

P0839

Paper Poster Session IV

Healthcare-associated infection epidemiology and control

Estimates of the preventable proportion of intubator-associated pneumonia: results of the Italian network SPIN-UTI

A. Agodi<sup>1</sup>, F. Auxilia<sup>1</sup>, M. Barchitta<sup>1</sup>, S. Brusaferrò<sup>2</sup>, M.M. D'Errico<sup>3</sup>, M.T. Montagna<sup>4</sup>, C. Pasquarella<sup>5</sup>, S. Tardivo<sup>6</sup>, I. Mura<sup>7</sup>, G. Sittl<sup>8</sup>

<sup>1</sup>University of Catania, Catania, Italy

<sup>2</sup>University of Udine, Udine, Italy

<sup>3</sup>University Politecnica delle Marche, Ancona, Italy

<sup>4</sup>University of Bari, Bari, Italy

<sup>5</sup>University of Parma, Parma, Italy

<sup>6</sup>University of Verona, Verona, Italy

<sup>7</sup>University of Sassari, Sassari, Italy

<sup>8</sup>Italian Study Group of Hospital Hygiene - Italian Society of Hygiene- Preventive Medicine and Public Health, Italy, Italy

**Objectives**

In Europe, Intensive Care Unit (ICU)-acquired pneumonia occur in 7.0% of the patients staying more than 2 days in ICUs and 91% of cases are associated with invasive device. In the first three surveys (2006 - 2011) of the "Italian Nosocomial Infections Surveillance in ICUs network" (SPIN-UTI of the GISIO, SItI), the most frequently detected infection type was pneumonia and an increase in the Intubator Associated Pneumonia (IAP) rate was shown (Agodi et al., 2013). The proportion of IAP which is preventable is object of debate, IAP prevention is a major patient safety issue. The objective of the present study was to estimate the preventable proportion of IAP in ICUs participating in the fourth edition of the SPIN-UTI project.

**Methods**

Patient-based surveillance data were collected by the SPIN-UTI network, from October 2012 to July 2013, according to the ECDC HAICU protocol for patient-based surveillance of ICU-acquired infections. Pneumonia was defined using a combination of clinical, radiological and microbiological criteria and was considered as IAP if invasive device was recorded on the day of the infection or one or two days before. In order to compute the preventable proportion of IAP, a reference ICU was defined as the top 10<sup>th</sup> (or 25<sup>th</sup>) percentile ranked ICU for the IAP incidence distribution. The expected number of IAP and the IAP incidences, that would be realized if ICUs with higher IAP incidences had the same infection incidence as the reference ICU, were estimated using standardization. The preventable proportion of IAP was calculated as observed cases minus expected case divided by observed cases.

**Results**

During the study period 3009 patients from 26 ICUs were enrolled. Overall, the percentage of patients who experienced IAP was 13.5 per 100 enrolled patients, IAP incidence was 16.6 per 100 intubated patients and IAP rate was 19.2 per 1000 intubator-days. ICUs reporting no IAP were excluded and thus, 1772 intubated patients from 23 ICUs were included in the final analysis. The 10<sup>th</sup> and the 25<sup>th</sup> percentile of IAP incidence distribution were 3.7 and 5.9 per 100 intubated patients, respectively. Using the 10<sup>th</sup> percentile, the preventable proportion of IAP was 0.82 (CI95%: 0.78-0.86) and using the 25<sup>th</sup> percentile was 0.77 (CI95%: 0.73-0.82).

**Conclusion**

The ECDC reported that approximately 20–30% of healthcare-associated infections are considered to be preventable by intensive hygiene and control programmes. In the present study, using patient-based surveillance data it has been estimated that, if the IAP rates of ICUs with higher infection rates could be reduced to that of the 10<sup>th</sup> or 25<sup>th</sup> percentile-ranked ICU, then about 82% or 77% of IAP cases could have been avoided. Implementation of preventive measures has become imperative, to ensure control and to reduce the incidence of IAP.