Reviewer’s report

Title: Epidemiology of Anti-tuberculosis Drug Resistance in a Chinese Population: Current Situation and Challenges Ahead

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Reviewer: isabelle devaux

Reviewer’s report:

General comments:
The topic (ant-tuberculosis drug resistance) is of public health relevance, in particular in China where TB incidence and MDR-prevalence are particularly elevated (as stated by the authors in the background section). The aim of the study is clear “to assess the drug susceptibility pattern of MDR-TB” focussing in one particular province of China which is Jiangsu.

However this study presents some limitations that could be explored by further analyses and/or clarifications: source of data and recruitment process, selection of age categories, more detailed geographic representation of cases.

Abstract: multivariate analysis
Age reference >62 years what is the rational?
What is the reference category for the place of residence?

Background
Tuberculosis (TB) is a leading cause of death due to an infectious agent: could the authors specify which infectious agent?

Methods
P6: “the annual reported new sputum smear positive (SS+) cases were 23603 and previously treated SS+ cases were 5524 (based on surveillance data in 2007)”

Could the authors provide a reference? What was the source of data? Were the patients recruited in the study from the same source of data?

P6: “the initial mono-drug resistance rate was set at 6% among new cases and 16% among previously treated cases based on the proportion of rifampicin resistant isolates from previous surveys”

To calculate the number of patients to be included in the study, the authors refer to previous surveys, could it be possible to specify a reference?

The authors refer to “Cluster sampling method”? Could they further explain?

A sample size was estimated based on the total number of reported new sputum smear.
Does it mean that the patients were included until the sampling site reaches a minimum number of cases (67 SS+)? Are the patients randomly distributed over the 12 months of the study period?

Optional: a figure could eventually help understand the sampling strategy, either separated or combine to figure 1 (e.g. below).

New sputum smear Previously treated smear
Nber of reported + sample per year 23603 5524
Precision 2% 4%
Initial mono-drug resistance rate 6% 16%
Estimated sample size: 2035 1247 788

Data collection
Are definitions of previously treated/new cases based on WHO guidelines? If so could it be possible to add a reference?

Data analysis:
Are data case-based or aggregated? How are they entered in the DB?

Results
Prevalence and pattern of drug resistance
The authors specify “A large part of them (97.81%) were Han Chinese”: could the authors specify the origin of the 2.2% remaining?

Area of residence: could it be possible to look at a smaller geographic resolution if a trend has really to be observed? Could it be possible to map the estimated rate of cases?

Risk factors:
Table 4 - Factors associated with multi-drug resistant tuberculosis
Could the authors specify the meaning of cOR and aOR?

For the choice of age categories, the authors decided to use tertile which is probably a rational way to do it in statistics, but what does these categories mean regarding the epidemiologically of TB in China and more particularly in this area?

If the data allow (case-based data), could the authors re-do the calculation, using for example age categories from the WHO-global report, or any other categories that could be based on epidemiological hypothesis concerning the patterns of the affected population?

P for trend:
- For age, was it calculated on categorical variables or continuous variables?
- For area of residence and alcohol drinking: is it meaningful to calculate a p for
trend based on 3 categories?

The authors state: “Drinking alcohol (#3 times/week) seems to be inversely related with the risk of MDR-TB with the OR(95% CI) of 0.57(0.34-0.97)”

Could the authors specify how the question was asked? Did they assess the quantity of alcohol absorbed by the patients? e.g. if 3 times/week and one glass each time, may not affect patient’s health.

Discussion

Information provided in the first two paragraph were already mentioned in the background section. Could the authors summarise it?

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests