EDITORIAL

Can general practitioner-held data substitute for self-reporting of respiratory morbidity and health care utilisation?

See article by Iversen *et al* on page 162

The provision of health care services should be matched to the needs of the population, and one of the first steps in establishing that need is a description of the level of ill-health using epidemiological data from local sources. Options for obtaining such data include population surveys, and reviewing records held by general practitioners (GPs). In this issue of the *Primary Care Respiratory Journal*, Iversen and colleagues report an inter-method reliability study of these two sources for respiratory disorders, and conclude that agreement between them can be reliable for some, but not all, diagnoses or aspects.¹ Agreement was judged to be good for asthma and for treatment with a course of oral steroids in the previous 12 months, but was less good for self-diagnosed and likely self-medicated conditions such as hay fever or rhinitis.

That the two approaches yield different results should not be surprising, as they are subject to different sources of bias and have different strengths and weaknesses. Ninety-eight percent of the population is registered with a GP.² Consequently, GP-held data should offer almost universal coverage and should be a robust source of respiratory morbidity – provided that records are kept up to date, that there is complete data capture using a consistent set of diagnostic criteria (and Read codes), and that a quality assurance programme is in place. In reality, however, data quality can be variable both between, and within, practices³ and between morbidities.⁴ In this case, the data relate only to those patients in contact with the health service, and prevalence estimates are subject to variation in the denominator – due to ‘list inflation’⁵ – and in the numerator due to under-recording, under-diagnosis⁵ and to GPs’ diagnostic preferences or ‘working diagnoses,’ whereby diagnoses may not adhere to a clear case definition as required in any robust epidemiological investigation.⁶ GP data should be more reliable for chronic respiratory conditions which are linked to a defined treatment (for example – repeat prescriptions) and for which recording in disease registers is remunerated under the Quality and Outcomes Framework (QOF) of the UK GP General Medical Services contract. Hence, recording of asthma and chronic obstructive pulmonary disease (COPD) should be reliable, though Iversen and colleagues noted that agreement between GP records and self-reports of COPD (or emphysema) was only moderate.

Population surveys can provide data on (for example) the prevalence of respiratory symptoms that are seldom recorded in GP notes. National surveys have been conducted^{7,8} but local surveys are important for local planning. Patients may be interviewed using a structured questionnaire or contacted via a postal questionnaire. In either case the choice and design of the questionnaire is paramount, and one of the commonly used and validated instruments should be selected.⁹⁻¹³ These questionnaires have been revised over the years, although some revisions have been detrimental. For example, changes to the MRC questionnaire in 1986, and the ECSC questionnaire in 1989, eliminated the ability to distinguish between those who wheezed occasionally and those who wheezed regularly – features which are associated with important decrements in lung function.^{14,15}

Principal sources of bias in postal surveys arise from ascertainment, non-response, recall, and information (reporting) bias. Ascertainment bias occurs when sections of the target population do not receive the questionnaire because the address is wrong, or they cannot respond to the invitation due to visual impairment, poor literacy, or poor language skills. In general, those who do not respond to postal questionnaires on respiratory health are younger, and are more likely to be male, smokers, and to have lower educational attainment.¹⁶ When poor literacy is a contributory feature, then telephone follow-up (after postal reminders have failed to elicit a reply) can improve response rates – but this has consequences in terms of increasing survey costs and extending the period of data collection.

The influence of non-response on prevalence estimates of self-reported respiratory symptoms and diagnoses is not consistent between studies. For example, in the European Community Respiratory Health Survey of persons aged 20-44 years, the Italians who responded early to the postal questionnaire tended to report more asthma-like symptoms than those who responded late or not at all,¹⁷ whereas the opposite was true for Swedish respondents.¹⁸ In a Norwegian study of 17,800 persons aged 15-70 years, those who ignored the first and two reminder postal questionnaires, but responded to a telephone survey, had a significantly higher prevalence of dyspnoea while walking uphill and had a reduced prevalence of hay fever and of morning cough and phlegm (after adjustment for age, gender, and other factors) compared with those who responded to the first questionnaire.¹⁶ However, the overall effect of including data from late responders

on the final prevalence estimates was marginal and the authors questioned the need for determined pursuance of non-responders.

Recall bias can arise from selective memory and poor understanding of disease terminology used by doctors. Hence, there is confusion over terms such as asthma, emphysema, bronchitis (acute and chronic) and COPD. In which case, poor concordance between self-report and GP data could relate to lay and professional definitions of the condition and to changes in terminology over the years. The reliability of replies can be affected by memory deficits in older persons, and by poor cognition in children.

Information (reporting) bias can occur in those with vested interests who may under-report, or over-report symptoms, depending on the circumstances. Hence, in occupational surveys, it is not uncommon to find, for example, a low prevalence of chest symptoms in professional divers who smoke cigarettes.

In summary, effective planning of community respiratory services requires accurate, good quality, consistently-produced population-based estimates of ill-health that are responsive to short-term changes. Unfortunately, there is no gold standard to meet these needs. Data held by GPs relate to doctor-diagnosed disease, and many patients report symptoms but do not consult for them; so a truer estimate of respiratory ill-health may only be obtained from self-report. The study reported by Iversen *et al* was small scale but was sufficient to show up the deficiencies in relying solely on one of these two sources. Both approaches have advantages and disadvantages depending on the condition being assessed. Therefore, assessment of respiratory symptoms is best made from patient information and the reporting of specific physician-diagnosed diseases from GP-held data, though with caveats on data recording, quality and adherence to case definitions. Electronic aggregation of computerised data from sentinel, paperless practices, using pre-agreed case definitions and protocols for coding data, may provide a cheap and more reliable estimate of the population prevalence of conditions than a review of notes from many practices between which data quality will vary. Costs associated with trawling through GP data need not be high in relation to that associated with a postal questionnaire survey. Both methods have utility, though each is likely to yield inaccurate results depending on their flaws – which the researcher should be aware of. However, together, they can complement one another and offer the 'quick and dirty' approach favoured by epidemiologists and health care planners when working with imperfect sources of data. As with beauty, muckiness is in the eye of the beholder.

Conflict of interest declaration

There are no conflicts of interest to declare.

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*David J Chinn

Research Fellow in Epidemiology, Allergy & Respiratory Research Group, Division of Community Health Sciences, University of Edinburgh, UK.

*Correspondence:

20, West Richmond Street, Edinburgh, EH8 9DX, UK.
Tel: 0131 650 9251 Fax: 0131 650 9119
E-mail: david.chinn@ed.ac.uk

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