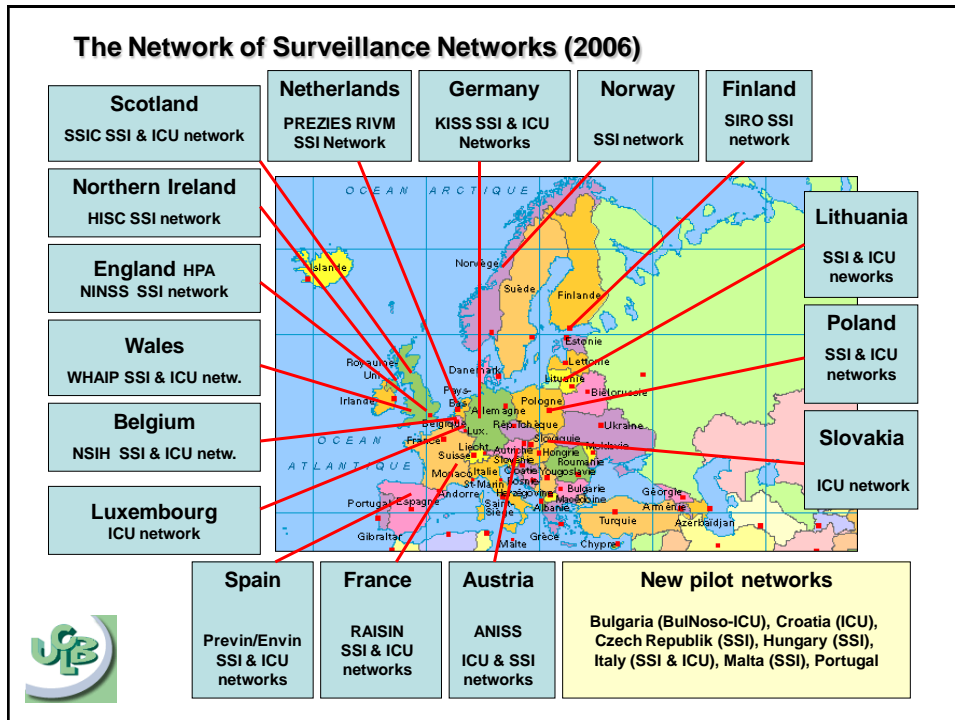
Dedicated surveillance networks (DSN)

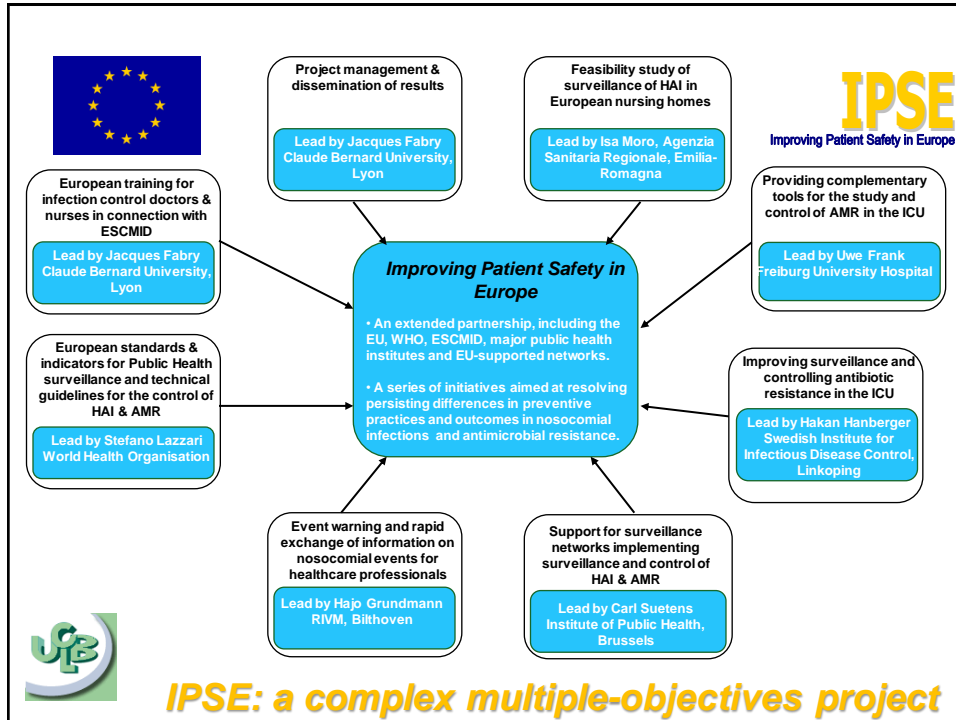
The Institutional position of HELICS was moving:

from a voluntary co-operation of individual practitioners (on mainly scientific goals) to an stable network involving national official bodies (with a public health perspective).



HELICS ► IPSE





European HAI surveillance activities



HELICS cooperative project



Decision 2119/98 of the European Parliament and Council, 24/09/1998: Network for epidemiological surveillance in Europe



IPSE project (► Evaluation & transition plan)



ECDC Founding Regulation (2004). Transfer (2008)



Council Recommendation 2009/C 151/01 of 9 June 2009 on patient safety, including the prevention and control of healthcare associated infection



Programme on antimicrobial resistance (AMR) and healthcare-associated infections (HAI)



Objectives of the Programme on AMR and HAI

- to develop a **reference point** for data collection, information and scientific advice on antimicrobial resistance and healthcare-associated infections in the European Union;
- to provide **information and guidance** on important and emerging antimicrobial resistance and healthcare-associated infection issues;



Objectives of the Programme on AMR and HAI

- to promote implementation of the **Council Recommendation** of 15 November 2001 on the prudent use of antimicrobial agents in human medicine (2002/77/EC);
- to contribute to **building capacity** for the prevention and control of antimicrobial resistance and healthcare-associated infections in Member States.



Activities

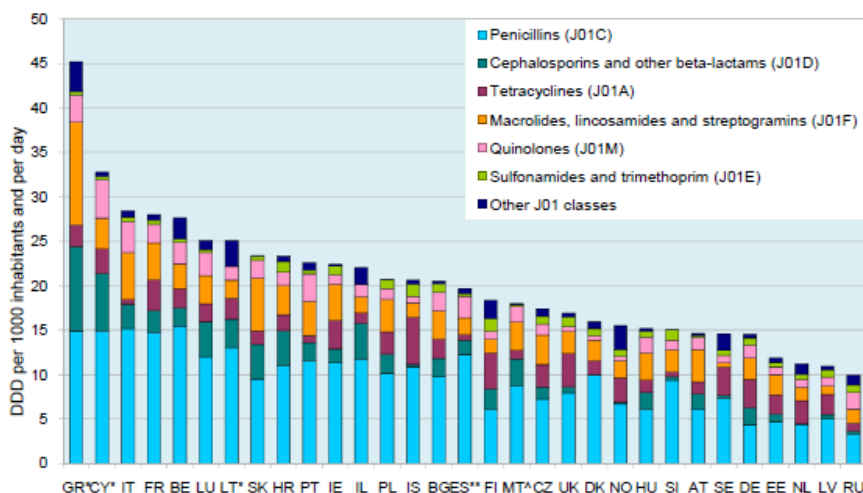
- Collection and dissemination of **EU-level epidemiological data** (surveillance networks)
- **Scientific opinions, & surveys** (*C. difficile*, HALT (LTCF), etc.).
- **Technical assistance** and country visits.
- **European Antibiotic Awareness Day**
- **An alert and response system** for AMR/HAI
- A European **prevalence survey** on HAI
- **Specific European courses**



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Outpatient antibiotic (J01) use , 2008 (ESAC)



* Cyprus, Greece, Lithuania: total use, including the hospital sector.
 ** Spain: reimbursement data, does not include over-the-counter sales without prescription.
 > Malta: 2007 displayed.

Surveillance of *Clostridium difficile* infections

- 2006: ESGCD/ECDC **case definitions** on CDI
- 2007: ECDC launched the European *C. difficile* **survey** (ECDIS, 2008-2010)
- 2008: **Guidance** on measures to limit spread of CDI
- 2010: Call for Tender "**Laboratory support for CDI surveillance**":
 - Enhance the laboratory capacity for surveillance, and maintenance of a ribotyping nomenclature reference database for *Clostridium difficile*



Development of a European enhanced CDI surveillance protocol with case-based epidemiological data.

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Which opportunities for research
/ evaluation on nosocomial
infection in Europe?



7th Framework Programme

9 projects for 32 M€ (over 6 billions for health research en 2007-2013)

1. [NEOMERO](#) Pharmacokinetics, safety and efficacy of Meropenem in neonatal sepsis and meningitis
2. [SONO](#) Antibacterial and antifungal medical textiles based on a sonochemical process
3. [ANTIPATHOGN](#) Novel drug targets in Gram-negative bacteria by global search: a trans-system approach
4. [CONCORD](#) Control of community-acquired MRSA: rationale and development of counteractions



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7th Framework Programme

5. [PILGRIM](#) Preventing community and nosocomial spread and infection with MRSA ST 398
6. [PROTEIN-BIOFILM](#) Protein-dependent biofilms by *Staphylococcus aureus*
7. [MATINEE](#) Mathematical interfaces for epidemiology and environment
8. [HYPERDIFF](#) Physiological basis of hypervirulence in *Clostridium difficile*
9. [TROCAR](#) Translational research on combating antimicrobial resistance

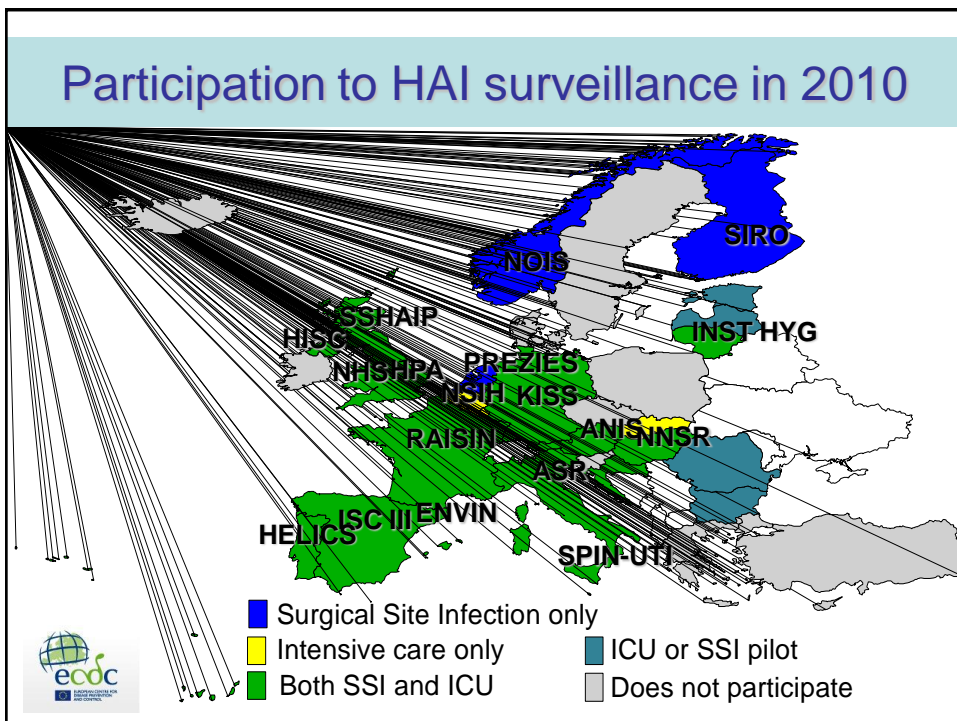


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European Surveillance of Surgical Site Infections and ICU-acquired Infections



Harmonised protocols of surveillance in EU hospitals

- Surveillance of Surgical Site Infections (SSI)
- Surveillance of ICU-acquired Infections (ICU)
- Point Prevalence Surveys as alternative to hospital-wide surveillance of all HAI types (PPS)



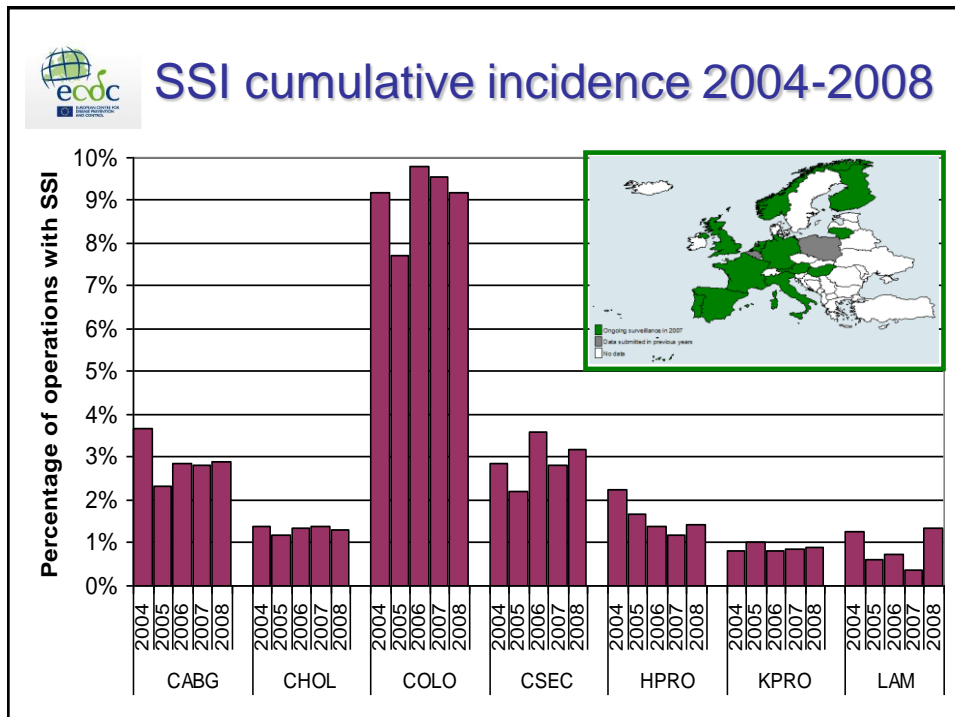
In spite of persisting differences between countries

- Fair agreement on SSI surveillance methodology
- Larger differences for surveillance of ICU-acquired infections
- Develop indicators that take into account inter-country differences in methodology and case-mix.

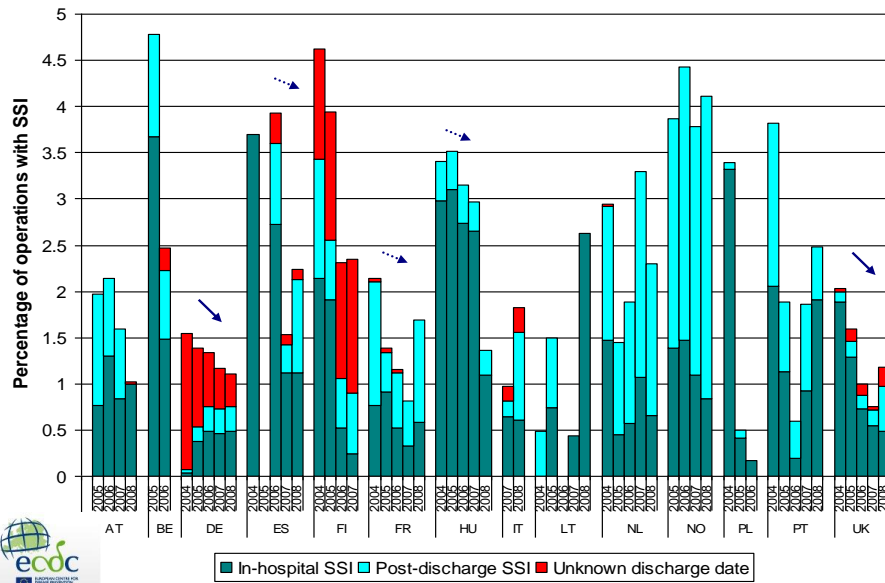


EU Surveillance of Surgical Site Infections

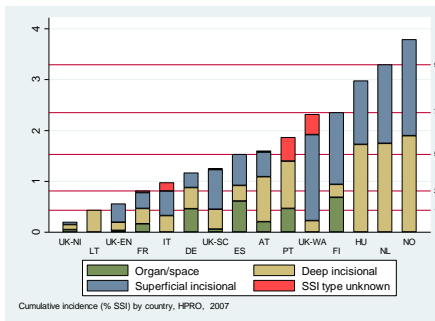
- Same methodology as CDC/NHSN except:
 - Hospital discharge date required
 - Selection of procedures: CABG, CHOL, COLO, CSEC, HPRO, KPRO, LAM
 - Indicators:
 - % [Deep-O/S]SSI within 30 days or 1 year
 - % in-hospital SSI (post-discharge excluded)
 - Incidence density: # in-hospital SSI/1000 patient-days [adjustment on post-discharge surveillance, post-operative length of stay
- Stratification per NNIS risk index



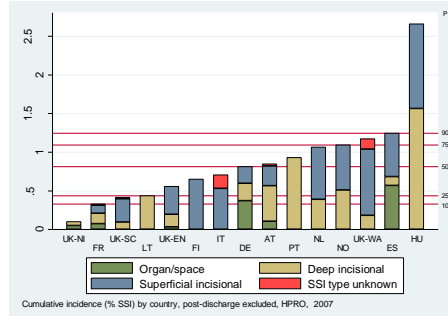
Surveillance of SSI in hip prosthesis, 2004-2008



Differences in post-discharge surveillance and type of SSI



Post-discharge SSI
included

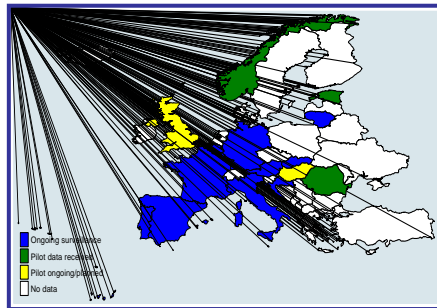


Post-discharge SSI'
excluded



EU surveillance of ICU-acquired infections

- Helics/IPSE in collaboration with ESICM
- 654 hospitals from 12 countries in 2008
- Two levels:
 - Unit-based (minimal data, trends)
 - Patient-based (risk adjustment)

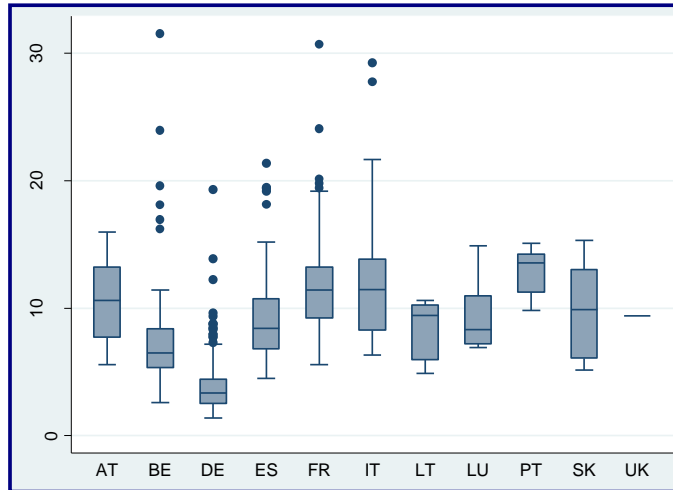


Device-adjusted ICU-acquired pneumonia rates

Country	N of ICUs	Mean	P10	P25	P50	P75	P90
AT	37	6.2	0	0	4	11.8	16.1
BE	17	17	0	0.5	9.3	30.7	49.7
ES	111	20	2.3	8.9	15.6	26.9	41
FR	165	15.6	4	7.5	14.2	20.8	29.1
IT	27	18.6	0	2.2	6.1	19.1	68.8
LT	9	14.3	0	1.6	8.2	11	45.8
LU	8	6.7	0	3.8	6.5	9.6	14
PT	6	11.5	3.4	5.6	10.2	17.9	21.4
SK	5	20.7	0	0	14.6	42.3	46.8
Total	385	16	0	6.1	12.8	20.8	35



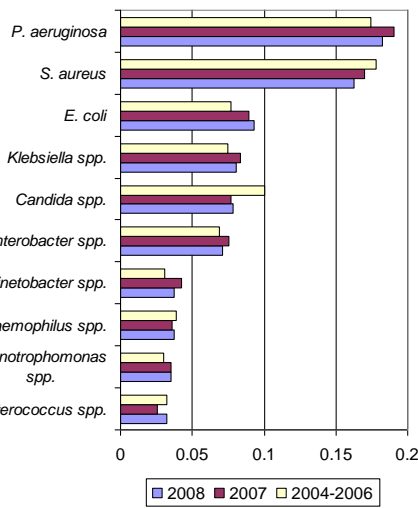
Patients staying less than 3 days in the ICU



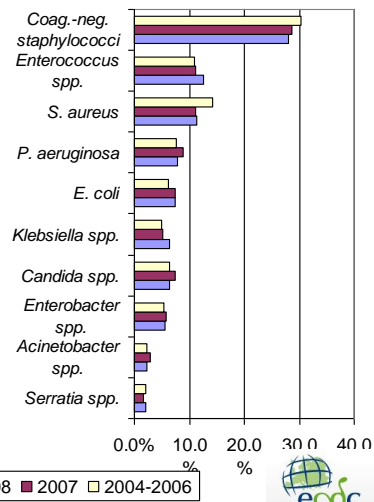
Length of stay in the ICU (days) by country



Micro-organisms ICU-acquired infections, 2004-2008



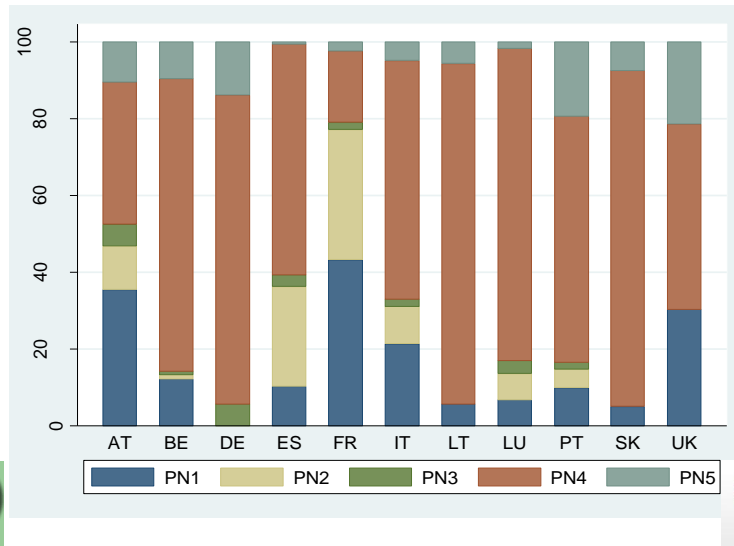
Pneumonia



Bloodstream infections



Differences in diagnostic practices of ICU-acquired pneumonia, 2008



ECDC's TESSy system

This website is part of the European Centre for Disease Prevention and Control (ECDC) network.

ECDC Extranet | **TESSy** The European Surveillance System | Pilot | Logged in as Provider_IT | Log off

TESSy home | Upload data | Review Uploads | Download data | Reports | Data sources | Network Workspace | My TESSy profile | Help

You are here: ECDC Extranet > TESSy home > Review uploads > Detail

Review uploads

Note: When testing a batch only the first 10 messages of each summary type are displayed below.

GENERAL INFORMATION

File name: 4_haissi_opinfres_IT2007.zip
 Format: TESSy_CSV
 Uploaded on: 2010-09-28 14:22:05
 Status: Rejected

Number of records: 85
 Number of errors: 3
 Number of warnings: 67
 Number of remarks: 0

Export messages to Excel

INFORMATION BY SUBJECT

Subject	85	85	0	3	67	0
HAISSI						

VALIDATION MESSAGE SUMMARY

The following list contains a summary of all the validation messages. Similar types of messages appear grouped in this list. Click here to remove the filter and display all validation results

Issue	Messages
Field "z" is of type number, but "z" is outside acceptable bounds. The minimum number is # and the maximum is #. Please recode your dataset accordingly.	3
DateOfLastFollowup must be after DateOfOperation (setting DateOfLastFollowup => #).	10
DateOfLastFollowup must be after DateOfHospitalDischarge (setting DateOfLastFollowup => #).	10
Be aware that SSIType is coded unknown (SSIType = UNK), which implies that the infection will be excluded from some indicators/analysis.	10
Caesarean sections (OpCode = CSEC) are not possible non-females (Gender <-> F).	1

VALIDATION MESSAGES

As indicated by your choice of filter above, all messages in this list are associated with the following type of message: "Caesarean sections (OpCode = CSEC) are not possible non-females (Gender <-> F)."
 Click here to remove the filter and display all validation results

Record ID	Subject	Description
IT00304373...	HAISSI	Caesarean sections (OpCode = CSEC) are not possible non-females (Gender: M, OpCode = CSEC) [To find the problem, look in level HAISSI(Ig:IT003043732007);Op(Ig:IT1373) Conflicting value(s) Gender: M, OpCode: CSEC]



Towards a HAI-Net

- Generalization of the “two levels” model:
 - Unit-based protocols: “level 1” => “light”
 - Patient-based protocols: “level 2” => “standard” (full)

	SSI	ICU	PPS	HALT
STANDARD (patient-based)	X	X	X	X
LIGHT (unit-based)	X	X	X	X

- SSI: coverage, post-discharge method
- ICU: variables/options dropped, AMR target list
- New minimal AMR marker set (PPS)



HALT Pilot study (November 2009): participating countries

- ▶ Countries: 13
 - ▶ Nursing Homes: 118
 - ▶ NH beds: 15,150
 - ▶ Med. size: 103.5 beds
range: 17-587 beds
 - ▶ Eligible resid.: 14,672
- | | |
|--------------|---------------------|
| Belgium (48) | Italy (28) |
| Bulgaria (2) | Lithuania (3) |
| Croatia (5) | Norway (2) |
| England (2) | The Netherlands (4) |
| Finland (8) | Poland (5) |
| France (2) | |
| Germany (5) | |
| Hungary (4) | |



