We thank Salvatore and colleagues for their interest in our recent meta-analysis describing the limitations of healthcare-associated pneumonia (HCAP) as a tool to identify patients at risk of antibiotic-resistant pathogens [1].

Salvatore et al have made a number of criticisms with respect to the search strategy, the statistics, and our conclusions [2], and we appreciate the opportunity to respond.

First, with regard to their comments on the search strategy, they are concerned that we did not include several studies, but the studies they cite were all published in mid- to late 2013 after our manuscript had been submitted for publication [3–6]. Indeed, in the Methods section of our manuscript, it clearly states that we only considered peer-reviewed data published before January 2013 for inclusion.

Regarding the statistics, again, although Salvatore et al state that we did not disclose whether we used random- or fixed-effects models, we believe it is quite clearly stated in the Methods and in the abstract that data were pooled using a random-effects model. Readers will also notice that “random effects model” is also clearly displayed above the data in Figures 1 and 3 [1].

We disagree with Salvatore et al over the use of the Peto method as a careful reading of the paper they reference reveals that the Peto method was only found to be most useful with event rates <1% when the 2 groups to be compared were of similar size [7]. This is not the case in HCAP, where HCAP was significantly less frequent than community-acquired pneumonia, leading to significant imbalance between the groups. In this scenario, the Mantel-Haenszel method, which we used, was found to be the best method even at low event rates, including in the article that Salvatore et al cite [7].

We disagree that the number needed to treat is only applicable to randomized clinical studies, as it can also be used in diagnostic and screening studies, where it is referred to as the number needed to screen or the number needed to test [8]. In our case, because guidelines recommend broad-spectrum antibiotic therapy to patients with HCAP, we think it is highly relevant to know how many additional patients will receive broad-spectrum antibiotic therapy to prevent a single case of treatment failure.

We agree with Salvatore et al that the HCAP definition is based on very poor-quality data but disagree with the authors’ statement that the majority of cases of Multi-Drug Resistant pathogens fulfil the HCAP definition. Our data clearly show HCAP to be a poor and inconsistent predictor of such pathogens, leading to a high risk of overtreatment with no evidence that treating large numbers of “HCAP” patients with broad-spectrum antibiotic therapy will result in improved clinical outcomes [1, 9, 10].

References


Note

Potential conflicts of interest. All authors: No reported conflicts.

All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

James D. Chalmers,1 Caterina Rother,1 and Santiago Ewig2
1Tayside Respiratory Research Group, University of Dundee, Ninewells Hospital and Medical School, Dundee, United Kingdom; and 2Thoraxzentrum Ruhrgebiet, Kliniken für Pneumologie und Infektiologie, Ev. Krankenhaus Herne und Augusta-Kranken-Anstalt, Bochum, Germany

Reply to Corrao et al

To the Editor—We thank Salvatore and colleagues for their interest in our recent meta-analysis describing the limitations of healthcare-associated pneumonia (HCAP) as a tool to identify patients at risk of antibiotic-resistant pathogens [1].

Salvatore et al have made a number of criticisms with respect to the search strategy, the statistics, and our conclusions [2], and we appreciate the opportunity to respond.

First, with regard to their comments on the search strategy, they are concerned that we did not include several studies, but the studies they cite were all published in mid- to late 2013 after our manuscript had been submitted for publication [3–6]. Indeed, in the Methods section of our manuscript, it clearly states that we only considered peer-reviewed data published before January 2013 for inclusion.

Regarding the statistics, again, although Salvatore et al state that we did not disclose whether we used random- or fixed-effects models, we believe it is quite clearly stated in the Methods and in the abstract that data were pooled using a random-effects model. Readers will also notice that “random effects model” is also clearly displayed above the data in Figures 1 and 3 [1].

We disagree with Salvatore et al over the use of the Peto method, as a careful reading of the paper they reference reveals that the Peto method was only found to be most useful with event rates <1% when the 2 groups to be compared were of similar size [7]. This is not the case in HCAP, where HCAP was significantly less frequent than community-acquired pneumonia, leading to significant imbalance between the groups. In this scenario, the Mantel-Haenszel method, which we used, was found to be the best method even at low event rates, including in the article that Salvatore et al cite [7].

We disagree that the number needed to treat is only applicable to randomized clinical studies, as it can also be used in diagnostic and screening studies, where it is referred to as the number needed to screen or the number needed to test [8]. In our case, because guidelines recommend broad-spectrum antibiotic therapy to patients with HCAP, we think it is highly relevant to know how many additional patients will receive broad-spectrum antibiotic therapy to prevent a single case of treatment failure.

We agree with Salvatore et al that the HCAP definition is based on very poor-quality data but disagree with the authors’ statement that the majority of cases of Multi-Drug Resistant pathogens fulfill the HCAP definition. Our data clearly show HCAP to be a poor and inconsistent predictor of such pathogens, leading to a high risk of overtreatment with no evidence that treating large numbers of “HCAP” patients with broad-spectrum antibiotic therapy will result in improved clinical outcomes [1, 9, 10].

References


Correspondence: James D. Chalmers, MBChB, MRCP(UK), Tay-
side Respiratory Research Group, University of Dundee, Dun-
dee DD1 9SY, UK (jchalmers@dundee.ac.uk).

Clinical Infectious Diseases 2014;58(8):1197–8
© The Author 2014. Published by Oxford University Press on behalf of the Infectious Diseases Society of America. All rights reserved. For Permissions, please e-mail: journals.permissions@oup.com.
DOI: 10.1093/cid/ciu035