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Title: Change in asthma prevalence between 1990 and 2011: A matter of questionnaire response?

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Body: Background Asthma prevalence seems to change over the last decades but also response rates have changed dramatically. Aim To describe differences in prevalence of current asthma over a twenty year period, and the effect of changing response rates on estimated prevalence. Methods In 1990 the ECRHS I screening questionnaire was sent to a cross sectional sample of 8000 inhabitants aged 20-44 from two regions in Antwerp: urban (UA) and suburban (SA). In 2011 this procedure was repeated with a new sample (n=4000). Two reminders were sent to non-responders. A subject was considered to have current asthma if she/he answered having had an attack of asthma in the last twelve months and/or using asthma medication. We computed crude and response rate extrapolated prevalence based on information in subjects responding after one or two reminders. Results In 1990 asthma prevalence was strikingly higher in urban Antwerp (4.3%) as compared to suburban Antwerp (2.7%). In 2011 prevalence increased in both regions as compared to 1990 (8.8% and 7.7% respectively) but the gap between both regions strongly diminished. In 1990 response rate was 74.1% in UA and 76.9% in SA. In 2011 it was 35.5% and 49.5% respectively and prevalence differed according to response round. For the different response rounds prevalences were 11.6%, 7.5% and 5.4% in UA and 7.9%, 9.1% and 5.0% in SA respectively. Extrapolated prevalences were 7.7% for both regions. Conclusion Asthma prevalence seems to increase markedly but changes in response rate should be taken into account. Evidence for geographical differences in asthma prevalence strongly diminishes. This could be explained by the suburban region getting more urbanized.