Reviewer's report

Title: Lessons from a one-year Hospital-based Surveillance of Acute Respiratory Infections in Berlin- Options to optimize the SARI case definition

Version: 1 Date: 5 October 2011

Reviewer: Amparo Larrauri

Reviewer's report:

Major Compulsory Revisions

This is a very interesting study on the surveillance of acute respiratory infections in Berlin from December 2009 to December 2010. It provides a very useful insight on the sensitivity and specificity of several case definitions for acute respiratory infections, which is a subject that is currently being reviewed by the ECDC and the WHO.

As the authors state, the study was carried out based on the infrastructure of a study of hospital-based pandemic vaccine effectiveness and therefore the study have important limitations regarding the delay in the starting of the study and the age of the study population, that the authors have conveniently addressed in the discussion.

However, several aspects should be clarified in order to improve the manuscript and the findings of the study:

1. The authors state different objectives in the abstract and in the introduction. In my opinion the main objectives of the study were to assess the proportion of pH1N1-positives cases among patients meeting different CD for respiratory infections and to ascertain the number of patients meeting these CD (and not the number of patients with pH1N1-positives cases) as proportions of all internal medicine and ICU admissions. Also, to test the sensitivity and specificity of different CD for p-H1N1-infection. I recommend clarifying and homogenize these issues in the objectives of the study. In addition, although the authors state that one of the objective of the study is to identify predictors for the occurrence of more severe RI, the results do not clearly shown this aspect. The slight differences found in this sense among different CD should be better addressed in the results and discussion.

2. In the study all patients admitted with acute respiratory infections were identified and then electronic charts were checked for symptoms fulfilling several CD. It is not clearly explained how hospitalized RI cases were classified into the different CD. For example, if all the patients were selected among hospitalized cases with acute respiratory infections (I supposed CD1), how the CD2, CD3 or CD4 were selected if in all of them excluding cases with clinical suspicion by the physician? Is the clinical suspicion by the physician, an specific criterion specified in the electronic charts? The recruitment protocol for study cases and the way of classification into the different CD for respiratory infections should be much
3. 354 patients out of 1,025 CD1 cases were tested for pH1N1 infection. It should be clarified if there was any swabbing protocol for laboratory confirmation. If the only swabbing criterion was the patient consent, I suggest not referring to “differences among the likelihood of being tested among patients meeting several CD”. Please, clarify this aspect in methods and results.

4. Although CD2 and CD3 showed clear differences in the sensitivity and specificity with respect to CD4, the authors should provide CI 95% for the point estimates. Also, a statistical test should be applied to evaluate the differences among the area under ROC curves for the several case definitions, even considering the low number of pH1N1-positives cases of the study.

Minor Essential Revisions

1. I suggest changing the term SARI –cases, used in the first sentence of the Abstract/Results, by SARI-cases meeting the ECDC/WHO SARI case definition.

2. The start of the study period is different in the abstract and the introduction.

3. Methods/Study period/last paragraph: change to “beginning of winter (January 11, 2010 to December 12, 2010)”.

4. Results/Qualitative assessment related to the feasibility of SARI surveillance: Please, explain what activity ended in April 2010 if the study finished at December 2010.

5. Results/Number of cases according to case definition and severity:
   a. I suggest changing the number of the Tables 1 and 2 to better follow the results the authors are presenting.
   b. Please review all the titles of tables and figures to provide a sufficiently informative title of the results shown. The rest of the information should go as a foot of table or figure.
   c. The authors state the the proportion of p-H1N1 positives did not differ significantly between CD4 and CD1b cases. It would be interesting to test if there is a significant difference between the proportion of p-H1N1 positives between CD1 and CD4 cases (this last showing higher proportion of pH1N1 positives than CD1).
   d. In the fourth paragraph, the risk of ICU admission when comparing CD4 and CD1b cases is repeated. I suggest reviewing how to express the results in the whole paragraph.
   e. If I understand well, Table 1 (suggested Table 2) is referring to the characteristics of cases pH1N1-positives cases fulfilling different CD (please, amend the title). In this case, it is not easily understood the information on median duration of hospital stay and death during hospital admission. Please, clarify the results you present regarding this issue.
   f. The numbers of figures 2a and 2b are wrong in the foot of the figures (Figure 2 and 3).
   g. The number of figure 3 is wrong in the foot of the figure (Figure 4).
8. Discussion:

a. Second paragraph: I would not say that your study did not cover more than one season, as it started in the peak of the 2009-10 season and finished when there was already a considerable influenza circulation in the season 2010-11.

b. The authors state in the four paragraph that “The higher risk of admission to ICU, mechanical ventilation and death was (seen?) in CD4 compared to CD1b cases was not statistically significant”. Please, note that result in Table 1 (suggested Table 2) shows a higher risk of death in CD1b than in CD4.

**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:**

I declare that I have no competing interests