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Abstract (poster session)

**Reporting observational studies on antibiotic-resistant infections. It is time to improve it**

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**Objectives:** Several limitations affect observational studies exploring risk factors associated with infection or colonisation due to antibiotic-resistant bacteria (ARB). An attempt to improve the quality of scientific evidence was done with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement. However, we do believe that the peculiarity of the epidemiology of ARB needs specific variables to be considered and included in this score. The main objective of the study was therefore to suggest new items to be considered to improve reporting of observational studies on ARB infections. **Methods:** The study was designed as a three-step study. Firstly, we reviewed the literature selecting all articles analysing the association between antibiotic exposure and acquisition of MRSA or multidrug-resistant *A. baumannii*. Secondly, all the articles were reviewed according to the items of the STROBE index. Absolute and relative frequencies were used to describe the results of the judgment of quality of reporting. The impact factor of the journal where the study was published was also reported. Thirdly, a new set of items specifically focused on antibiotic-resistant infections were developed by an Expert panel and tested on the same articles. The Expert panel was composed by the authors and 3 external reviewers. **Results:** Seventy-eight studies (39 case-control, 28 cohort, and 11 cross-sectional) were reviewed. Overall the quality of reporting, assessed through the STROBE statement, was poor in most areas. Statistical details, subgroup analysis, sample size calculation and the description of main study objectives were satisfied in less than 25% of the studies. Linear regression analysis revealed that increase in impact factor was significantly associated with the percentage of satisfaction of the STROBE statement ( $p=.01$ ). However, an unexpected low level of quality of high rank journals for major issues such as sample size calculation, bias and confounding analysis was observed. Twelve new items were proposed (Table 1). All the new items were reported in less than 25% of studies. **Conclusion:** There is a significant need to improve the quality of reporting epidemiological studies on infections due to ARB. Since these studies might impact on public health officers decisions to try to reduce the spread of ARB, the application of our modified STROBE score can play a role.

**Table 1.**

<b>Section</b>	<b>New item proposal</b>
<b>Introduction</b> Background/rationale	Report previous in vivo and in vitro studies.
<b>Methods</b>	
Study design	State type of study.
Setting	Specify if setting is epidemic or endemic. Specify type of hospital and characteristics of population served by the hospital. Describe infection control measures applied at the study location.
Participants	Provide clear definition for case and control and give reason for control selection. Give reason for matching criteria.
Variables	Specify antibiotic usage according to: type, dosage, duration and route of administration. Define time at risk for antibiotic exposure. Include among potential confounders: comorbidity, length of hospital stay, previous surgery, presence of devices.
Data sources/measurement	Provide definition of resistance, multidrug resistance, including pattern of co-resistance. Whether variation of resistance is seen in studied pathogens. Whether studies performed to identify location or resistance e.g plasmid, chromosome, integron, transposon.
	Definition of infection and/or colonization. If not a validated reference, evidence of robustness of definition.
Quantitative variables	Provide subgroup analyses for immunocompromised, surgical/medical patients and patients in intensive care units.
<b>Results</b>	
Descriptive data	Specify among the exposure: previous stay in long term care facilities, nursing home, and other hospitals.
Other analyses	Report subgroup analysis by type of patients and type of microorganism.
<b>Discussion</b>	
Limitations	Provide description of sources of selection bias, information bias and confounding.
Generalizability	Discuss study setting for the generalizability.