Author's response to reviews

Title: The Geographic Distribution Patterns of HIV-, HCV- and Co-infections among Drug Users in a National Methadone Maintenance Treatment Program in Southwest China

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To the Editor

Dear Dr. Mirjam Kretzschmar and Miss Sheryl Ramos

Thanks you for letting us submit our second revision of “The Geographical Distribution of HIV-, HCV- and Co-infections among Drug Users in a National Methadone Maintenance Treatment Program in Southwest China” for consideration for publication in *BMC Infectious Diseases*. Many thanks for Dr. Rafael Mikolajczyk’s and the editor’s constructive comments. Following these comments, we have thoroughly revised the manuscript. We thank LetPub for its professional editing service during the revision of this manuscript. Please find attached point-by-point responses to your comments. All changes were made in track-change mode in the Word document.

If you have any questions, please feel free to contact me. Thank you very much for your assistance. I look forward to hearing back from you.

Kindest regards

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RESPONSES TO RAFAEL T MIKOLAJCZYK’S COMMENTS

The authors did not address in the revision the concern I expressed in the initial review and still have. There is an underlying misunderstanding in the interpretation of the analysis: instead of considering HIV, HCV and co-infections as infections the authors approach them as they were non-communicable diseases. This misunderstanding starts with the title: authors speak about high and low-risk areas for these infections. In fact, what they look at is the regionally high or low prevalence. The observation is that clustering is not surprising for infections – this needs a more detailed discussion – is this just because of different epidemic stage or a different distribution of risk factors.

Response: Thank Dr. Rafael T Mikolajczyk for his constructive comments and suggestions. We revised the title of our manuscript to ‘The geographic distribution patterns of HIV-, HCV- and Co-infections among Drug Users in a National Methadone Maintenance Treatment Program in Southwest China’ (See Lines 1, Page 1). We discussed the limitations of our analytic approaches as they relate to the editor’s comment, and also supplemented some discussion in this second revision (See Lines 12-14, Page 16; Lines 2-4, Page 17; Lines 6-11, Page 21).

The interpretation should also consider the direction that apparently there are borders – i.e. some isolation of communities. If these borders agree with township borders than it simply says that apparently there is more mixing within townships between them.

Response: Many thanks for Dr. Rafael T Mikolajczyk for his suggestions. We added this interpretation (See Lines 12-14, Page 16; Lines 2-4, Page 17). It was not clear if these borders agree with the township borders. This will be evaluated in our next study.

If the issue should be addressed by interventions – then rather spatial clustering of risk behaviors than of prevalence of infections is of interest. The same risk behavior can be associated with a different prevalence, if different stage of epidemics is considered. So in terms of risk analysis, risk behavior and not prevalence should be looked at.
**Response:** Only the results of the MMTP clients first detected when they entered into MMTP were used and analyzed in this study. This issue was not addressed by our interventions. We are sorry we did not express this clearly and precisely in the previous manuscript. We revised this in this second revision (See Lines 14-16, Page 7). Thank Dr. Rafael T Mikolajczyk for his constructive suggestions. A future objective of our studies will be to analyze the geographic clustering and risk behaviors of the clients after they entered the MMTP.

Apart from this general concerns, some minor comments:

1) P. 8, lines 6-15: it is not clear to me, what is the use of the spatial clusters and spatial outliers terminology, this is not considered in the further text.

**Response:** We revised them (See Lines 15-23, page 8).

2) P. 10: Rather than reporting categories for p-values (p>0.05, p<0.05) please report the true values.

**Response:** Thank Dr. Rafael T Mikolajczyk for his suggestions. We revised them (See Lines 14-23, Page 10; Lines 1-10, Page 11).

3) It is not clear why both approaches to spatial analysis are necessary.

**Response:** Geographic autocorrelation statistics measure and analyze the degree of dependency among observations in a geographic space. Local geographic autocorrelation statistics provide estimates disaggregated to the level of the geographic analysis units (e.g., county, township, village), allowing assessment of the dependency relationships across space. Under the Chinese government, the smallest administrative unit is the village, and the next smallest unit is the township. No geographic data on village zones are released to the public, so the township was used as the basic geographical unit in this analysis. Geographic scan statistics detect and evaluate the clusters with high or low prevalence of infections in geographic dimensions. These were done by gradually scanning a circular window with a
different radius across space, and noting the number of observed and expected
observations inside the window at each location. The maximum geographic cluster
size was set to 50% percent of the clients at risk or not at risk. The approaches we
currently use did not consider HIV, HCV and co-infections as communicable diseases.
It was not clear what the borders were. In order to obtain a reliable result, we used
the two approaches to identify the geographic distribution pattern of HIV-, HCV- and
co-infections among drug users.

4) The sentence “according to the report by Vickermann…” is repeated in its
exact wording three times in the discussion. This is clearly redundant.

**Response:** We revised them (See Lines 15-23, Page 17; Lines 1-2, 19-23, Page 18).

5) Some sentences are incorrect / incomplete – for example p. 18, line 15, p.
19, line 12.

**Response:** The paragraph including this sentence (P. 18, line 15) was removed from
this second revision, per the reviewer’s comment. We revised P.19, line 12 (See Lines
6-9, Page 21).

6) If the main explanation is the difference between Yi and Han ethnic group
than it is difficult that it should be reserved to another publication and not
presented here.

**Response:** Based on our current analysis, we think that the main explanation might be
the difference between Yi and Han ethnic groups. We revised this accordingly (See
Lines 19-21, Page 16).

Concluding – in my view this paper should be substantially rewritten, the
analyses which just seem to explore technical possibilities of the methods
should be removed (or just reported as sensitivity analyses). Redundancies in
discussion should be corrected and the text reviewed by checking if the
perspective of infectiousness is always maintained.

**Response:** Many thanks to Dr. Mikołajczyk for his constructive suggestions. We
revised the title of our manuscript, discussed the limitations of our current analytic
approaches according to the editor’s comment, and also supplemented some
discussion in this second revision (See Lines 1, Page 1; See Lines 12-14, Page 16;
Lines 2-4, Page 17; Lines 6-11, Page 21). The analyses on technical possibilities of
the spatial analysis methods were removed from our second revision (See Lines 8-22,
Page 20). We corrected the redundancies in this second revision (See Lines 15-23,
Page 17; Lines 1-2, 19-23, Page 18). We also corrected the text.

RESPONSES TO EDITOR’S COMMENT

"I suggest that the authors add a paragraph to their discussion, where they discuss the
limitations of their approach in the light of this reviewer's criticism."

Response: We discussed the limitations of our current analytic approach, as
suggested by the reviewer (See Lines 6-11, Page 21).

RESPONSES TO EDITORIAL REQUIREMENT

Copyediting:
After reading through your manuscript, we feel that the quality of written English
needs to be improved before the manuscript can be considered further. We advise you
to seek the assistance of a fluent English speaking colleague, or to have a professional
editing service correct your language. Please ensure that particular attention is paid to
the abstract.

Response: The manuscript reviewing company LetPub helped us improve the quality
of written English in our manuscript.