



Country perspective: Italy

Maria Luisa Moro, Carlo Gagliotti

Background



Population

- Italy 60,6 millions
- Emilia-Romagna 4,4 millions

Hospitals

- Italy 1540 (public+private)

AMR surveillance system

- Italy: AR-ISS 35 sentinel labs
- Emilia-Romagna: all laboratories of the region

Infection control & surveillance

- Mean IC score 58/100 (IQ range by region: 42-79).
- Emilia-Romagna: 73/100

Moro ML, JHI 2011

Background:

the antimicrobial R challenge in Italy

2010 EARSS	Italy	European category (1-lowest to 6-highest)	Trend 2006-10
Penicillin NS Pneumococcus	9.2	3 rd	↓ *
Macrolide NS Pneumococcus	29.0	5 th	=
MRSA	36.5	5 th	↑
High level AMN E.faecalis	49.7	5 th	↑ *
VRE (E.faecium)	3.9	2 th	↓ *
3 rd generation CEF E.coli	21.0	4 th	↑ *
FQ R E.coli	39.2	5 th	↑ *
3 rd generation CEF Klebsiella	46.5	5 th	↑ *
Carbapenems R Pseudomonas	22.0	4 th	↓ *
Ceftazidime R Pseudomonas	17.7	4 th	↓

Annual HCAI & AMR
meeting, Warsaw 2011



KPC-producing *K. pneumoniae* (KPC-Kp)



late 2008

The first reported case of KPC-Kp in Italy

Giani *et al* – JCM 2009



early 2011

Fontana *et al* – BMC Res Notes 2010
 Marchese *et al* – J Chemother 2010
 Ambretti *et al* – New Microb 2010
 Gaibani *et al* – Eurosurv 2011
 Mezzatesta *et al* – CMI 2011
 Agodi *et al* – JCM 2011
 Richter *et al* – JCM 2011
 Di Carlo *et al* – BMC Gastroenterol 2011
 Rossolini GM – unpublished

Courtesy of GM Rossolini

Carbapenem-Resistant Enterics (CRE)



*Multicenter study (25 centers)
promoted by AMCLI-CoSA
(May-June 2011)*

Preliminary data:

- *CRE detected in 24 of 25 centers*
- *Mostly KPC-producing *K. pneumoniae**

AMCLI- CoSA, unpublished results

Courtesy of GM Rossolini

Other carbapenemases in Enterobacteriaceae



2009: first *NDM-1* isolates (*E. coli*)
 Cross-border (India) plus secondary transmission (two patients)
 Prolonged fecal carriage in one patient

D'Andrea *et al.* – JCM 2011



2011: first *OXA-48* isolate (*E. coli*)
 Urinary tract infection of likely cross-border origin (Egypt)

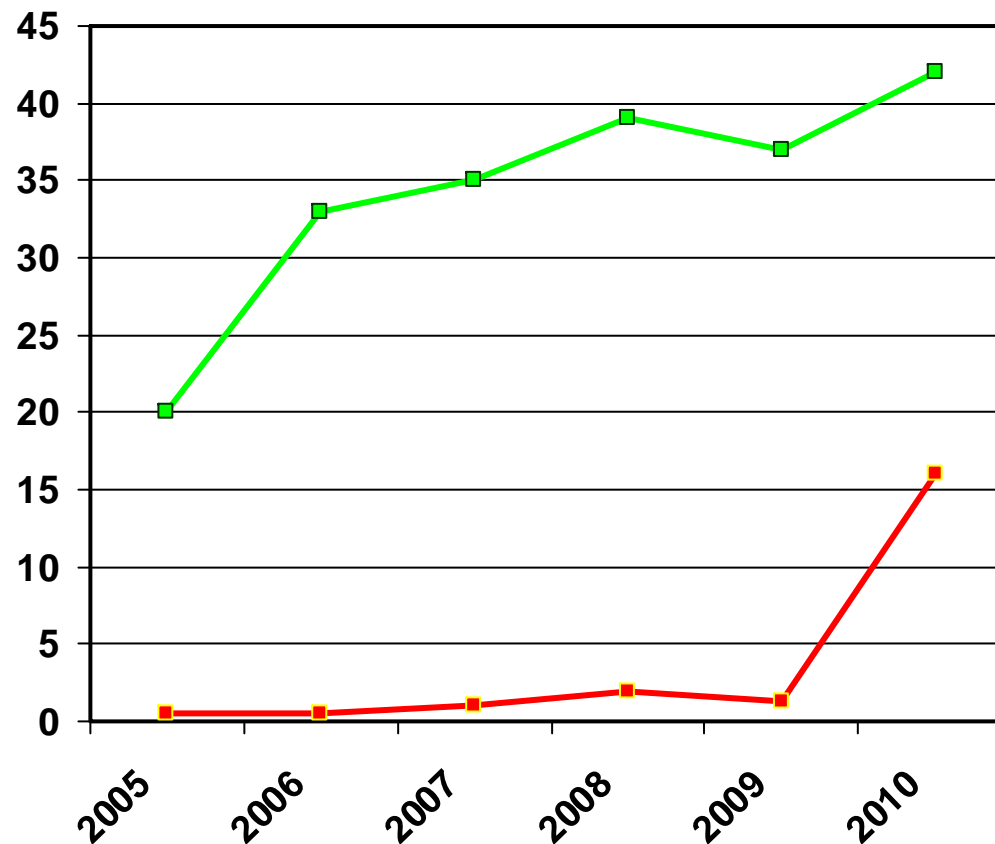
Giani *et al.* – in preparation

Courtesy of GM Rossolini



Background: Italy

—■ carbapenems —■ cefalosporins 3rd g



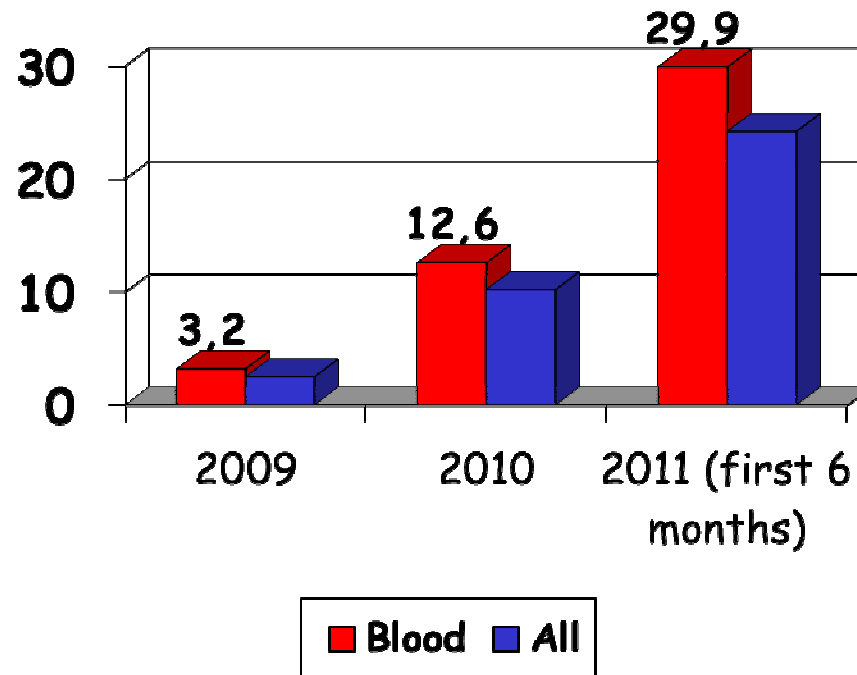
Klebsiella pneumoniae, blood

Courtesy of A.Pantosti (AR-ISS)

Annual HCAI & AMR meeting, Warsaw 2011

Background Emilia-Romagna

Carbapenenems non susceptible *K. pneumoniae*



Wide variability by Health Care Trust (HCT)

- 70.5% of positive blood coltures from 3/17 HCTs
- 66.8% of positive urine coltures from 3/17 HCTs



Background Emilia-Romagna

RAPID COMMUNICATIONS

Euro Surveill. 2011

Rapid increase of carbapenemase-producing *Klebsiella pneumoniae* strains in a large Italian hospital: surveillance period 1 March – 30 September 2010

P Gaibani^{1,2}, S Ambretti^{2,3}, A Berlingerì³, F Gelsomino¹, A Bielli³, M P Landini^{1,3}, V Sambri (vittorio.sambri@unibo.it)¹

1. Regional Reference Centre for Microbiological Emergencies (CRREM), Bologna, Italy

2. These authors contributed equally to this paper

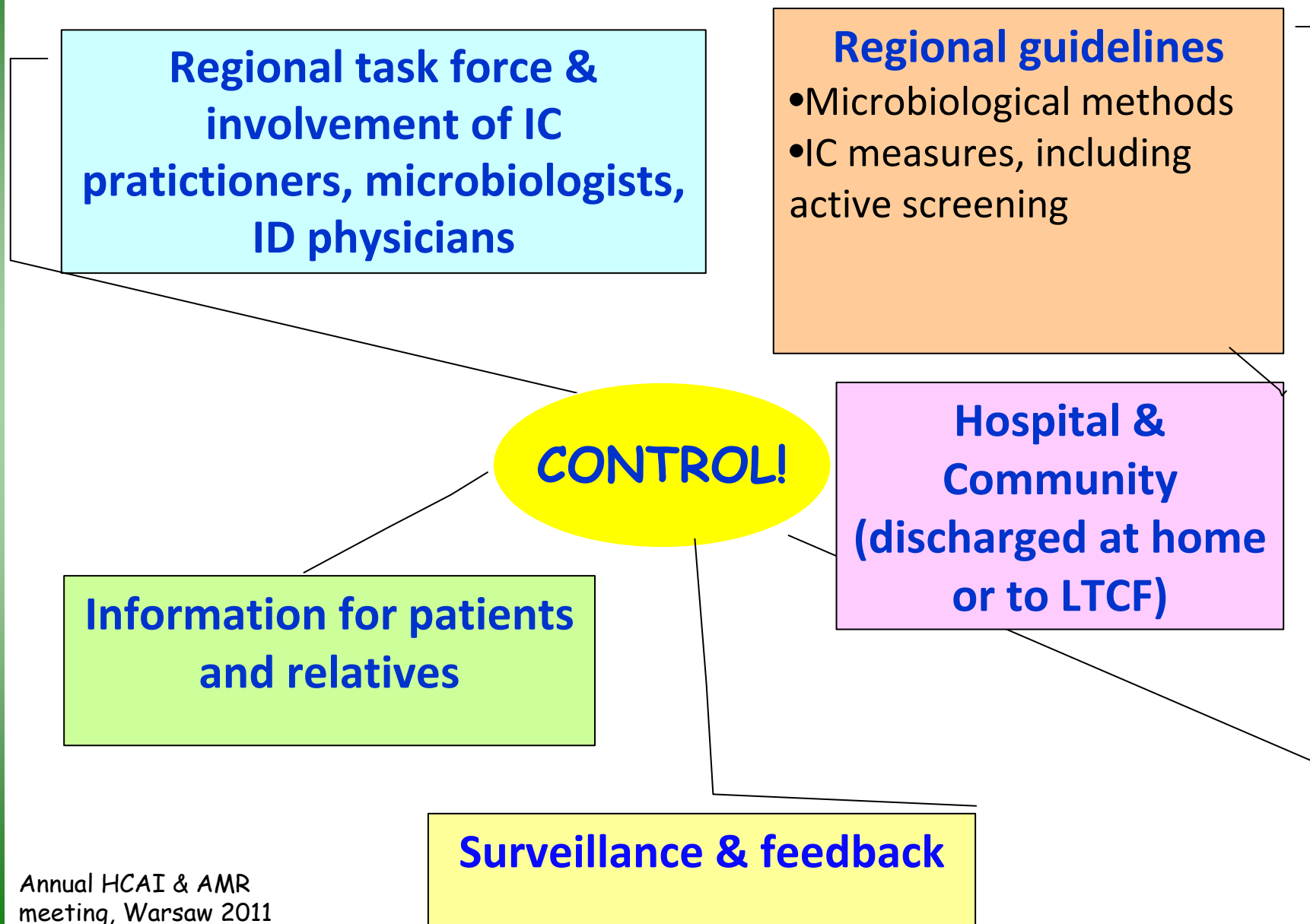
3. Bacteriology Section of the Operative Unit of Clinical Microbiology, S.Orsola-Malpighi University Hospital, Bologna, Italy

The *bla*KPC gene was detected in 56 of the 57 isolates positive in the modified Hodge test.

Among those, 45 resistance genes were *bla* KPC-3 gene and seven were *bla* KPC-2 gene as determined by sequence analysis of the amplicons.



IC measures in Emilia-Romagna





Reccomendations

Surveillance & reporting



Azienda Sanitaria		Azienda		
Mese	Ottobre	Anno 2011		
		N. di pazienti con batteriemia [§]	N. di pazienti con isolamento da altri campioni clinici [¶] , non da sangue [¶]	N. di pazienti colonizzati identificati tramite attività di screening, nessun isolamento da campioni clinici ^{**}
Klebsiella pneumoniae				
Totale strutture ospedaliere pubbliche ^{§§}				
Ospedale				
Totale Case di cura e Ospedali privati per acuti				
Totale Strutture Residenziali socio-sanitarie o altri contesti assistenziali territoriali				
Escherichia coli				
Totale strutture ospedaliere pubbliche ^{§§}				
Ospedale				
Totale Case di cura e Ospedali privati per acuti				
Totale Strutture Residenziali socio-sanitarie o altri contesti assistenziali territoriali				
Altri enterobatteri				
Totale strutture ospedaliere pubbliche ^{§§}				
Ospedale				
Totale Case di cura e Ospedali privati per acuti				
Totale Strutture Residenziali socio-sanitarie o altri contesti assistenziali territoriali				

[§] Segnalare i pazienti che hanno avuto almeno un isolamento di enterobatteri produttori di carbapenemasi e/o RI ai carbapenemi (ertapenem, imipenem o meropenem)

[¶] I pazienti che hanno avuto nel mese isolamenti sia da sangue che da altri campioni clinici devono essere conteggiati solo nella colonna delle batteriemie

^{**} I pazienti che hanno avuto nel mese anche almeno un isolamento da campione clinico devono essere conteggiati solo in una delle due colonne precedenti

^{§§} Indicare i pazienti per stabilimento (il totale verrà calcolato automaticamente)

State of the art up to now

- All hospitals of the region have:
 - Access to phenotypic (Hodge or synergy test) and screening tests for KPC
 - Planned how to isolate colonized/infected patients (cohorting in separate areas/single rooms)
 - Initiated active screening of:
 - contacts
 - patients at admission with a high suspicion index
 - patients admitted to high risk units (only high prevalence hospitals)



Carbapenemases-producing Enterobacteriaceae: monthly reports (June-October 2011)

Klebsiella pneumoniae

<i>Blood</i>	<i>Other clinical samples</i>	<i>Rectal swabs</i>
73	431	438

Escherichia coli

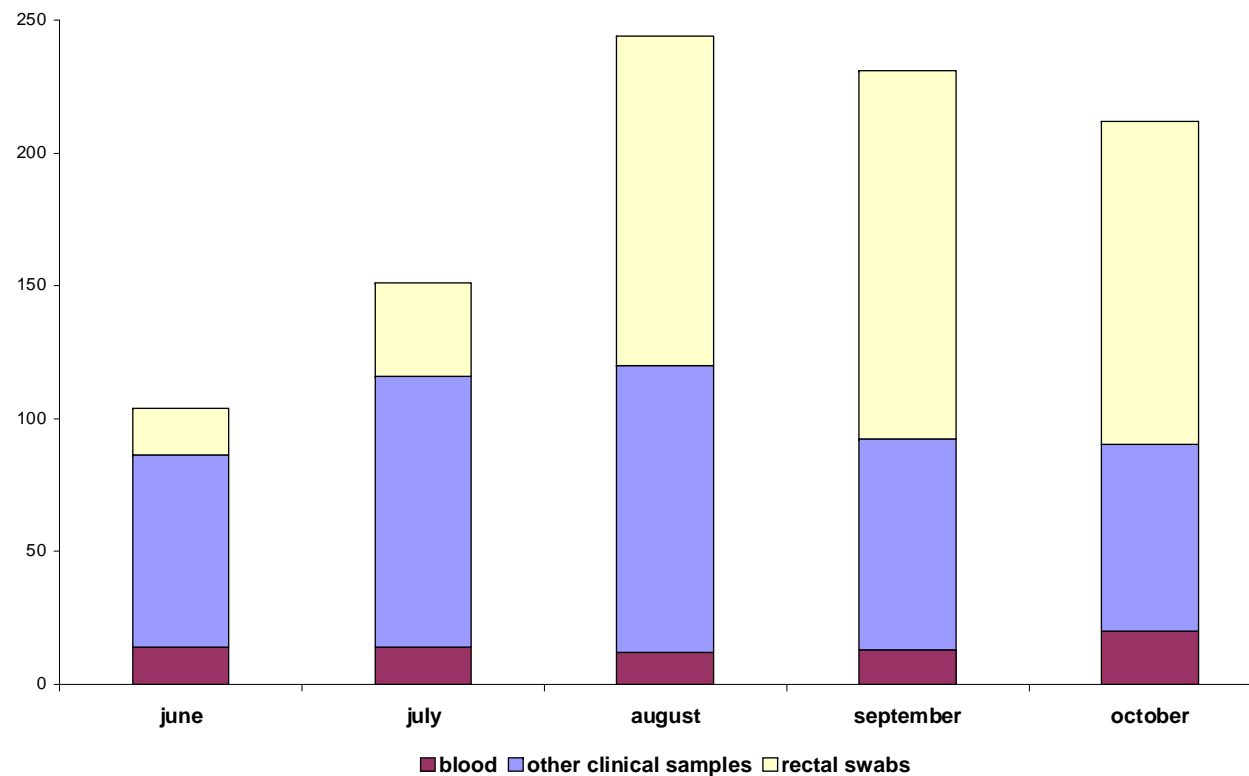
<i>Blood</i>	<i>Other clinical samples</i>	<i>Rectal swabs</i>
0	17	2

Other enterobacteriaceae

<i>Blood</i>	<i>Other clinical samples</i>	<i>Rectal swabs</i>
6	16	11

Carbapenemases-producing *K.pneumoniae*: monthly reports *(June-October 2011)*

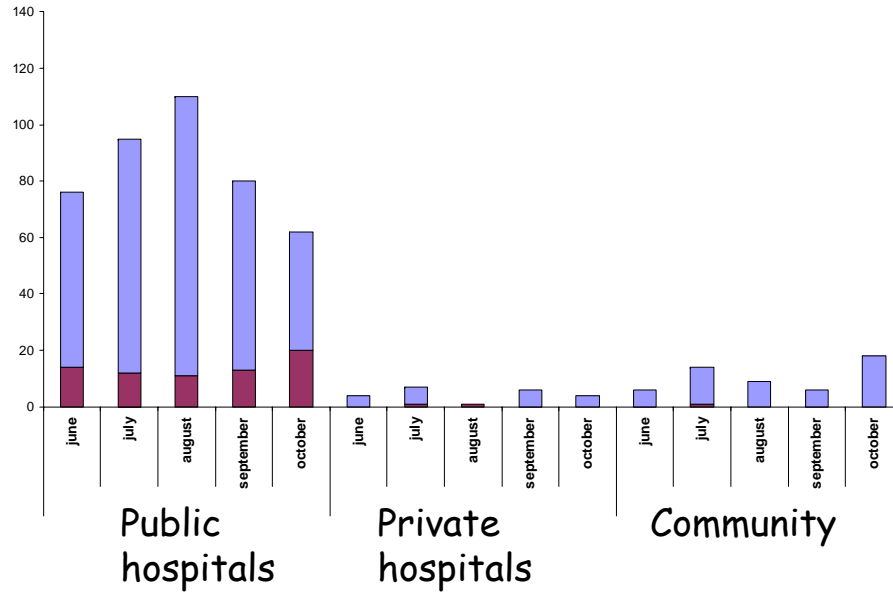
	<i>June</i>	<i>July</i>	<i>August</i>	<i>September</i>	<i>October</i>
Blood	14	14	12	13	20
Other clinical samples	72	102	108	79	70
Rectal swabs	18	35	124	139	122
total	104	151	244	231	212



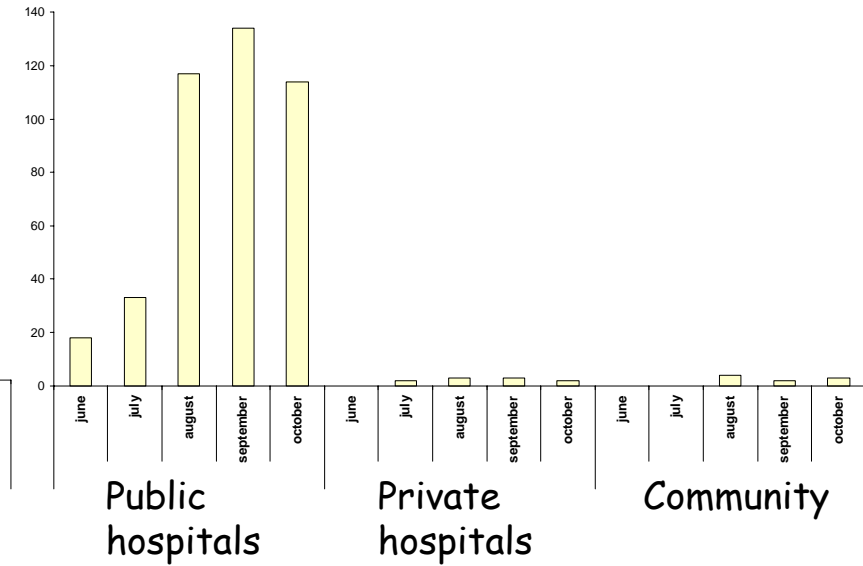
Carbapenemases-producing *K.pneumoniae*: monthly reports (June-October 2011)



Clinical samples

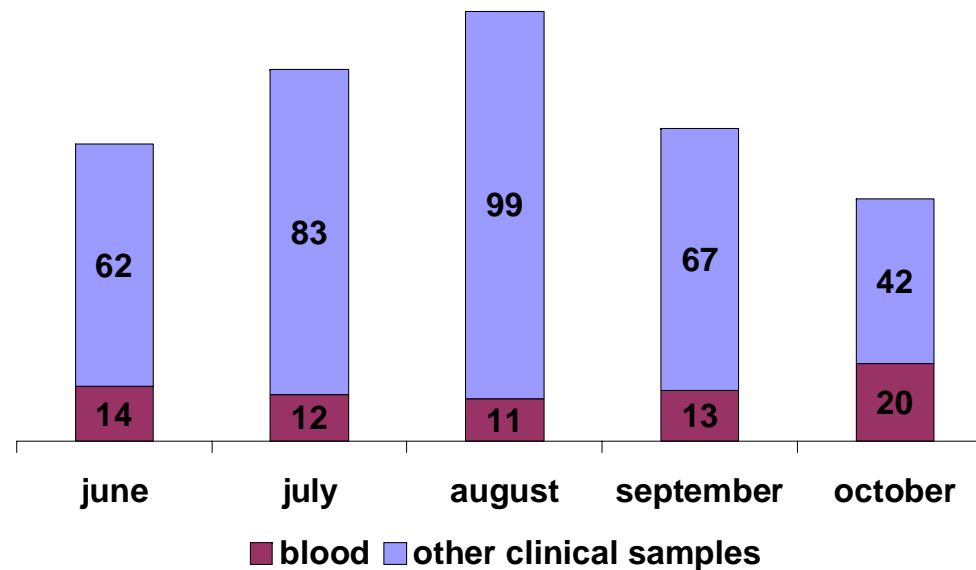


Rectal swabs



K. pneumoniae: patients admitted to public hospitals- clinical samples (RER June-October 2011)

N. cases per month



HCTs and Hospitals with at least one case

June-October	Blood	Clinical samples overall
Health Care Trusts	9/17	16/17
Hospitals	14/60	35/60

First 6 hospitals: 86% blood isolates and 75% other samples

Challenges: technical issues

- **Sustainability** over time
- IC measures in **specific settings**
(transplantation, rehabilitation, long-term care facilities)
- **Evolving antimicrobial resistance epidemiology** (colistin-R; other CRGNB; NDM)



Challenges: political issues

- ✓ **Financial crisis & high public debt**

Fewer and fewer resources for regional health services

- ✓ **North-south divide & regionalization**

Difficult to armonize the interventions all over the country

