Reviewer's report

**Title**: High prevalence of extended-spectrum beta-lactamase-producing Enterobacteriaceae carriage in a pediatric unit in Madagascar

**Version**: 1  **Date**: 26 August 2009

**Reviewer**: GANGOUE PIEBOJI Joseph

**Reviewer's report:**

Major compulsory revisions

This study reported the prevalence of fecal carriage of extended-spectrum #-lactamase producing Enterobacteriacea in a pediatric unit at Befelatanana hospital in Antananarivo (Madagascar). This kind of study is very important for the implementation of infection control measures and the management of bacterial resistance to antibiotics. It is an interesting worldwide public health subject.

**Comments**

**Title**: As the text is focused on Escherichia coli and Klebsiella pneumoniae I suggested to the authors the following title “High prevalence of fecal carriage of extended-spectrum #-lactamase-producing Escherichia coli and Klebsiella pneumoniae in a pediatric unit in Madagascar”

**Abstract**: The methods used for the study are missed and the authors are advised to put the abstract in BMC Infectious Diseases abstract format.

**Materials and Methods**

**Design of the study**

The authors should precise the duration of the study. It would be interesting to give the details on demographic characteristics and medical history. Why do the authors record the civil status of the patients (< 15 years old)?

**Laboratory methods**

It is important to know which antibiotics the authors used for double-disk test and the list of antibiotics for susceptibility testing. What about the confirmatory test for ESBL-producing strains?

**Statistical analysis**

It is important to precise the significance level of p value.

**Results**

**Patients**

The determination of the mean length of hospital stay is not clear. It seems like a mean for 244 patients.

**Table 1**: For good comprehension, it is important to give the number of patient by
age group and the number of ESBL carriers on admission and discharge.

Of the 154 patients on discharge, it would be interesting to know:
1- The rate of patient which be carrier and became non carrier
2- The number of patient who did not acquire ESBL-producing organism
3- The rate of acquisition of ESBL-producing organism

On admission, are the authors diagnosed infections with ESBL-producing organism?

Characteristics of ESBL-PE isolates

It would be interesting to know the total number of E. coli and K. pneumoniae strains isolated on admission and discharge for better understanding the frequency of ESBL-PE. As the authors talked about characteristics of ESBL-PE isolates, include strains from medical staff and environment would be good.

Could be possible to the authors to give the number of ESBL-PE by species on admission and discharge?

The authors said that “all tested strains were susceptible to imipenem and amikacin”. But there are no results for imipenem in Table 2. In the same Table, the authors give the results of antimicrobial resistance of Klebsiella spp. which is not Klebsiella pneumoniae. How do they explain this? How about the relevance of these results?


As the authors detected ESBL-producing strains by double-disk synergy test, it would be interesting to report in table 2 the activity of combination #lactam + inhibitor used.

Risk factors for ESBL-PE carriage

It is very difficult to comment Tables 3 and 4 as the authors do not give the significance level value of p. In general a p value <0.05 is considered significant. If I applied this value I noticed that on admission prior hospitalization was not the independent risk factor for ESBL-PE carriage; on discharge, the only independent risk factor is Brachial catheter (p= 0.05) which was not significant according to the univariate analysis. So it is difficult to follow the authors as the text is not reported what they have in the tables. For example the authors wrote that Adjusted OR for prior hospitalization is 7.4 but in table this value is 8.24 (Table 3). It is important to have the significance level of p vale for the relevance of these results. I suggested to include in the Tables (3 &4) non-ESBL-PE carriers and removed the total

Nosocomial Infections

How the authors could be determined the monthly incidence rate for one month study? It would be interesting to know if isolates were ESBL-producers. It would be also important to know if the patients who acquired nosocomial infections were ESBL-PE carriers.
Discussion

Paragraph 1: changed bacterial multi-resistance by multi-resistant bacteria

Paragraph 2: Table 2 refers to antibiotics resistance not to risk factor.

Paragraph 3: The authors reported for the first time the total number of ESBL-PE. It would be interesting to include this in the results with more details of different species as I already suggested. How do the authors solve the problem of production of cephalosprinase by Enterobacter cloacae during double-disk test?

Paragraph 4: One of the main limitations of the study is the impossibility to know the relatedness between different ESBL-PE strains. Add to this the absence of ESBL confirmatory test.

Paragraph 6: there is confusion between ESBL-PE carriers on admission and outpatient.

Last paragraph: I suggested to start by “the detection and isolation of ESBL-PE in patient on admission …..” instead of “the detection and isolation of patients with ESBL-PE on admission …..”

References:
The authors should shake and put the name of bacteria species in italic.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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