

Session: P097 Understanding and managing *Clostridium difficile*

**Category: 8e. Infection control interventional trials**

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## **A successful targeted intervention to reduce *Clostridium difficile* infection in an endemic Italian hospital**

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**Background:** *Clostridium difficile* infection (CDI) is the most common infectious antibiotic associated diarrhea. It is a growing health care problem, poorly controlled in many European countries, especially in Italy, where experiences are limited and a national CDI surveillance is lacking. At Azienda Ospedaliero-Universitaria Policlinico Modena (AOUPM), a tertiary care hospital in Northern Italy, CDI is endemic. Since 2014 the following interventions to stop multidrug resistant organisms (MDROs) spreading had been already implemented: hand hygiene campaign, contact precautions and isolation of MDROs, universal screening for MDROs and antibiotic stewardship, but despite these actions, CDI continued to increase. At the beginning of 2015 we introduced a multifaceted CDI-targeted intervention. The aim of the study is to investigate the impact of this strategy on the incidence of hospital-acquired CDI.

**Material/methods:** A quasi-experimental prospective, before- and after- study was performed from 2014 to 2016. At the beginning of 2015 we elaborated a specific intervention including: prospective collection of CDI cases in a database to improve surveillance and distinguish colonizations from infections; audit of CDI cases, educational training about CDI management, frontal lessons aiming at reducing the prescriptions of quinolones, 3<sup>rd</sup> generation cephalosporins, introduction of a pocket-guide (from diagnosis to treatment), introduction of the two-step algorithm combining NAAT-Tox A/B EIA (NAAT, nucleic acid amplification test; Tox A/B, EIA, enzyme immunoassay) according to last ESCMID diagnostic guidance document, introduction of a specific check-list to monitor health care workers' (HCWs) compliance to CDI contact precautions.

**Results:** CDI incidence increased from 9.39/10000 patient-days at the beginning of 2014 to 20.8/10000 patient-days at the beginning of 2015. After the targeted intervention, it decreased dramatically to 8.3/10000 patient-days in the second half of 2015, and to 5.3/10000 patient-days in the first six months of 2016 (Figure 1) (pre-post intervention comparison  $p=0.003$ ). Quinolones and 3<sup>rd</sup> generation cephalosporins defined daily doses (DDDs)/1,000 patient-days decrease from 22 in 2014 to 13 in the first 6 months of 2016 and from 7.8 in 2014 to 3 in the first 6 months of 2016 respectively.

**Conclusions:** Our study underlines that in settings endemic for CDI, it is essential to elaborate a targeted intervention to reduce hospital-acquired CDI, besides general infection control strategies. Key components for a successful intervention are prospective active surveillance; HCWs education, improvement of the diagnosis thanks to the two-step algorithm and antimicrobial stewardship.

**Figure 1.** Changing in CDI hospital cases incidence

