Reviewer's report

Title: Retrospective epidemiological study for the characterization of community-acquired pneumonia and pneumococcal pneumonia in adults in a well-defined area of Badalona (Barcelona, Spain)

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Reviewer: eva polverino

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Review to “Retrospective epidemiological study of CAP and pneumococcal pneumonia in adults in a well defined area of Badalona”

The manuscript deals with an important issue that is the burden of CAP in healthcare.

It is in general well written and presented with a quite wide statistical investigation on different clinical aspects of CAP.

Two aspects are particularly important in my opinion: 1 the inclusion and analysis of a outpatients population from different primary care centres since the available data in the literature is still scarce; 2 the economic evaluation of direct and indirect costs of both in and outpatients clinical management, due to the fact that a coherent utilisation of healthcare resources is desired in order to improve patients care and to reduce excessive expenses.

Nevertheless I would like to make some comments and suggestions in order to improve the paper.

Material and methods: it is not clear to me what the authors mean by “CAP costs were calculated for a 6 month period…”

The importance of previous antibiotic therapy in the last week has not been adequately described and/or investigated in my opinion. I would suggest to describe the prevalence of this factor in both groups; moreover I did not understand of you included this variable in the multivariate analysis you described for hospitalization and length of hospital stay.

Time to recovery is an interesting variable not always defined and assessed in main papers on CAP. Did the authors considered to perform a regression analysis to assess the independent factors associated with the length of recovery?

Charlson index results associated to hospitalization risk. Do the authors consider that Charlson should be considered among criteria for hospitalization according to their results? In that case I would suggest specifying a cut off value for this variable or a specific population to consider (elderly people?) in this case.

Considering the patients PSI distribution at admission, the low mortality rate and short mean length of hospital stay I would recommend the authors to describe
that the study patients series possibly include a low rate of severe patients as a possible limitation of the study and as a possible explanation for some results (mortality, etc)

Resources utilization and associated costs: it is not clear to me the way the authors analyse readmission costs. Did they include the costs for readmission as “hospitalization costs”? I would also recommend a better description of this variable in terms of frequency (any case of hospitalization from the outpatients group for a treatment failure f.i.?), costs calculations; I would also recommend a regression analysis to describe factors associated with readmission since a preventive strategy of readmission could also reduce sanitary costs of CAP.

Another interesting factor is the similar frequency of Legionella in both in and outpatients groups: this trend (the number of isolates is too low to define a clear finding) suggests that empiric antibiotic therapy in this European region should always cover Legionella even for outpatients and despite the frequent belief that a penicillin alone is an adequate antibiotic coverage for CAP. I would suggest commenting this element in the discussion.

In the discussion the authors comment “the need of improving pneumococcal vaccination strategies” due to the increase if non susceptible pneumococcal strains. In my opinion the authors should also consider the demonstrated spread of strains with good susceptibility to common antibiotics but with increased virulence causing a higher rate of complications and worse clinical course (ICU, MV, etc).

I would also recommend the authors to try to give an explanation of increased indirect costs for outpatients in comparison with inpatients.

Finally, I would suggest giving more concrete suggestions or proposals in order to reduce improve resources utilization and reduce total costs of CAP as a conclusion of the paper, such as increased vaccination, domiciliary hospitalization programs or whatever the authors consider interesting as from their results.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

no competing interests