

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

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| <b>TITLE (PROVISIONAL)</b> | COVID-19 seroprevalence among hospital staffs and pre-procedural patients in Thai community hospitals: a cross-sectional study |
| <b>AUTHORS</b>             | Nopsopon, Tanawin; Pongpirul, Krit; Chotirosniramit, Korn; Hiransuthikul, Narin  |

### VERSION 1 – REVIEW

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| <b>REVIEWER</b>        | Trevisan, Andrea<br>University of Padova , Cardiac Thoracic Vascular Sciences and Public Health |
| <b>REVIEW RETURNED</b> | 18-Jan-2021   |

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| <b>GENERAL COMMENTS</b> | <p>I read with interest the manuscript submitted to me for revision. Despite being a bit confused, it does offer some interesting points for discussion.</p> <p>The use of antibodies for screening is not always indicated, as nasopharyngeal swabs are preferable in the first place and rapid antigenic tests, especially third generation (fluorescence), are preferable as support.</p> <p>I would organize the presentation of the results and the discussion in a more linear way.</p> <p>I don't fully understand the age correction and I assume that when it comes to PCR we mean nasopharyngeal swabs.</p> |
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| <b>REVIEWER</b>        | Clapham, Hannah<br>National University Singapore Saw Swee Hock School of Public Health |
| <b>REVIEW RETURNED</b> | 08-Apr-2021  |

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| <b>GENERAL COMMENTS</b> | <p>In the introduction this screening is presented as an alternative to PCR to pick up infectious people, however I am not sure that this is the best use of this kind of testing. Could the authors present on the timing of infectivity and IgM responses and therefore how IgM could be used to pick up infectious individuals? It therefore isn't quite clear what the aim of the study is, is it to assess the past transmission (seroprevalence) or to test serological screening as a method for finding infectious people.</p> <p>The IgM seroprevalence in the Central Thai area is very high! Given this IgM is recent infection. There also seems to be a very high proportion of patients that have contact with COVID individual, were people seeking care if they had contact?</p> |
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Please also present whether the HCWs were treating COVID patients.  
The colours in the map are hard to interpret the orange looks like it could be 100%.  
I think presenting this as a seroprevalence on a map also implies that this results is for the whole area, when it is in reality mainly healthcare workers.  
Please present the data validating the assay used.  
Was there any adjustment for the sensitivity and specificity of the assays used?  
Does the result of more IgM positive than IgG positive make sense give the timing of the IgM and IgG responses and when the study was done in relation to the SARS-COV-2 transmission in the different areas?  
I'm not sure how useful the comparisons to other places are, as each place has been having a very different epidemic. If keeping this, I would also put this in the context of the time of the studies in relation to the transmission in this place.  
I am unsure about the conclusions- similar comment to my first comment.

#### **VERSION 1 – AUTHOR RESPONSE**

Reviewer 1: I read with interest the manuscript submitted to me for revision. Despite being a bit confused, it does offer some interesting points for discussion.

Response: Thank you for your supportive comments. We believe that this study provides a useful piece of evidence for COVID-19 pandemic control on the first-line hospitals from the region with a unique situation.

Reviewer 1: The use of antibodies for screening is not always indicated, as nasopharyngeal swabs are preferable in the first place and rapid antigenic tests, especially third generation (fluorescence), are preferable as support.

Response: Thank you for pointing out an issue. The unique situation in Thailand is the main strength of this article. During the study period, the eligibility criteria for nasopharyngeal swabs were very strict and those who should have been tested mostly did not meet the strict criteria. Additionally, rapid antigenic tests were not approved in Thailand until July 2021. Thus, the study aimed to provide the more actual situation for first-line healthcare workers when the nasopharyngeal swabs were not readily available. Additional discussion was provided in the Discussion section.

Reviewer 1: I would organize the presentation of the results and the discussion in a more linear way.

Response: The results and the discussion were revised to be clearer and more straightforward.

Reviewer 1: I don't fully understand the age correction and I assume that when it comes to PCR we mean nasopharyngeal swabs.

Response: Since the age might be a potential confounder for COVID-19 seroprevalence, the age-adjusted was conducted to account for different age distribution. For PCR in this study, we mean polymerase chain reaction test from nasopharyngeal swab samples. The manuscript was revised thoroughly to provide clear meaning of PCR.

Reviewer 2: In the introduction this screening is presented as an alternative to PCR to pick up infectious people, however I am not sure that this is the best use of this kind of testing.

Response: Thank you for your supportive comments. This screening was presented as an alternative to PCR when the PCR was not readily available, such as situation in Thailand where the eligibility criteria for PCR was very strict during study period and antigen test was prohibited.

Reviewer 2: Could the authors present on the timing of infectivity and IgM responses and therefore how IgM could be used to pick up infectious individuals?

Response: . The detailed information on IgM was provided in the Introduction section and more discussion was provided in the discussion section accordingly.

Reviewer 2: It therefore isn't quite clear what the aim of the study is, is it to assess the past transmission (seroprevalence) or to test serological screening as a method for finding infectious people.

Response: Thank you for pointing out an issue. The aim of the study was to assess the COVID-19 seroprevalence among hospital staffs and pre-procedural patients in community hospitals. This study was conditional on the situation in Thailand in which the more standard tests were heavily regulated.

Reviewer 2: The IgM seroprevalence in the Central Thai area is very high! Given this IgM is recent infection.

Response: The IgM seroprevalence in the study might appear to be high because the study setting was hospital-based which might lead to overestimation of general population. Additionally, the IgM seroprevalence was not meant to be interpreted as confirmed recent infection, but as probable recent infection which was needed to be confirm with PCR. More detailed discussion was provided on the discussion section.

Reviewer 2: There also seems to be a very high proportion of patients that have contact with COVID individual, were people seeking care if they had contact?

Response: Thank you for pointing out a very high proportion of participants who contacted COVID-19 confirmed cases in this study. Most people sought for medical care and PCR testing when they had contacted but they were not eligible to be tested with PCR due to national policy at that time required patients to be symptomatic to get tested. This unique situation of no readily available PCR test for those who should have tested encouraged us to conduct this study to provide evidence on the actual situation of the pandemic. More detailed discussion was provided on the discussion section.

Reviewer 2: Please also present whether the HCWs were treating COVID patients.

Response: This study did not directly account for whether the HCWs were treating COVID patients or not but emphasized on more general status as the history of contact COVID-19 confirmed cases which the HCW who treating COVID patients were the part of participants who had history of contact COVID-19 confirmed cases.

Reviewer 2: The colours in the map are hard to interpret the orange looks like it could be 100%.

Response: The choice of colour use in the map was revised accordingly.

Reviewer 2: I think presenting this as a seroprevalence on a map also implies that this results is for the whole area, when it is in reality mainly healthcare workers.

Response: The results comprised of seroprevalence status of healthcare workers and pre-procedural patients in community hospitals. The figure legend was revised to be clearer.

Reviewer 2: Please present the data validating the assay used.

Response: The data validating the assay used was provided in the Antibody testing section.

Reviewer 2: Was there any adjustment for the sensitivity and specificity of the assays used?

Response: There was not any adjustment for the sensitivity and specificity of the assays.

Reviewer 2: Does the result of more IgM positive than IgG positive make sense give the timing of the IgM and IgG responses and when the study was done in relation to the SARS-COV-2 transmission in the different areas?

Response: The results of more IgM positive than IgG positive made sense for COVID-19 situation in Thailand during study period. The additional discussion was provided in discussion section.

Reviewer 2: I'm not sure how useful the comparisons to other places are, as each place has been having a very different epidemic. If keeping this, I would also put this in the context of the time of the studies in relation to the transmission in this place.

Response: Thank you for your valuable suggestion. The discussion on the context of the time of the studies in relation to the transmission in Thailand was provided in the discussion section.

Reviewer 2: I am unsure about the conclusions- similar comment to my first comment.

Response: The conclusion was revised to be more concise.