

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Seroprevalence of antibodies against varicella zoster virus and rubella virus among newly recruited expatriate health care workers: A cross-sectional study
<b>AUTHORS</b>	Shady, Ibrahim

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Cenk Aypak Dışkapı Yıldırım Beyazıt Training and Research Hospital, Ankara, Turkey.
<b>REVIEW RETURNED</b>	28-Sep-2017

<b>GENERAL COMMENTS</b>	Dear Sir/Madam, I read your manuscript with great interest. In statistical analysis section, it is writtea as you used Chi square test. In several groups (for example in the comperation of nationalities) you have less than five subjects. please recheck the test feasibility. Best regards,
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<b>REVIEWER</b>	Rares Mircea Birlutiu Lucian Blaga University of Sibiu, Faculty of Medicine, Sibiu, Romania
<b>REVIEW RETURNED</b>	15-Oct-2017

<b>GENERAL COMMENTS</b>	Dear authors,  First of all, it was a pleasure for me to read your article. It l a very interesting one. It is a well-structured and written article, an article that has in the background statistical data. A manuscript in which you assessed the seroprevalence of antibodies against varicella zoster virus and rubella virus among newly recruited health care workers. The statistical analysis is extremely important in supporting the outcomes and conclusions of the study. It is an important study for the local geographical area regarding the immunization against varicella, and rubella of MCHs, unfortunately not being able to overlap to other areas. After reading the manuscript the following issues raised my concern or represent suggestions that in my opinion could improve the genera quality of the manuscript: - Introduction: "These are all transmissible vaccine-preventable diseases that can spread via contact with contaminated sources, including airborne sources." As a personal opinion it would be better to rewrite the sentence in a manner to highlight the airborne
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	source/transmission. - Introduction: It would be better to rewrite the “Health care workers” from the manuscript in a more comprehensive manner.
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<b>REVIEWER</b>	Miriam Wiese-Posselt Miriam Wiese-Posselt, MD MPH Robert Koch-Institute Department for Infectious Disease Epidemiology Immunisation Unit Seestrasse 10 D-13353 Berlin Germany Phone: +49-30-18754-3412 Wiese-PosseltM@rki.de
<b>REVIEW RETURNED</b>	13-Nov-2017

<b>GENERAL COMMENTS</b>	I missed information on the vaccination status. It would be very interesting to describe the vaccination status of the HCW. What is the impact of the seroprevalence survey in respect to vaccination status? Maybe, vaccinated persons are seronegative while they are still protected (cellular immunity). From public health perspective it is more important to have access to vaccination status of HCW than to seroprevalence data because it is more feasible to check the vaccination status. Thus if you have information on the vaccination status please include them in your manuscript and report the association between vaccination and seroprevalence. Another point: why did you only focus on expatriate HCWs and not in HCW from Kuwait, as well? Infectious diseases did not stop transmission because of different nationality. In order to prevent VZV or RV transmission and disease in the hospital setting in Kuwait it is curcial to monitor all employees for VZV or RV vaccination and seroprevalence, respectively. Can you please consider this point in your discussion. The written English should be checked by a native speaker.
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### VERSION 1 – AUTHOR RESPONSE

Response to the Editor:

I'd like to express my deepest gratitude for your valuable remarks about my that were taken into considerations as follow:

- Title now included the study design and type of HCWs (expatriates).
- The Ethical review committees were named (Posts and Borders Health and Public Health Dep. Review committees).
- In the abstract no abbreviations were written before their full meanings were proceeded.
- Summary section removed.
- The response rate was 100% because this is a compulsory for all HCWs and when we explained to them the importance of our study all accepted to share in the questionnaire and in the study.
- The HCWs were recruited during the compulsory blood testing for them that required for residency approval, they were mostly from India, Egypt, Filipinos, Somali and others. The questionnaire used is simple and designed to college just some sociodemographic date (Age, gender, Country and occupations).
- A full strobe checklist was included and modified with page numbers corresponding to where these items can be found.
- The manuscript was rechecked by a language editing service with native English speakers.

**Response to Reviewer 1:**

I had to express my thankful feelings towards your valuable advice that was put into actions as follow:

- Regarding the statistical analysis Chi square with Fisher's exact was used whenever applicable and all the statistics (that need Fisher's Exact Chi Square) were rechecked, however it was done but not mentioned.
- This was added to the methods section under the data collection and analysis as well as in the results section when applicable.

**Response to Reviewer 2:**

Thanks for your valuable and most fruitful remarks and I was happy to modify the manuscript according to your remarks and suggestion whenever possible as follow:

- The sentence was rewritten to address your valuable comment in the introduction to highlight that these can be transmitted through airborne route "These are all transmissible vaccine-preventable diseases that can spread via contact with contaminated sources, including airborne sources.
- I rewrote the HCWs classifications in more comprehensive manner dividing it into two main categories (Health Service Providers and Health Management and Support Personnel) and under both category I enumerated different professions under each category.
- Yes, regarding our results, it is one of the limitations of this study, the inability to project these results for other areas other than Arabian gulf as all share the same circumstances.

**Response to Reviewer 3:**

Thanks a lot for your valuable comments and suggestions.

- We could not access the vaccination history of the studied HCWs as most of them did not remember and difficulty in recalling as well as the shortage of time given for everyone to respond to the questionnaire that needed to be as short as possible due to the rush of people in the study place.
- For the query, why this study was limited to Expat. HCWs (newly recruited) and not all the HCWs all over the Kuwait Healthcare system, due to the difficulty in recruiting all HCWs in the Kuwait Healthcare system in a short period and such research needs multidisciplinary efforts and need longer time period and money budget. Also, we already have a new research to be done for the whole healthcare system based on our study results. It was mentioned in the recommendation section that "It is recommended that a seroprevalence survey is carried out among all HCWs (i.e., all those currently working in the Kuwaiti health care system) to assess the prevalence of immunity among them so that an effective immunization program can be designed, with the ultimate goal of preventing VZV and RV infections in vulnerable groups."
- The manuscript was rechecked by a language editing service with native English speakers.

**VERSION 2 – REVIEW**

<b>REVIEWER</b>	Rares Birlutiu Lucian Blaga University of Sibiu, Faculty of Medicine, Sibiu, Romania
<b>REVIEW RETURNED</b>	24-Jan-2018
<b>GENERAL COMMENTS</b>	Dear authors, After assessing the revised form of the manuscript, the changes that you have performed to manuscript greatly improved the quality of the manuscript and in my opinion it should be published.

