

Epidemiology of Carbapenemase-producing *Klebsiella pneumoniae* in a North-West Italian Region:

Report from the Regional Surveillance System

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INTRODUCTION

The spread of carbapenemase-producing *Klebsiella pneumoniae* (KPC) has become a worldwide problem in recent years with a reported fatality rate from 22% to 72%. In Europe, outbreaks of KPC have been reported in several countries, but data from the EARS-NET surveillance system showed that, until 2009, the proportion of KPC has remained stable in most countries except Greece and Italy where a rapid increase of KPC has been reported since 2010.

In Italy the first report of KPC was described in 2000, but the incidence of this infection increased from 1-2% in 2006-2009 to 15.2% in 2010 and 27% in 2011.

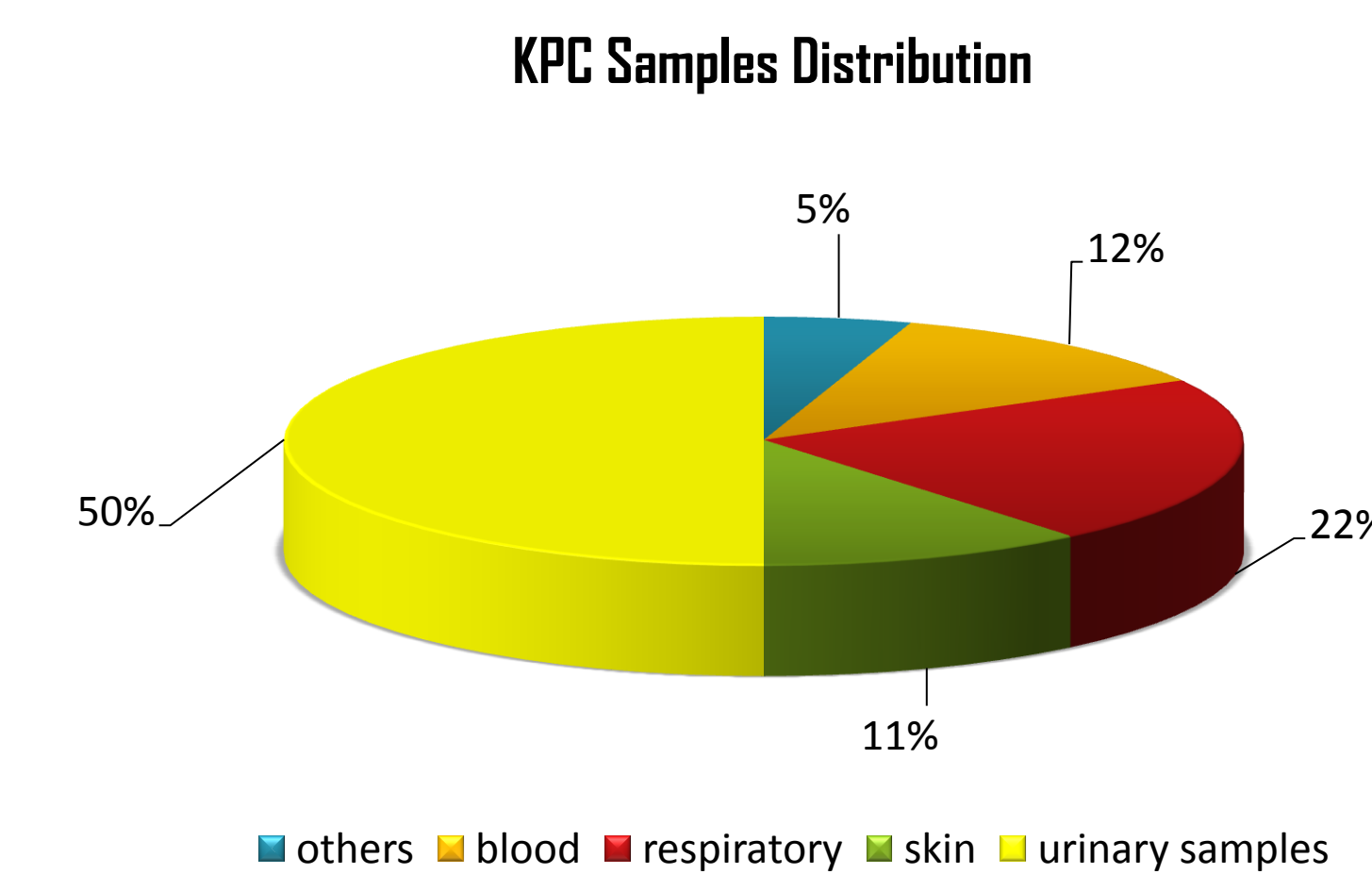
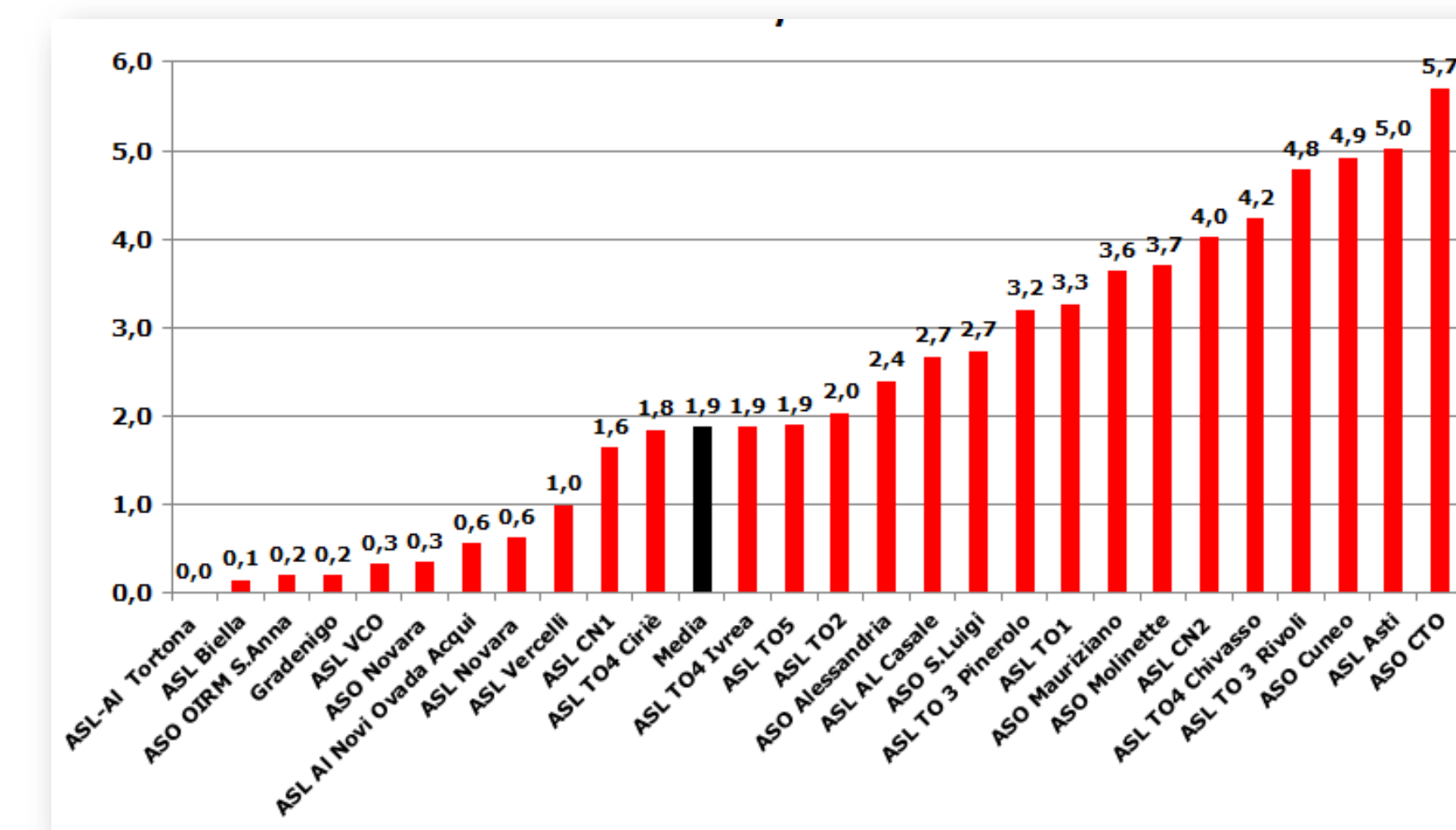
MATERIALS & METHODS

We report results from the 2012 regional surveillance program for KPC in Piedmont, North West of Italy, within the national and the EARS-NET surveillance systems whose mandatory task on a year-base was to report *Klebsiella pneumoniae* and KPC clinical isolates from any site. We report results from the 2012 regional surveillance program for KPC in Piedmont, North West of Italy, within the national and the EARS-NET surveillance systems. This study involved 28 regional Public Health Infection Control Units covering all the area (4,374,000 inhabitants) of infection in order to investigate KPC epidemiology in Piedmont. For each isolate, site of sampling and ward were recorded.

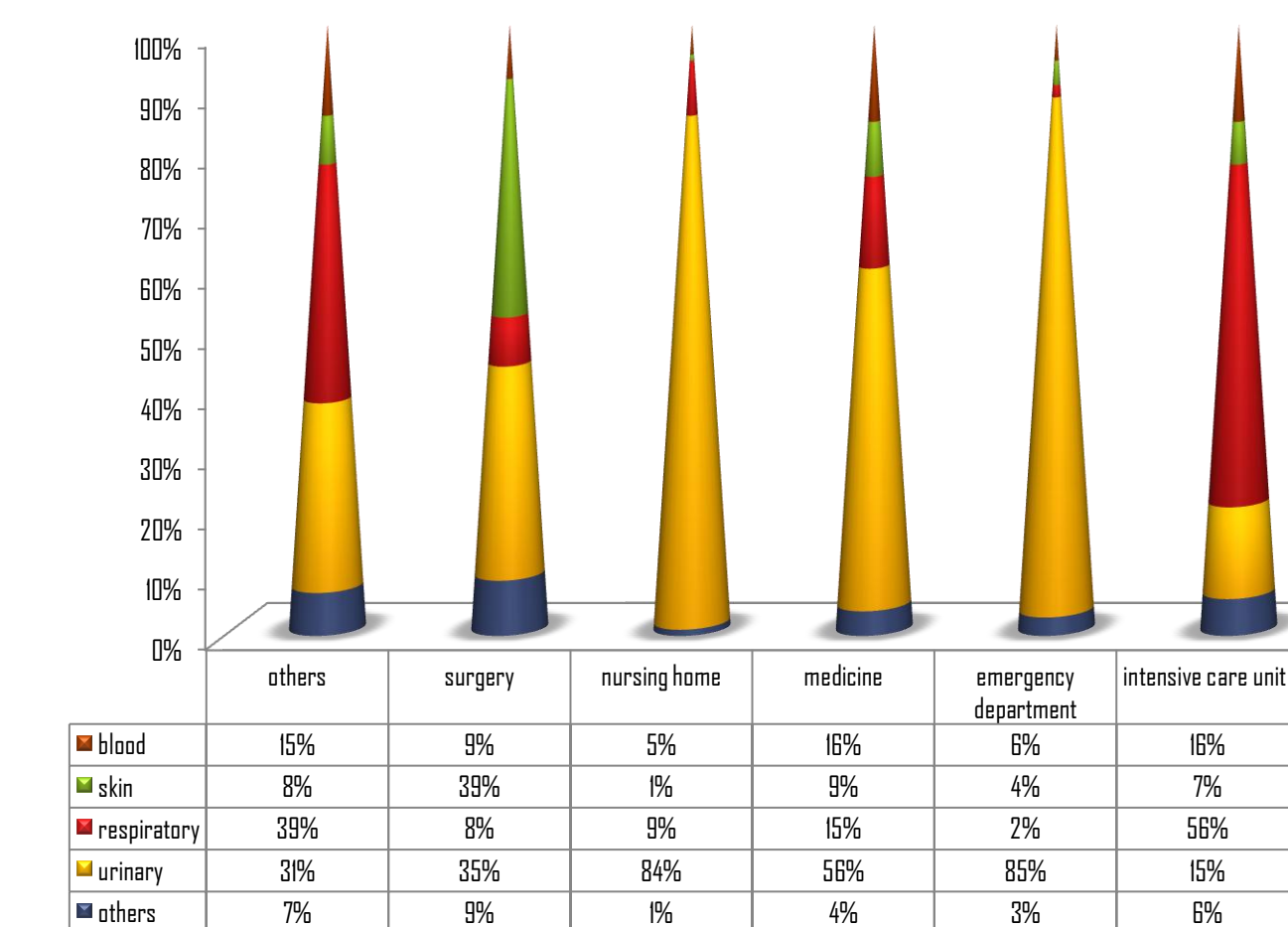
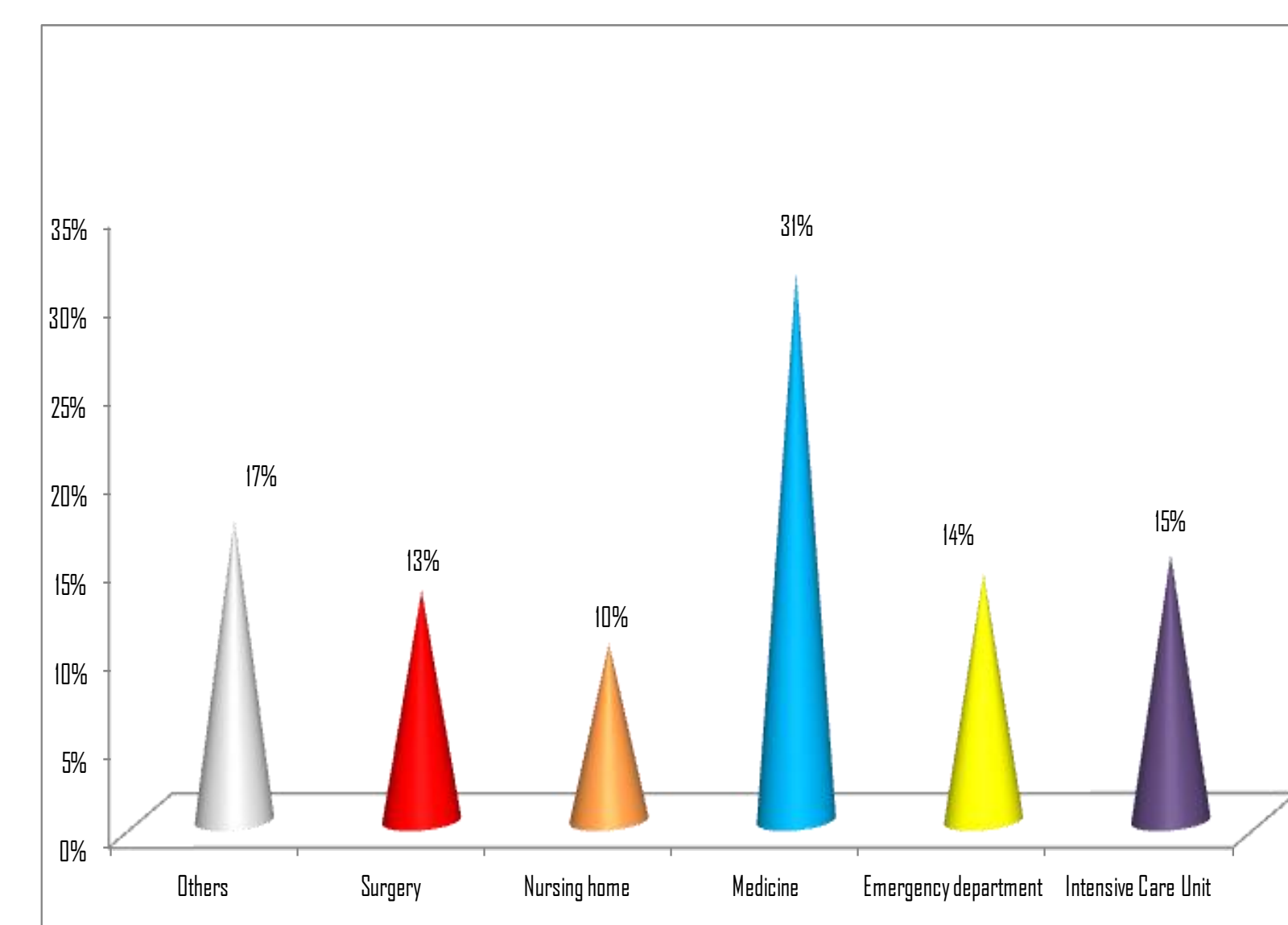
RESULTS

Year 2012	
Number of <i>K. pneumoniae</i> strains	8179
Number of KPC producers (%)	1433 (17.5%)

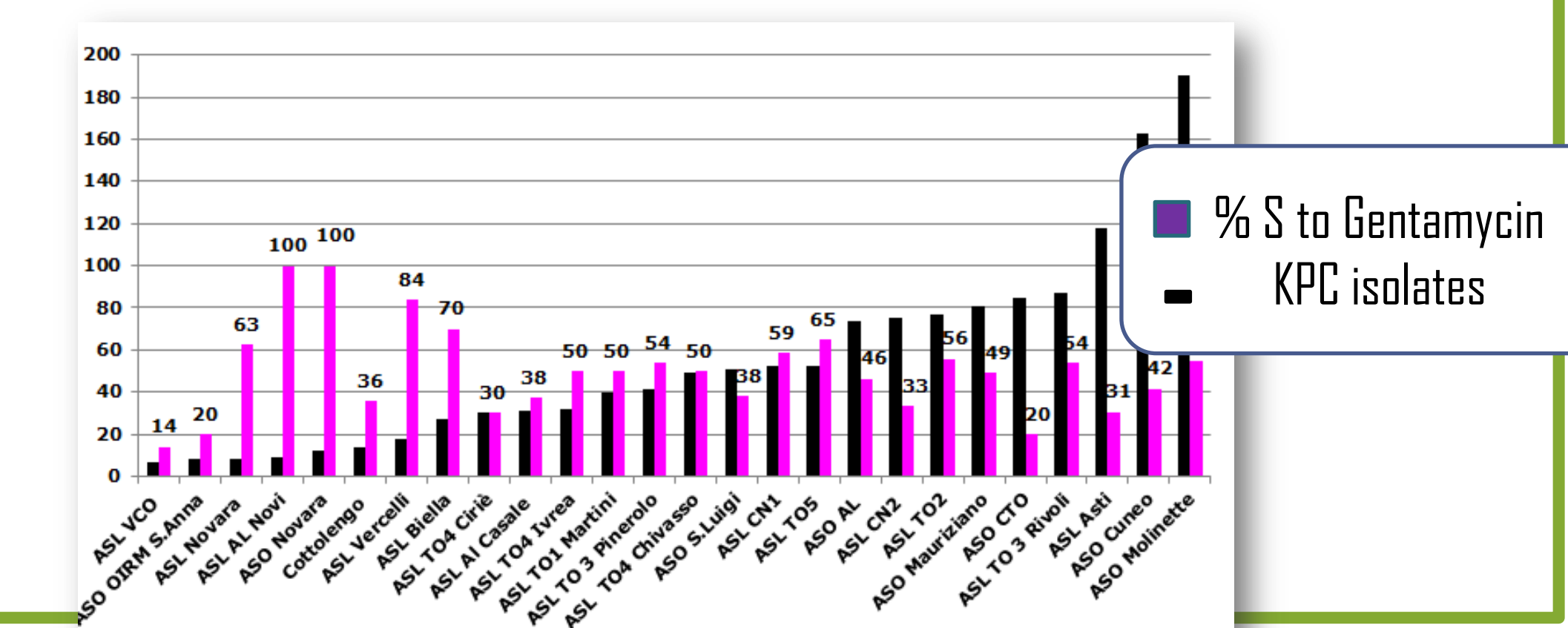
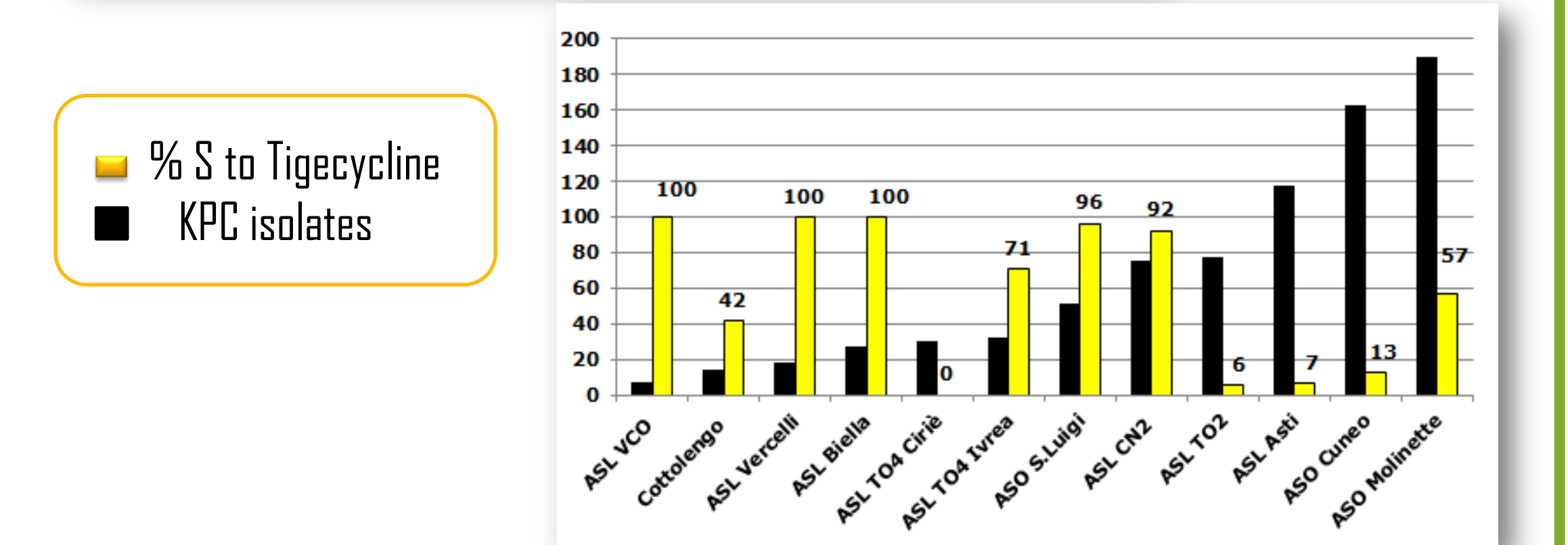
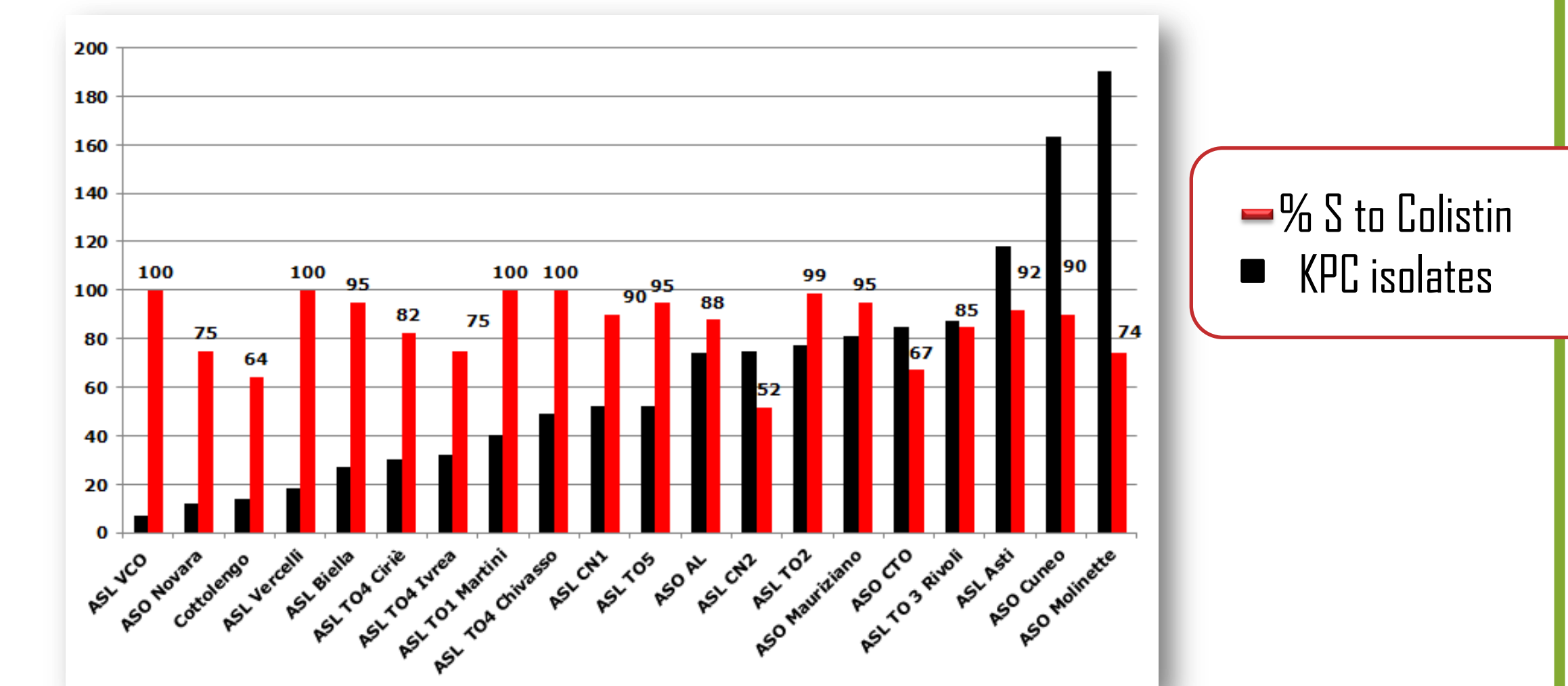
The incidence of KPC was 1.9/1,000 patients admitted to hospital and KPC was more frequently isolated in tertiary care referral hospitals. The majority of KPC were isolated from urine (50%) (Graphic 1-2).



Concerning the in-hospital distribution, 31% of KPC were identified in patients admitted to medical ward (56% of samples were urinary) followed by intensive care unit (ICU) in 15% (56% from respiratory samples) (Graphs 3-4).



Sensitivity to colistin, tigecycline and gentamycin (EUCAST breakpoints) was 74%, 57% and 55%, respectively, in KPC isolated from tertiary care centers (Graphs 5-6-7). However, only 43% of laboratory tested tigecycline, whilst 71% tested sensibility for colistin.



CONCLUSIONS

- ✓ The incidence of KPC per 1,000 patients admitted to the hospital was lower in 2012 compared to 2011 (3/1,000)
- ✓ KPC seemed to affect more medical wards than ICU
- ✓ KPC diffusion was no longer restricted to major hospitals but also challenged tertiary care hospitals which need to be considered when planning infection control strategies.
- ✓ Encouraging results of the 2012 survey confirm the presence of a decreasing trend in KPC spread at local level due to the implementation of infection control measures.

Giani T. et al. Epidemic diffusion of KPC carbapenemase-producing *Klebsiella pneumoniae* in Italy: results of the first countrywide survey, 15 May to 30 June 2011. *Euro Surveill.* 2013;18(22)
Hirsch EB, Tam VH. Detection and treatment options for *Klebsiella pneumoniae* carbapenemases (KPCs): an emerging cause of multidrug-resistant infection. *J Ac.* 2010; 65(6):119-25.
European Centre for Disease Prevention and Control (ECDC). Antimicrobial resistance surveillance in Europe 2011. Annual Report of the European Antimicrobial Resistance Surveillance Network (EARS-Net). Stockholm: ECDC; 2012.