



Infezioni correlate all'assistenza e antibioticoresistenza: il programma regionale

Maria Luisa Moro, Carlo Gagliotti

- ü Dimension of the healthcare infections risk
- ü The regional context/barriers to change
- ü The regional program to control HAIs



The dimension of HAIs risk

Regional prevalence study of healthcare infections (HAIs)

October-November 2012

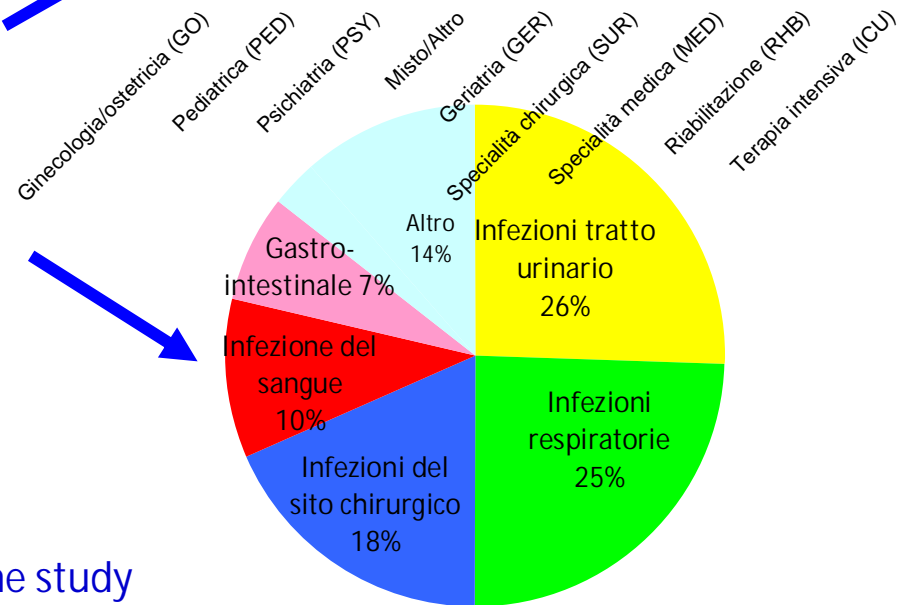
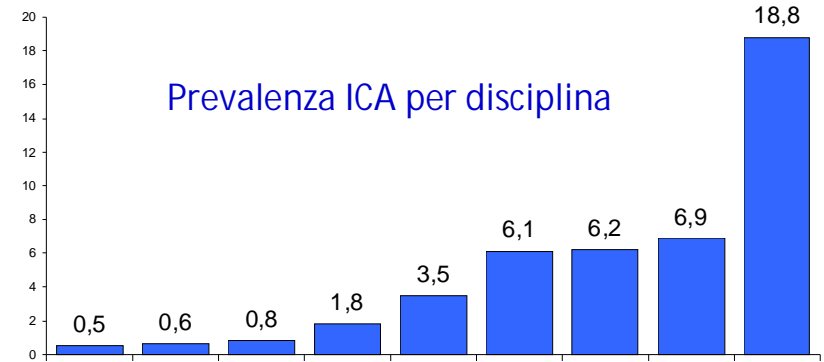
ACUTE CARE HOSPITALS - ECDC Study protocol



Public hospitals* 21/28
Patients 6641

Patients with an HAI the day of the study
6/100

* 6 private hospitals were also involved in the study





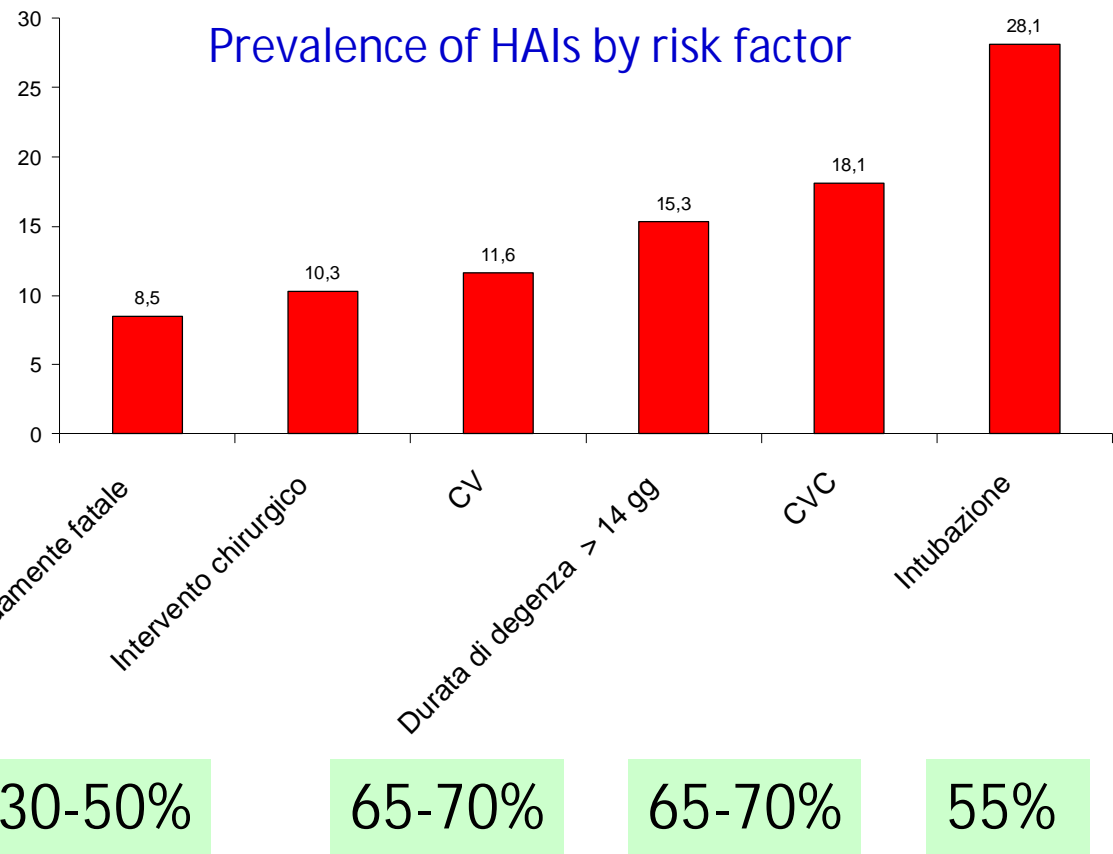
The dimension of HAIs risk

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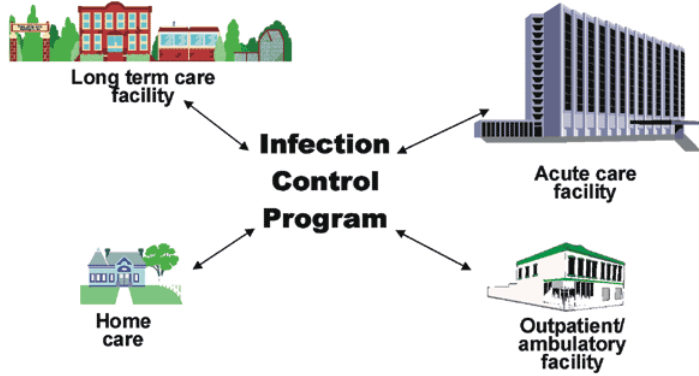
ACUTE CARE HOSPITALS - ECDC Study protocol-

Which patients are at risk?



Preventable fraction

Umscheid CA, Infect Control Hosp Epidemiol 2011; 32: 101



The dimension of HAIs risk

Prevalence study of healthcare infections (HAIs) – HALT2 Project
 May-June 2013

LONG-TERM CARE FACILITIES FOR THE ELDERLY - ECDC Protocol -

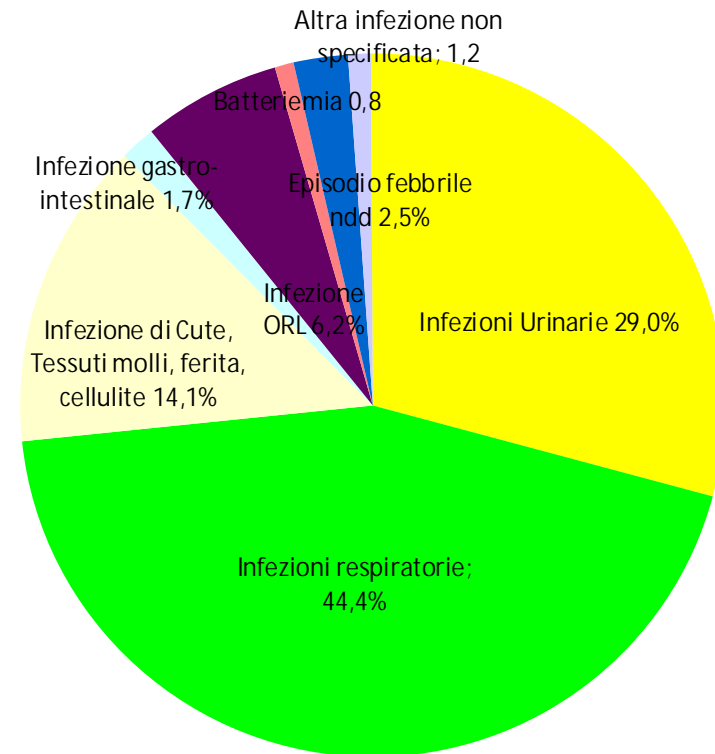


POINT PREVALENCE SURVEY OF
 HEALTHCARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL USE
 IN EUROPEAN LONG-TERM CARE FACILITIES

Final Protocol
 January 2013

LTCFs	87
Residents	5853

Residents with an HAI the day
 of the study
 3,7/100

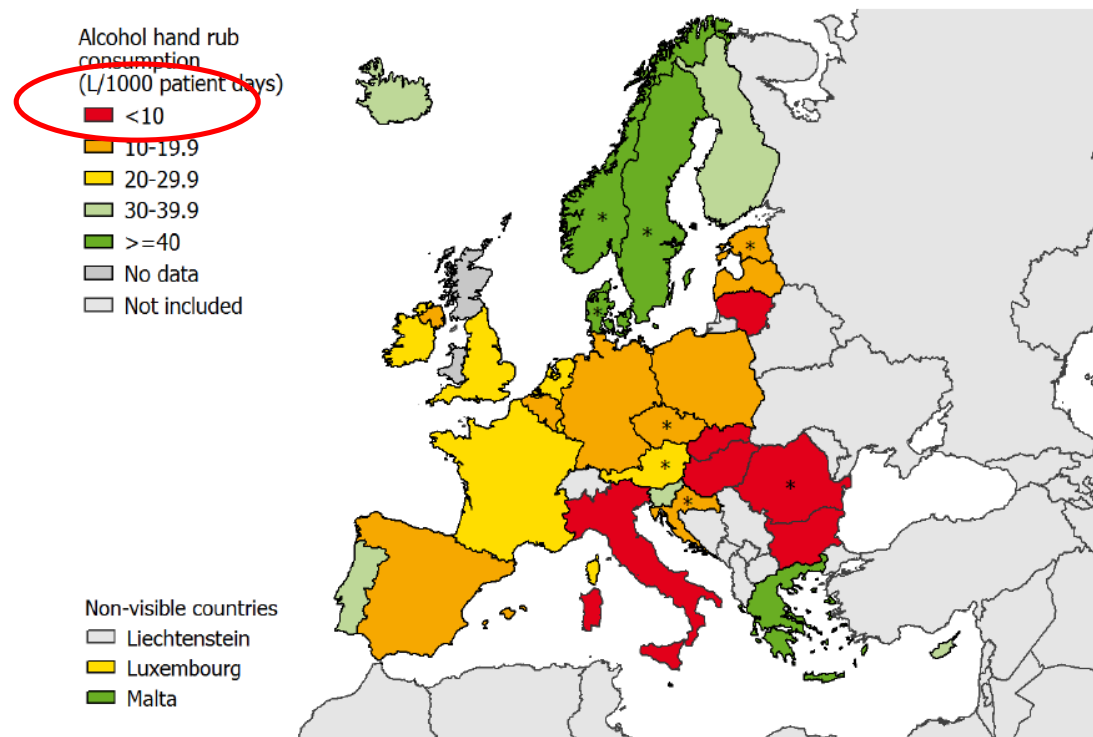




HAls represent a major public health problem
 which can be prevented at least in part, if
 safe behaviors are implemented

but....

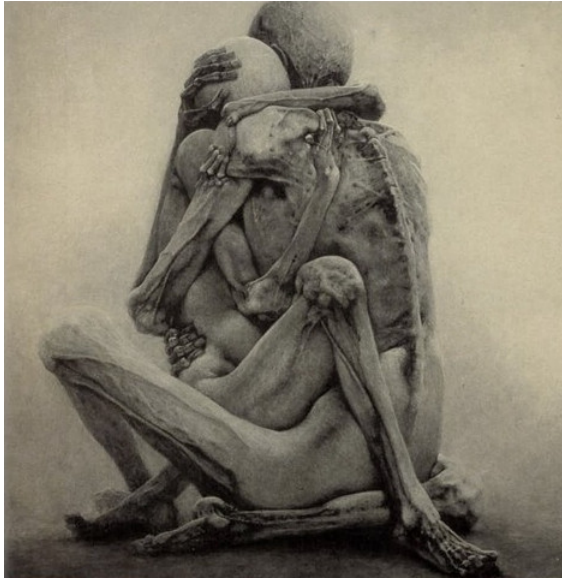
Figure 15. Median alcohol hand rub consumption (litres per 1000 patient-days), ECDC PPS 2011–2012



**PPS data representativeness was poor in Austria, Croatia, Czech Republic, Estonia, Norway and Romania and very poor in Denmark and Sweden.*



Antimicrobial resistance and HAIs: a deadly embrace



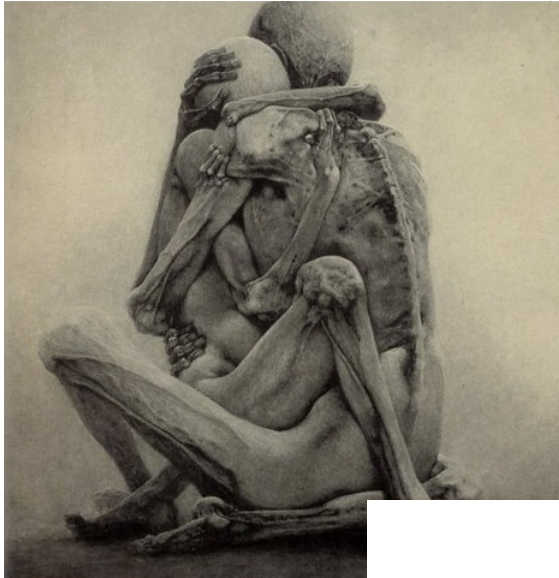
Regional prevalence
study of HAIs
428 infections, 306
microorganisms

Prevalence of multidrug resistant bugs

Escherichia coli, 3 gen cef R	33,3%
Klebsiella pneumoniae, 3 gen cef R	52,0%
Acinetobacter baumannii, carbapenems R	55,6%
Pseudomonas aeruginosa, carbapenems	16,0%
Staphylococcus aureus, methicillin R	54,2%

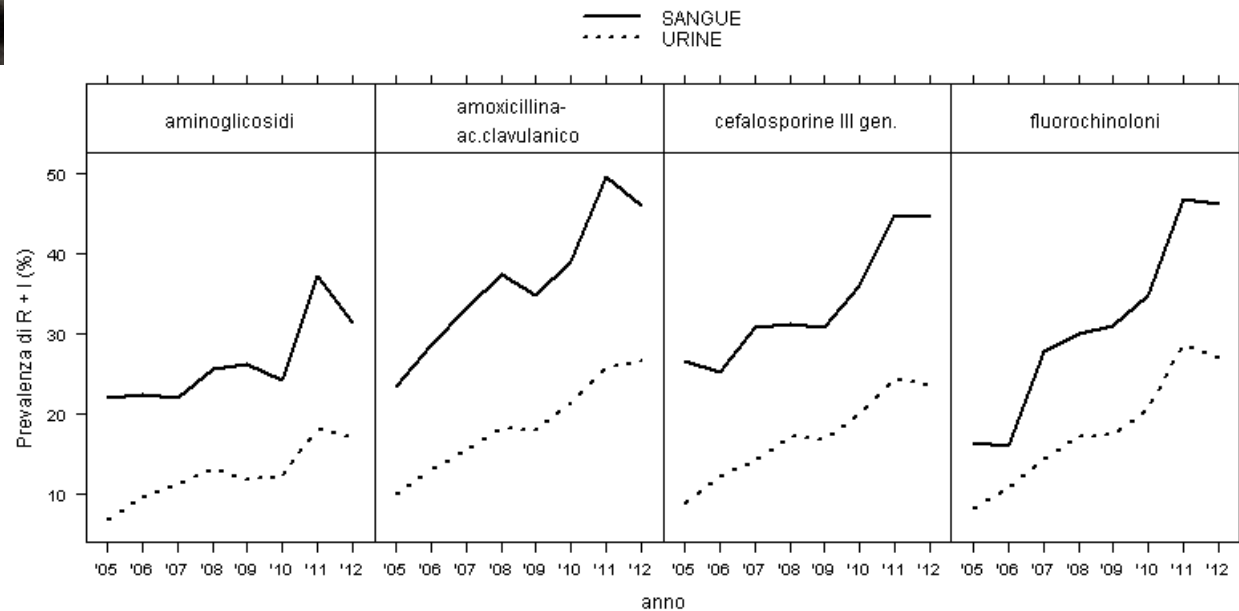


Antimicrobial resistance and HAIs: a deadly embrace



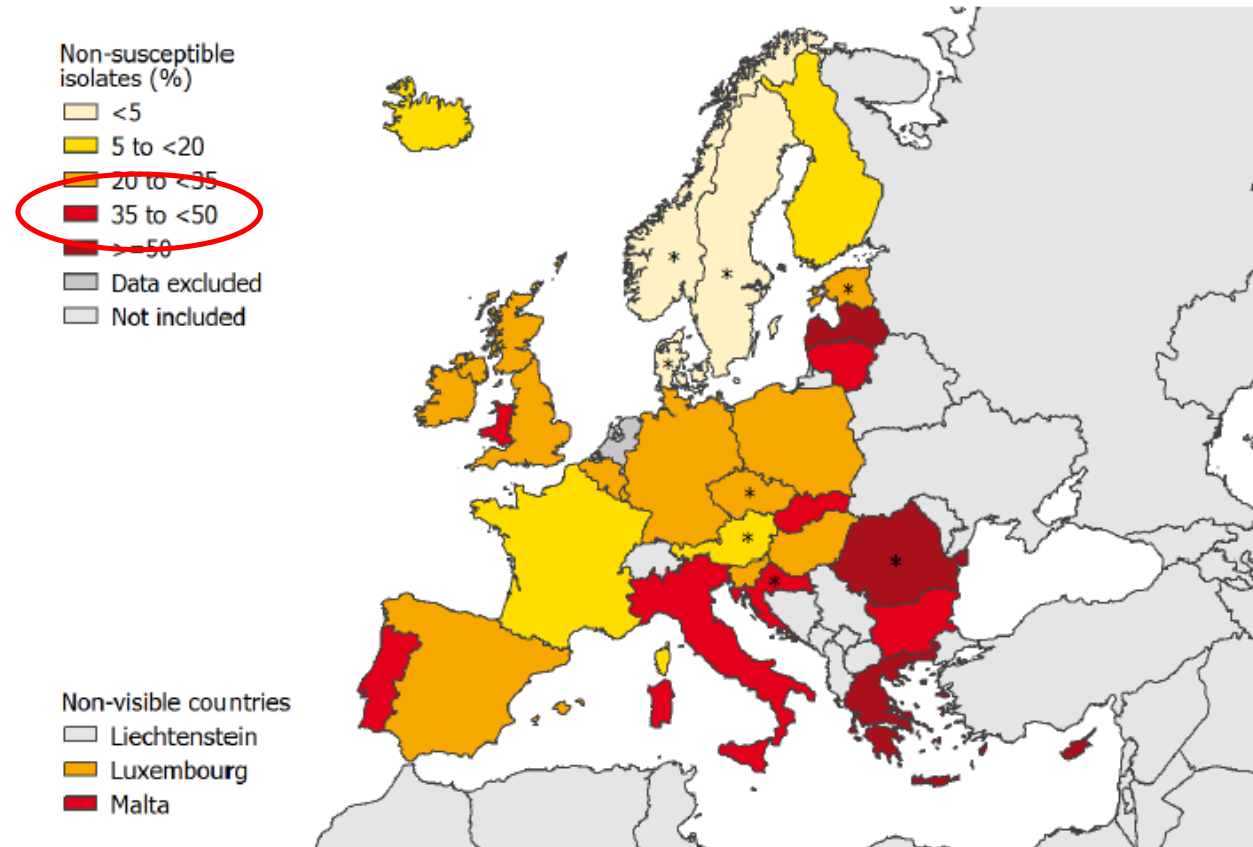
Results over time of the regional surveillance system covering all public hospitals

Resistance in *K. pneumoniae*: blood and urine cultures



Antimicrobial resistance and HAIs: a deadly embrace

Figure 54. Composite index: percentage of isolates non-susceptible to first-level antimicrobial resistance markers from HAIs, by country (n=3725 isolates), ECDC PPS 2011-2012

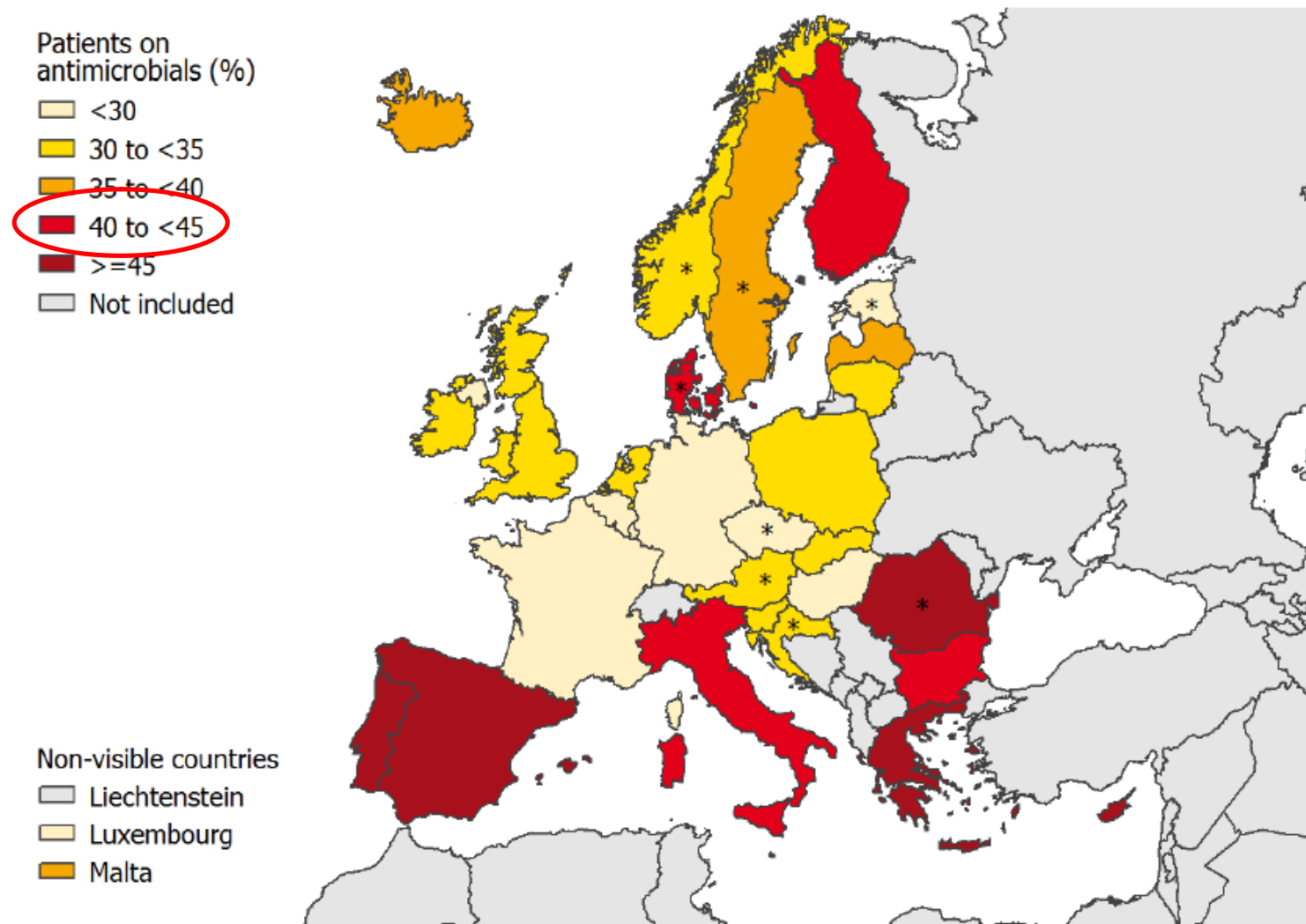


First-level antimicrobial resistance markers in PPS: MRSA, VRE, Enterobacteriaceae non-susceptible to third-generation cephalosporins, Pseudomonas aeruginosa and Acinetobacter baumannii non-susceptible to carbapenems. Data from the Netherlands were excluded for reasons explained above.

**PPS data representativeness was poor in Austria, Croatia, Czech Republic, Estonia, Norway and Romania and very poor in Denmark and Sweden.*

Antimicrobial resistance and HAIs: a deadly embrace

Figure 65. Prevalence of antimicrobial use (percentage of patients receiving antimicrobials) in acute care hospitals, ECDC PPS 2011–2012



**PPS data representativeness was poor in Austria, Croatia, Czech Republic, Estonia, Norway and Romania and very poor in Denmark and Sweden.*

The impact on health

Making Health Care Safer

Stop Infections from Lethal CRE Germs Now

4% & 18%

About 4% of US hospitals had at least one patient with a CRE (carbapenem-resistant Enterobacteriaceae) infection during the first half of 2012. About 18% of long-term acute care hospitals* had one.

42

One type of CRE infection has been reported in medical facilities in 42 states during the last 10 years.

1 in 2

CRE germs kill up to half of patients who get bloodstream infections from them.

Untreatable and hard-to-treat infections from CRE germs are on the rise among patients in medical facilities. CRE germs have become resistant to all or nearly all the antibiotics we have today. Types of CRE include KPC and NDM. By following CDC guidelines, we can halt CRE infections before they become widespread in hospitals and other medical facilities and potentially spread to otherwise healthy people outside of medical facilities.

Health Care Providers can

- ◊ Know if patients in your facility have CRE.
 - Request immediate alerts when the lab identifies CRE.
 - Alert the receiving facility when a patient with CRE transfers, and find out when a patient with CRE transfers into your facility.
- ◊ Protect your patients from CRE.
 - Follow contact precautions and hand hygiene recommendations when treating patients with CRE.
 - Dedicate rooms, staff, and equipment to patients with CRE.
 - Prescribe antibiotics wisely.
 - Remove temporary medical devices such as catheters and ventilators from patients as soon as possible.

*Long-term acute care hospitals provide complex medical care, such as ventilation or wound care, for long periods of time.

→ See page 4

Want to learn more? Visit

www.cdc.gov/vitalsigns



National Center for Emerging and Zoonotic Infectious Diseases
 Division of Healthcare Quality Promotion

Total hip arthroplasty
 Effective antimicrobial
 prophylaxis: 0.5-2% infections
 after surgery
 No prophylaxis: 40-50%
 infections; 30% bad outcome

BMJ 2013;346:f1493 doi: 10.1136/bmj.f1493 (Published 11 March 2013)

The true cost of antimicrobial resistance

Richard Smith and Joanna Coast argue that current estimates of the cost of antibiotic resistance are misleading and may result in inadequate investment in tackling the problem



The context/barriers to safe behaviors

ü The variety and numbers of people and settings involved



Health Trusts + Research hospitals	20
Hospital beds	20,493
Employees (health/social)	55,789
Outpatient visits	8.866,944
Home care visits	97,037
Residential places	20,982

Source. The Emilia-Romagna Regional Health Service, 2011



The context/barriers to safe behaviors

- ü The complexity of determinants and lack of perception of avoidable infections by those who should adopt safe behaviors

“Healthcare infections are a pressing and imminent patient safety concern Despite this there is a **strong tendency for healthcare administrators and providers to view them as a far less threat to patient safety than adverse events such as medication errors and falls**” (Gardam MA, 2009)

Wrong drug
dose and renal
failure

Fall and hip
fracture

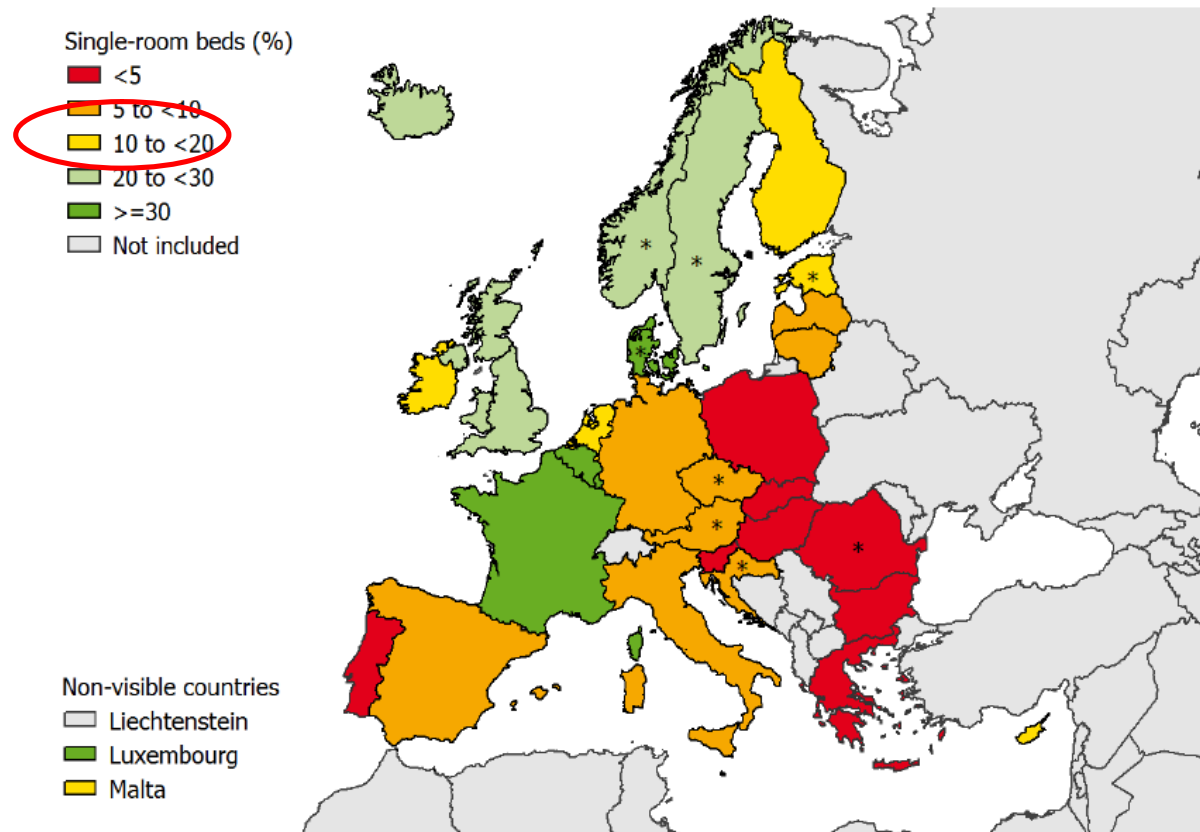
Candida albicans CVC
related infection



The context/barriers to safe behaviors

ü The structural context

Figure 17. Median percentage of single-room beds among the total number of hospital beds, ECDC PPS 2011–2012



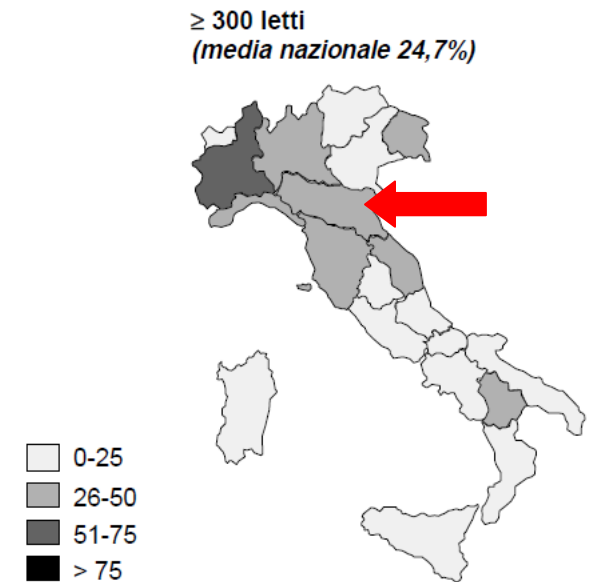
**PPS data representativeness was poor in Austria, Croatia, Czech Republic, Estonia and Romania and very poor in Denmark and Sweden.*



Fighting HAIs in the Emilia-Romagna region

- ü One of the first region to implement training courses for Infection Control Nurses in the '80s
- ü HAIs included as a Regional Health Service target since the end of the 90's
- ü Infection Control Committees, IC Physician and ICNs in > 50% of hospitals by the end of the 90's

National Survey 2000





Fighting HAIs in the Emilia-Romagna region: the Health and Social Care Agency initiatives

The "networks"

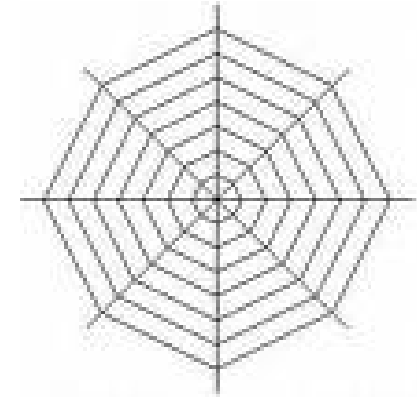
"Surveillance for action"

Regional programs to diffuse/implement the
innovations

Monitoring and feed-back of structure and
process indicators



The “networks”



- § ER-ReCI (ICN and ICPs) → Share-Point web, 4 meetings a year
- § Nurses and Physicians networks → In different areas
(Intensive Care Units, Endoscopy units, long-term care, ...) to
implement safe and EBM practices
- § Microbiologist, ID physicians, pharmacists, GPs →
Antimicrobial Resistance surveillance, Antimicrobial stewardship
- § Team sepsis in each Health Trust → Sepsis campaign



Surveillance for action



§ Rapid notification of sentinel events and clusters/outbreaks (DGR 186/2005)

§ Regional surveillance of antimicrobial resistance lab-based

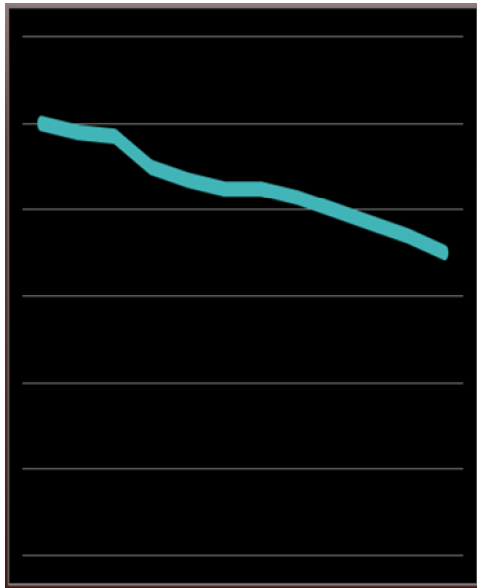
§ Regional surveillance of HAIs in surgical units

2007-2011

- 145 clusters/outbreaks in healthcare services
- 649 patients involved
- interventions check
- More than 750,000 bacterial cultures/year
- Promoting surveillance and action at local level
- 28% of all regional orthopaedic surgery in 2011
- 30% of all non-orthopedic surgery in 2012



Positive impact of continuous surveillance of Surgical Wound Infections (SSI)



The risk of SSI was 29% lower in the Health Trusts which participated to the surveillance for at least two years compared to the others (having adjusted for incidence at baseline, intervention duration, ASA score, wound class duration of pre-surgery hospital stay, gender, elective operation, videoscopic procedure)



Promoting innovation through regional interventions



ProBA: Progetto Bambini ed Antibiotici



Misure di prevenzione e controllo di infezioni e lesioni da pressione

Risultati di
nelle strutt

Lotta ai CPE

Reprocessing degli endoscopi



The regional Carbapenemases-producing Enterobacteriaceae (CPE) intervention

The Challenges of CPE and Infection Prevention: Protecting Patients in the Chaos (Savard, 2013)

KPC endemic and predominant

Munoz-Price S et al, Lancet 2013

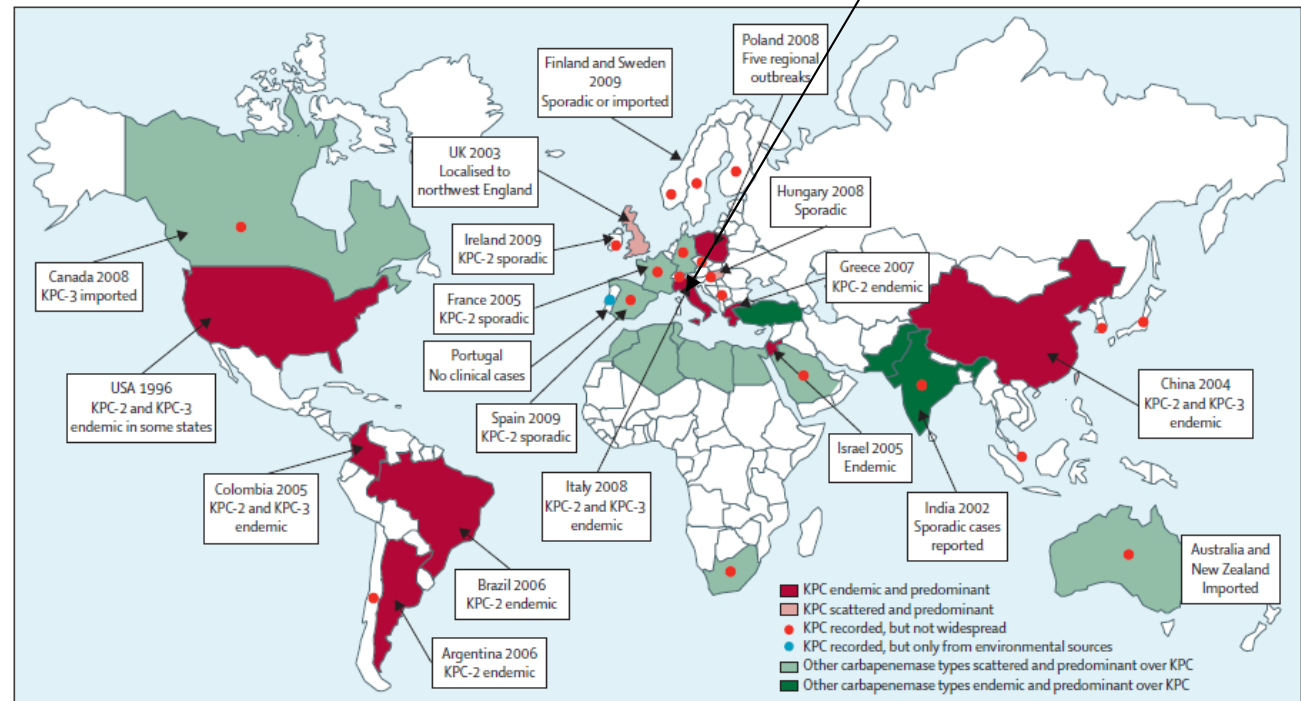


Figure: Epidemiological features of producers of *Klebsiella pneumoniae* carbapenemases by country of origin
Other carbapenemase types include VIM, OXA-48, or NDM. KPC=*Klebsiella pneumoniae* carbapenemase.



The regional CPE intervention



Engagement of Board/executives

EBM recommended measures

Close surveillance of infections and colonizations/monitoring of IC measures

Network involvement since the beginning

Ad hoc reminds for non compliant Trusts

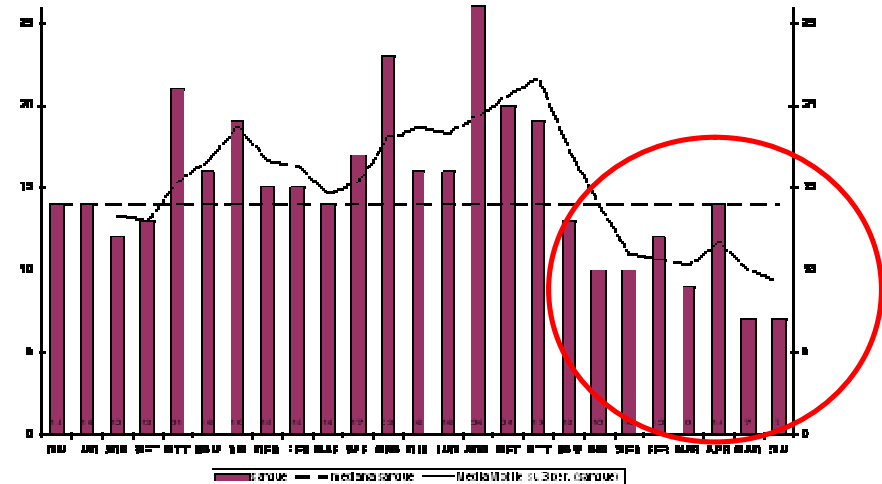
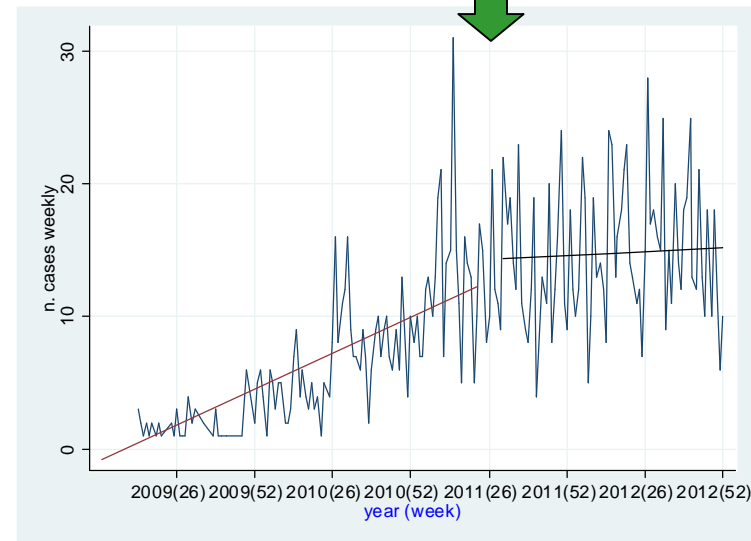


The impact of the regional CPE intervention

The observed increasing trend of CPE incidence was halted after the implementation of the regional guidelines in July 2011

CPE bacteriemia prevalence at regional level has been consistently lower in 2013

Regional guidelines





How to effectively fight both HAIs and antimicrobial resistance

REPUBBLICA ITALIANA



BOLLETTINO UFFICIALE

DIREZIONE E REDAZIONE PRESSO LA PRESIDENZA DELLA REGIONE - VIALE ALDO MORO 52 - BOLOGNA

Parte seconda - N. 76

Anno 44

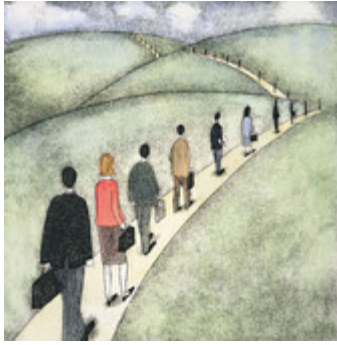
9 aprile 2013

N. 92

DELIBERAZIONE DELLA GIUNTA REGIONALE 25 MARZO 2013, N. 318



- ü Integrated HAIs control programs AND antimicrobial stewardship programs in all Healthcare Trusts;
- ü Not only acute care hospitals, but also community health and social services (eg Long term care facilities, home care, outpatient care);
- ü Common standards and close monitoring;
- ü Strong integration of infective risk programs with HTs programs for clinical risk management



Gli attori

- ü **L'Area Rischio Infettivo:** Rossella Buttazzi, Veronica Cappelli, Luisa Falaschi, Massimiliano Marchi, Matteo Morandi, Filomena Morsillo, Angelo Pan, Mita Parenti, Enrico Ricchizzi
- ü **I componenti delle "reti":** ER-ReCI, microbiologi, igienisti, infettivologi, farmacisti, ecc.
- ü **I servizi della DGSPS** coinvolti ai diversi livelli
- ü **Gli operatori** protagonisti dei programmi di intervento