**Carta ao Editor** ***Letters to the Editor***

# Uso de questionário padronizado em inquérito epidemiológico de asma

# Use of standardized questionnaire in epidemiological survey of asthma

Salvador, BA, November 3rd 2004

**Dear Editor**,

A recently published article in the *Revista de Saúde Pública* (Journal of Public Health) reported results from a survey of the prevalence of asthma in schoolchildren using an adapted version of the ISAAC standardized questionnaire.[4] Question 6 (Q6) of the original asthma core module was modified to also include the term "bronchitis," *Have you ever had asthma or bronchitis?*. The authors argued that this modification was justified given the unclear distinction between the two terms in the study context.

Question 1 (Q1) in the ISAAC questionnaire, *Have you ever had wheezing or whistling in the chest at any time in the past?*, is highly sensitive (a large proportion of asthmatics are likely to answer "yes") but its specificity will be low. Because the negative predictive value of a question (proportion of individuals without disease among those answering "no") increases with its sensitivity, highly sensitive questions are used to rule out a given diagnosis.[2] Thus, although an affirmative reply does not confirm the diagnosis, those who answer "no" will be unlikely to have asthma.

In contrast, because the term "asthma" is closely related to a pre-existing medical diagnosis, Q6, *Have you ever had asthma?*, will have a relatively low sensitivity and higher specificity than Q1. Having lower sensitivity, though, does not mean that the question lacks of epidemiological value. As the positive predictive value of a question (proportion of asthmatics among those who answered "yes") increases with its specificity, highly specific questions help to support or confirm a diagnosis[2] and are useful in studies of risk factors.[5]

The effect of combining the terms "asthma" and "bronchitis" in a single question may be compared to that obtained by using parallel tests to determine a diagnosis.[2] Interviewees will reply to one or the other section (term) of the question. This will result in a combined higher sensitivity and lower specificity than the sensitivity and specificity obtained when using individual questions for each term separately (in sequence). While the increase in sensitivity will make Q6 more similar to Q1, by decreasing its specificity, Q6 will lose its main role (to select individuals who are more likely to have asthma among those who answered "yes" to Q1).

In conclusion, it is argued that including the term "bronchitis" in Q6 may be unnecessary and has disadvantages. Such modification is unlikely to increase further the sensitivity of the questionnaire (Q1 being already highly sensitive), and will prevent the examination of the effect of using alternative combinations of terms to define asthma. Conversely, adding another question to include the new term at the end of the appropriate section of the questionnaire, as it is recommended in questionnaire design,[1] would have the advantages of: i) preserving the original questionnaire and its comparability across studies; ii) al-

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lowing the examination of the effect of using or not the new term and/or combining several terms; iii) increasing the specificity of the questionnaire by using individual questions in sequence.[2]

A final additional issue is that the choice of the statistical method used in the analysis of surveys need to be driven by the characteristics the study design used. Surveys using cluster sampling will require appropriate adjustment to account for clustering in order to obtain correct estimates.[3] Failure to do so may result in inaccurate p-values and confidence intervals.

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