Author's response to reviews

**Title:** Characteristics of HIV Seroprevalence of Visitors to Public Health Centers Under the National HIV Surveillance System in Korea: Cross Sectional study

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Cover Letter

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MS: 5473337052157161 - Characteristics of HIV Seroprevalence of Visitors to Public Health Centers Under the National HIV Surveillance System in Korea: Cross Sectional study

We appreciate reviewers for reviewing our manuscript and reviewers critical comments.

We have revised manuscript according to the reviewers request and comment and give answers after questions of reviewers.
Referee 1

Thank you for reviewing our paper and your critical comments. We give answers after your questions.

Reviewer's report:
Title: Characteristics of HIV Seroprevalence of Visitors to Public Health Centers Under the National HIV Surveillance System in Korea: Cross Sectional study
Version: 1 Date: 30 August 2008
Reviewer: Onno de Zwart

Reviewer's report:
The study is interesting as it reports on the background of the HIV-epidemic in Korea. The design of the study is clear and the way the data have been analysed seems suitable. However, the manuscript also raises some questions.

Major compulsory revisions:
The background information available on the people who took an HIV-test is limited. No information is available on sexual behavior (e.g. number of partners, gender of partners, use of condoms) or other risk factors like injecting drug use. As the highest HIV prevalence was found in the group 'Suspected group of HIV infection HIV ISG) and then especially among males (age groups 30 – 49) one can hypothesize that – a part of – this group are men having sex with men or may be injecting drug user. In other countries these groups form a major part of the HIV epidemic. This possible explanation is not discussed in the manuscript and this limits the value of it.

⇒ Answer
I think this is an important comment. However, there is no information on IDU and sexual behaviors (MSM) in the data collected from Health Care Information System (HCIS). Further epidemiologic study is necessary for males (age groups 30-49)

2. How the process of categorization in the different groups took place is not clear. Was this done by the health workers in the PHC’s or by the national surveillance system. This process should be clarified as well as possible limitations of this process.

⇒ Answer
Health Care Information System (HCIS) is categorized into 14 reason for testing in the menu. The health workers in PHCs choose the reason in initial entry of the test takers. The two groups
(STI risk group and HIV TRG) are formed according to classification of “Guideline for HIV/AIDS control” and the other two groups (General group and HIV ISG) are classified by authors: If HIV test is taken as a part of various items for health checkup, then the reason is classified as the General group. If HIV infection is suspected and the HIV test was designated, then the reason belongs to the HIV ISG.

We have given more specific description on the procedure (Table 1, page 5, lines 8-15), and put possible limitation (page 10, lines 13-14).

3. Concerning the repeated testers it is not clear whether the higher percentage in the group STI risk is related to the frequency of tests which are required as part of the mandatory testing system.

⇒ Answer

The STI Risk group is to take a periodic test every six months, so that the group has relatively higher repeated testers compared with other groups. We have described it on Table 1 and Discussion (page 9, lines 3-7).

4. As only a limited percentage of HIV tests are conducted in PHC it would be helpful to give more information on the part other test locations play. Now this is very limited. Can people also go for voluntary testing to these locations?

⇒ Answer

Yes, they do. People take HIV voluntary tests primarily in Hospitals or clinics (including consulting centers) as well as PHCs. HIV tests are conducted in PHCs, hospital and clinics (including clinical pathology centers and consulting centers). PHCs conduct HIV test according to target people regulated by ‘Guideline for HIV/AIDS control’. They perform the HIV test for STI risk group and HIV TRG (prisoners, TB patients, partners of HIV infected persons) and also take anonymous testers and voluntary testers. Blood centers take HIV tests for blood donors, while hospitals or clinics conduct HIV tests for patients and health checkup.

We have described on Discussion section (page 7, lines 18-21).

5. On page 8, line 14 it is stated that foreigners may introduce HIV in Korea as HIV prevalence is higher in this group. Also information is included about possible sexual risks, however, the study contains no information about their sexual behavior so these passages are too speculative and not based on the data.

⇒ Answer

Good comments. We have not conducted any research on the sexual behavior of foreign residents and no data are available so far, so we have deleted the part (old manuscript: page 8,
6. In the conclusion the authors state that voluntary testing should be promoted as this is more effective than mandatory testing. I wonder why the authors do not discuss the possibility that mandatory testing should be limited or stopped (in line with international recommendations) as their study also shows that it has no additional value.

⇒ **Answer**

Thank you for this comment. We have discussed the limit of the mandatory testing along with international recommendations (page 9, line 25-27, page 10, lines 16-23)

Minor revisions

1. In the background the policy concerning mandatory and voluntary testing is introduced. However, in the discussion new information is given on changes in testing policies in 1988. This information should be integrated in the background. It would be helpful to clarify what groups currently have to undergo mandatory testing.

⇒ **Answer**

According to your comment, we have integrated the first part of discussion into the background (page3, lines 14-19)

2. On page 5 (lines 8 – 13) it is not clear what is meant by took free HIV testing personal physical examinations.

⇒ **Answer**

We have re-described the page 5, lines 7-15 (old manuscript, page 5, lines 8-13).

3. On page 7, line 9 table 4 should be mentioned.

⇒ **Answer:**

We have mentioned (Table 3) (on Page 7, line 6).

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

Quality of written English: Needs some language corrections before being published

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
Thank you for reviewing our paper and your critical comments. We give answers after your questions (blue color).

Reviewer's report:
Title: Characteristics of HIV Seroprevalence of Visitors to Public Health Centers Under the National HIV Surveillance System in Korea: Cross Sectional study
Version: 1 Date: 24 October 2008
Reviewer: Sarah Dougan

I thought this was an interesting paper and that the analysis and results would be of interest to BMC Public Health readers and to the field of HIV epidemiology in general.

MAJOR COMPULSORY REVISIONS
I think the discussion section of this paper requires more work.

1. The first part of the discussion does not focus on the major findings of the study as I would have expected, but includes further information on HIV testing practices in Korea which I think should be worked into the outline in the background section. I would like to see the first paragraph being dedicated to the main findings of the study. From the conclusion, this seems to be that voluntary testing identifies more HIV positive individuals than mandatory testing. It would be interesting if there was then further discussion about this point, and comparisons with the literature and surveillance from other countries.

   ⇒ Answer
   We have integrated the first part of discussion into the background (page3, lines 14-19).
   Furthermore, we have discussed more on voluntary test and mandatory test with HIV testing policy of UNAIDS/WHO and other countries (page 9, lines 19-27, page 10, lines 16-23)

2. There seemed to be a disproportionate amount of emphasis on foreigners with HIV in the discussion section. I appreciate that the rates are higher than in Koreans, but there were only 18 HIV positive foreigners detected with HIV in these PHCs in 2005. This is compared with 131 Koreans. It seems more probable therefore, in absolute terms that the bulk of HIV transmission in Korea will be among Koreans. It may also be better to present seroprevalence rates by
voluntary vs. mandatory testing, as the large number of mandatory tests (presumably in lower risk individuals because those that believe they are HIV+ are anonymously testing) is downwarding biasing the rate of HIV among Koreans vs. foreigners (who I presume are all taking voluntary tests?).

Answer

Thanks for your sharp comments. Foreigners who stayed in Korea more than three months should submit the HIV test result, which is kind of routine test. The general group in Table 3 shows a high seroprevalence in foreigners. So, we could find that medical certificates among foreigners have high seroprevalence. For foreigners, medical certification is considered as compulsory medical checkup for job or residence, which is stricter compared with Koreans. About 12% of diagnosed HIV infected persons is foreigners, which is 13% in Japan in which the infectious status is similar to Korea.

We have added this in Discussion (page 8, lines 22-26).

3. There is no mention of gay men / MSM within the paper. Are sexual orientation /behaviour data collected within the PHCs? If so, are a disproportionate number of the men with HIV, MSM? Even if the data are not available then there needs to be some discussion about why the rates are higher among men than women, which would obviously need to include discussion about HIV transmission among MSM in Korea.

Answer

We think it is major comments. However, there is no information on sexual behavior and injecting drugs in the data compose of 11 items from Health Care Information System (HCIS). According to survey of transmission route of HIV-infected person, the proportion is homosexual contact 47.0 %, heterosexual contact 52.8%, and others 0.2%. However, the many males who are categorized into heterosexual contacts in initial interview, are later changed into homosexual contacts, and we are suspicious that homosexual contact might be main route, because majority of HIV-infected persons is male. We are currently performing a study of prevalence on visitors to VCT and hospitals for MSM.

We have added this in Discussion (page 7, lines 25-26, page 8 lines 1-4).

4. I think there needs to be more discussion about the study limitations within the discussion section. Particularly around the study population - for example, on page 4 lines 9-11, you mention low-income individuals, but there is not much further detail on this. There is also no mention of the anonymous testers and the bias that may be caused by their exclusion on the HIV seroprevalence rates within the current paragraph on limitations. I also did not understand what the decrease in the proportion of HIV infections discovered in PHCs would mean for the
interpretation of the HIV seroprevalence rates. Why has it decreased? - are there more low risk people testing?

⇒ Answer

The number of test takers in PHCs is declining according to change of HIV test policy, and the proportion of HIV infection diagnosed in PHC is also declining. The test takers belong to STI risk group (52%), HIV TRG (3%), HIV ISG (14%), and general group (31%), respectively. According to Guideline for HIV/AIDS Control, STI risk group and HIV TRG is tested in PHCs for prevention of HIV infection, and HIV ISG for early detection. General group contains Health checkups, medical certificates for job and group activities, and pre-natal examinations and HIV test is charge-free, which makes low-income individuals uses PHCs. Hospitals or clinics conduct HIV tests for comprehensive medical examination, operation, clinical symptoms. The proportion of HIV tests in hospitals and clinics are increasing because those are included in health checkup of general population, which in return the number of HIV infection diagnosed in hospitals or clinics are increasing
We have described more specific details on the HIV test takes in PHCs on page 9, lines 19-24, which make it easy to understand they are representing susceptible or low-income individuals.
We also added explanation on the anonymous on page 5, lines 13-15. Finally, we have explained the possible bias excluding the anonymous in calculating seroprevalence on page 10, line 10-11.

MINOR ESSENTIAL REVISIONS
Page 4, line 21: I think part of the sentence is missing here. "residential identification number (RID) of Korean..."

⇒ Answer

We have added in Data Collection (page 4, line 21-22).

Page 4, line 23: is the reason that you state that "the RID cannot be deduced from the code" because it ensures patient confidentiality? If so, I think this needs to be explicitly stated. If not, then I think you should mention how patient confidentiality was protected (i.e. you didn't have named data etc.).

⇒ Answer

Yes, it is. The code was generated from RID, and RID could not be accessible by the investigators, which secure the identity of the test takers.

page 4, lines 23-24 has been added.
Page 5, line 20: it would be helpful if the number of individuals (if possible) could be given here as well as the number of tests.

**Answer**
In our study, a new code was generated based on the HCIS’s RID, so if there was no RID or imperfect RID, the code could not be generated and we could not know the number of individuals.

Page 6, lines 9-10: I think this needs to rewording. If I have interpreted this correctly, then finish sentence after "men (1.1 times) (p<0.0001)." and then state that there were statistically significant differences in testing rates between men and women in the HIV ISG and STI risk groups, but not in the general group and HIV TRG group.

**Answer**
We have revised the manuscript (page 6, lines 7-9).

Page 6: I would indicate that the ORs that are presented in the results section text are adjusted (e.g. adj OR).

**Answer**
We have changed ORs to adj. ORs in Result.

Page 8, lines 20-21: in the UK at least, HIV seroprevalence is higher in older age groups than in younger age groups as you see in Korea.

**Answer**
We have changed “Europe” into “many countries of the Europe.”

**DISCRETIONARY REVISIONS**

Page 3, lines 10-15: I was unsure when reading this part whether the authors were referring to voluntary, mandatory or anonymous testing at times. It would be helpful for readers if there was more clarification here.

**Answer**
We have described Table 1 more specifically, and added page3 line 14-15

Page 5, line 8: by "free" do you mean voluntary or that they were not charged? It would be helpful to state here whether HIV testing was a mixture of voluntary and mandatory testing.

**Answer**
It means no charge. All HIV testing in PHCs is charge-free. We have changed it “free of charge.”
We have revised the manuscript (page 5, line 7).

Page 5, lines 11-12: this should be reworded to make it clearer that readers can obtain information on who is assigned to each of the 4 main groups by looking at table 1.

⇒ Answer
We have re-described the criteria of four groups in Table 1 and in page 5, lines 8-13.

Page 5, line 13: say why individuals testing anonymously were excluded.

⇒ Answer
As we have described before, the anonymous had no RID and it could not generated code, so that the number of individuals were not distinguished and excluded in the calculation of seroprevalence. We have added this to page 5, lines 13-15. The positivity of the anonymous was produced and added in page 10, lines 11-12.

Page 6, lines 8-9: (1.3 times) and (1.1 times). To make it easier for readers, change to (mean = 1.3 tests per year) etc.

⇒ Answer
We have changed as follows:
(1.3 times) and (1.1 times) to (mean=1.3 tests per year) and (mean=1.1 tests per year) (Page 6, lines 6-7).

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests: I declare that I have no competing interests