Reviewer's report

Title: The self-reported prevalence of childhood allergic diseases in three cities in China: a multicentre study

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Reviewer: Deborah Pearlman

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Research article: The self-reported prevalence of childhood allergic diseases in three cities in China: a multicenter study

General comment

This paper examines the prevalence of pediatric asthma and other allergic diseases among children in three cities in China. A cross-sectional survey, based on the International Study of Asthma and Allergies in Childhood (ISAAC), was administered to a random sample of children aged 0 to 14 (n = 24,290) over eight months (2008 – 2009). ISAAC is the largest collaborative worldwide epidemiological study of children's health ever undertaken. Data from ISAAC Phase One documented large variations in the worldwide prevalence of symptoms of asthma, asthma, allergic rhinitis and eczema, which persisted with the administration of ISACC Phase Three. Results from ISAAC Phase One and Phase Three suggest that more information about the prevalence of asthma and other allergic diseases within populations, especially in developing countries, were needed. A major strength of the current study is the replication of the ISAAC questionnaire in three diverse cities in China. Such studies are needed to explore whether dietary factors, climate and other factors might influence the development of asthma and the severity of the disease in those with asthma. The statistical approaches used to analyze the data are appropriate. The paper's title and abstract accurately describe the paper. The research question posed by the authors could be more clearly defined. A sentence such as: “The aim of this paper is to investigate …” is needed in both the abstract and Introduction section. The manuscript has some grammatical errors (minor) and the authors are encouraged to have a native English speaker proof the article. Finally, there are organizational issues that the authors are encouraged to address that would strengthen the article and enhance its relevance to public health epidemiology.

Issues to address

(Major Compulsory Revisions)

1. Introduction. The introduction could be better organized. First, there needs to be greater specificity in what is known about the prevalence of asthma and other allergic diseases in children, both worldwide and in China. Findings from ISAAC would be most useful. See: Asher M. et al. Worldwide time trends in the
prevalence of symptoms of asthma, allergic rhinoconjunctivitis, and eczema in childhood: ISAAC Phases One and Three repeat multicountry cross-sectional surveys. Lancet. Vol 368 August 26, 2006. Second, there needs to be a rationale for replicating ISAAC in three Chinese cities, given the wealth of data available on childhood asthma and allergic diseases from ISAAC. Third, the Introduction lacks a clear statement about the purpose of the study. Finally, it is unclear why recent economic development and urbanization in China and other dramatic changes in China may have affected the prevalence of childhood asthma and allergic diseases or the time period referenced here. The point being made seems out of context and might be something the authors choose to develop in more depth in the Discussion section. The authors are encouraged to clearly acknowledge any work upon which they are building, both published and unpublished.

2. Methods. The methods are appropriate and the data are based on a random selection of two districts in each of three cities. However, this section would benefit from editing so that the most salient points are highlighted. After randomly selecting two districts in each city were the schools in each district randomly selected? Please provide definitions of the outcomes of interest (e.g., current asthma) rather then in Results. More explanation is needed when referencing the Cronbach and Kappa coefficients. Are the statistics denoting the measure of agreement between interviewers with respect to parental report of a child’s asthma and allergy status or something else? What services (type and extent) offered to parents of children who had “evidence suggestive of asthma” or who had asthma?

3. Results. The 1st paragraph under Results repeats information about the sampling frame, most of which was provided in Methods and is not needed in both sections. The presentation of findings from Table 2 could be considerably condensed. It is apparent from Table 2 that the prevalence of asthma and other allergic diseases is higher in Beijing and Chongquin than in Guangzhou. This observation could be summarized in the same paragraph. Other observations regarding the prevalence of asthma and other allergic diseases by gender and city also could be summarized in one paragraph.

4. Table 2. The layout of Table 2 is hard to follow. If is unclear if the first row for each disease highlighted in bold is presenting statistics for children with one condition only (e.g., only asthma or only eczema), while subsequent rows refer to the primary condition and other symptoms (e.g., has asthma and coughing). The authors should consider deleting the rows showing information by gender and revising Table 3.

5. Table 3. Age and gender differences in asthma prevalence are well documented. Asthma is more common in boys than girls until puberty. Severe asthma is more common in females. See: Postma DS. Gender Differences in Asthma Development and Progression. Gender Medicine/Vol. 4, Suppl. B, 2007. Therefore, Table 3 could present data by gender and age with broader age groups than those shown. Most children who have asthma develop their first symptoms before 5 years of age. However, asthma in young children (aged 0 to
5 years) can be hard to diagnose. Therefore Table 3 could show age groups in intervals (0 – 5, 6 – 10, 11 – 14), first for boys and then for girls.

6. Discussion. Although the authors make a number of important points in the Discussion section, this section would benefit from careful editing. Reiteration of findings reported in the Results should be kept to a minimum. If results are summarized in the Discussion section it would be helpful to compare study findings on the prevalence of childhood asthma and allergic diseases with earlier studies on the prevalence of these conditions in children, specifically in China or in other developing countries. Explanations for age and gender differences in childhood asthma and allergic diseases should be grounded in the peer reviewed literature with appropriate citations. Asthma can be triggered and exacerbated by exposure to many environmental factors. Geographical variations in environmental factors in the three cities studied need further explanation and should be supported with citations. Of course the causation of childhood asthma is complex and involves many factors including genetic disposition, demographic variables, psychosocial stresses, and environmental exposures. The current study was not designed to investigate all factors shown to contribute to the risk of developing asthma and this could be duly noted. The Discussion section makes no mention of study limitations.

7. Discussion. Please consider emerging challenges that warrant discussion or discuss the clinical and/or policy implications of the findings.

**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'