

Providing census data for general practice.

1. Feasibility

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SUMMARY. *The availability of census data to general practice is limited by the form of publication, restricted access to computerized data and the technical difficulties of linking computerized information to a practice population. In a feasibility study it is shown how a population registered with a general practice may be linked through postcodes to computerized enumeration district data. Examples of the data available are discussed together with current problems of postcode/enumeration district mismatch. Suggestions are made for ensuring that general practitioners have access to the 1991 census data.*

Introduction

SCARCITY of accurate data to underpin service planning is a feature of the National Health Service as a whole and of general practice in particular. One of the most potentially valuable data sets available is the full decennial census on which much local authority and national resource planning is based. These data are published as both national and local statistics. In addition to data presented as county aggregations, census data are published for each local government district, each electoral ward and each enumeration district (about 200 households).

Jarman¹ has shown how data at ward level may be used to describe the features of health districts and local medical committee areas using the underprivileged areas score calculated from 10 census variables. In a later validation study,² using eight census variables, he comments on the potential use of this method with enumeration district data but notes the difficulty of bridging between a computerized data base and enumeration district maps which are not computerized.

Employing the underprivileged areas scoring method, Titterton and Carstairs³ have analysed census data for Scotland by linking small area statistics to postcode sectors (areas roughly equivalent to ward populations in England and Wales). Although this link was only available for Scottish 1981 census data the authors were able to use mapping techniques to illustrate the value of small area statistics in planning primary care services.

Townsend⁴ and his co-workers used both health and census data to describe inequalities in health across the 678 wards of the Northern region of England. Correlating a score for material deprivation based on four census variables (unemployment, households without a car, households not owner occupied, overcrowded households) with a score for health (derived from standardized mortality ratio for persons aged 0–64 years, permanent sickness and low birthweight) they show a strong association between deprivation and ill health.

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Both the underprivileged areas score and the material deprivation score thus use census data to demonstrate variation in aspects of 'need' and, by implication, of resource demand. For the general practitioner seeking to use such census data at the individual practice level for health planning or resource distribution there are two key problems.

First, the data used by both Jarman and Townsend are aggregated at the ward level. Wards, which are based on populations of voters, vary greatly in size (from a population of 500 to one of 15 000 in the Northern region) and they contain a range of socioeconomic groupings. Thus ward level census data can only be used for health planning at district or sub-district levels. Since few general practitioners have practices which fit neatly into electoral wards (other than those in rural areas) ward data are of little real value for planning services in an individual general practice. In contrast, data at the enumeration district level are far more discriminating.

Secondly, there is the practical problem of obtaining access to census data and linking patients to appropriate census variables for their enumeration districts. Data from the 1981 census are available on special licence on computer file in most universities via the Economic and Social Science Research Council's data archives; they may be read only by using the SASPAC package which was originally developed for the Local Authorities Management Services and Computer Committee. Alternatively, census data are available through commercial agencies at considerable cost to the user. Increasing numbers of general practitioners and family practitioner committees now have computerized patient registers and further advances will be made by 1991 when the next census is due.

The feasibility study reported here was based on a general practice in Ashington and tests the practicality of linking the practice computerized age–sex register to census data available on computer. In a second paper we shall show how these data, once available, can demonstrate the variability of community 'need' within a practice and we shall discuss the value of this sociodemographic data in planning and resource allocation.

Method

Enumeration districts are currently defined by outlines on ward maps; there is at present no explicit list of addresses comprising an enumeration district in England and Wales. In Scotland enumeration districts are linked to postcodes through a geographic base, thus ensuring accurate placement of postcoded addresses within enumeration districts.

An initial attempt at linking enumeration districts to the population of the study practice manually proved excessively difficult, entailing the scanning of ward maps in the University library to identify each relevant enumeration district from a patient's address on the age–sex register. This method might just be possible for a practice population living in a small, clearly-defined area but would still be enormously time-consuming. At the time of the study the practice age–sex register was held on card index. Practice policy decisions to retain age–sex register cards relating to previously registered patients, and to record date of entry to the practice of new patients, allowed us to reconstruct a file of patients registered at census day, 5 April 1981. Since few addresses were postcoded prior to the study, codes were

added manually using the Post Office postcode directory. The full name, date of birth, address and postcode of each of these patients was then entered onto the University's computer.

In order to link addresses to enumeration districts we approached a market research company which was able to identify the enumeration district to which a particular postcode belonged. A computer listing of postcodes covering the practice population was sent on magnetic tape to the company (CACI), which appended enumeration districts to each postcode. Using the SASPAC package we extracted census variables for each enumeration district so identified, and linked these back to individual addresses and patients.

Substantial negotiation with the company was necessary to obtain access to the postcode enumeration district program; this must be viewed as part of the method of this feasibility study. The conversion program is known to have inaccuracies generated by the uncertain geographical correlation between postcodes and enumeration districts in the 1981 census in England and Wales (particularly at the periphery of enumeration districts) and the effect of changes in the structure of an area — new building and demolition — at the time of census. This latter problem exists both in the CACI program and on the Office of Population Censuses and Surveys (OPCS) microfilm of the enumeration district positions within wards. These caveats are necessary here because of the natural concerns which the market research company have over the accuracy of their program in allocating addresses through postcodes to enumeration districts and because the results below should be read with these concerns in mind. We address possible answers to these problems in our discussion.

Results

The practice population for 1981 numbered 14 263 and the address/postcode link identified 1120 postcodes. Using the commercial computer program, 122 enumeration districts were identified as being domiciled by at least a few patients registered with the practice. Additional data were available for the polygon described by the practice boundary but this contained enumeration districts in which no patients were living.

Twenty-three enumeration districts proved to have 11 or fewer

Table 1. Range of data available about patients in the study practice from one enumeration district.

Total number of persons in enumeration district	693
Number (%) of persons registered with practice	355 (51)
Percentage of patients:	
Aged under 5 yrs	11
Aged over 65 yrs	11
Single parents	1
Unemployed	10
Percentage of households:	
Overcrowded	26
Not owning car	60
Not owner occupied	55

patients living in them (altogether 50 patients, 0.35% of total) and these were excluded from any subsequent analysis. One special (hospital) district containing 17 patients was also excluded. Thus there were 98 enumeration districts containing 99.5% of the practice population, situated within 14 wards in two local authority areas.

A count of patients domiciled in each enumeration district was compared through the SASPAC package with a count of persons resident on census day. In 21 (21.4%) of the 98 enumeration districts 50% of residents or more were patients of the practice.

In two enumeration districts it was noted that the practice apparently had more than 120% of the population on first count. These discrepancies were investigated by identifying the street names of persons attributed to the district and determining from the OPCS enumeration district maps held on microfilm in the University library whether the addresses were in the correct enumeration districts. Many were incorrectly placed. In the case of one of the two districts this was almost certainly because new housing development was taking place during the census leading to incorrect identification of addresses in the enumeration districts. In the other case no reason could be found for the error. The addresses in error were transferred to the correct enumeration districts.

For the 98 enumeration districts the percentage of patients from the study practice in each enumeration district is shown in Figure 1.

An example is given in Table 1 of the range of data available from one of the enumeration districts for which more than 50% of the population are registered with the study practice.

Discussion

Census data relating to this practice population are now more than six years old and considerable changes may have occurred in that interval. However, this feasibility study has demonstrated that it is possible to create the link between a computerized general practice age-sex register and the mass of valuable data contained within the census. Whereas the abstraction of information relating to defined areas of practice and its population has been found to be almost impossible to undertake manually, linkage of the age-sex register through postcodes to enumeration districts provides a profile of sociodemographic data previously unobtainable in a British general practice.

The next census is scheduled for 1991. For the method outlined in this study to be widely applicable a number of changes would be needed. Computerized census data for enumeration districts are currently easily available only to research institutions and health authorities. Health service negotiators must therefore ensure that for the next census these data are made available to all those who can show a valid reason for their use.

Inaccuracy of the data in England and Wales when identified through the postcode/enumeration district link is principally due

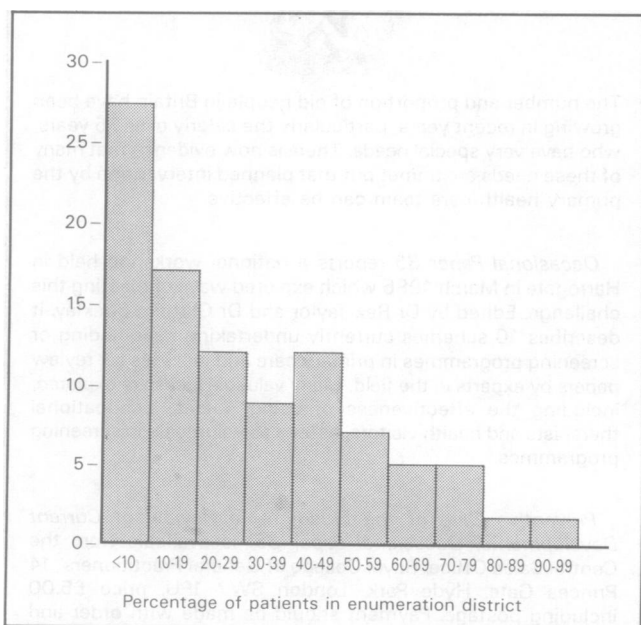


Figure 1. Distribution of the proportion of patients from the study practice registered within the 98 enumeration districts.

to the lack of correlation between postcodes and fixed points on Ordnance Survey maps. Although the OPCS⁵ has recently announced that it does not intend to link postcodes with the grid reference system for the 1991 census in England and Wales, important changes are proposed which will enhance the value of census data to primary care. Together with proposals for improving the geographical precision of postcodes the OPCS is considering a service to provide small area statistics for areas defined by postcodes. In their critique of postcode linkage to census data, Carstairs and Lowe⁶ place a high value on the flexibility such an approach would allow and we support their view that the OPCS should provide such a service.

Lastly, the cost of using both commercial data linkage programs and OPCS postcode programs are prohibitive for the small user. NHS — or at least non-commercial — linking programs must be developed if access is to be improved.

We have shown that census data can be made available to general practice and have given some examples of what the data may contain. In a more detailed analysis of census data we relate the scoring methods of Jarman¹ and Townsend and colleagues⁴ to the distribution of the practice, showing how a detailed sociodemographic picture of the practice may be developed as a contribution to health planning and distribution of resources within a primary care team.⁷

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Enquiry Services Manager: Mrs Sylvia Wilson, RCGP, 14 Princes Gate, London SW7 1PU. Telephone 01-581 3232.

THE ROYAL COLLEGE OF GENERAL PRACTITIONERS



NATIONAL CONFERENCE ON DIABETIC CARE IN GENERAL PRACTICE

The Royal College of General Practitioners, in collaboration with Rybar Laboratories Ltd, is holding a one-day conference on Diabetic Care in November.

The aim is to promote a team approach to the care of diabetic patients in general practice. It is hoped to examine the role of team members, including chiropodists, dieticians, practice nurses, general practitioners and practice managers as well as the organisation of diabetic care in general practice.

The RCGP hopes that delegates from all the disciplines involved in the care of diabetic patients will attend the Conference on 11 November. Further details and application forms are available from Janet Hawkins, Course Administrator, Communications Division, The Royal College of General Practitioners, 14 Princes Gate, London SW7 1PU. Telephone: 01-581 3232.

PREVENTIVE CARE OF THE ELDERLY

Occasional Paper 35



The number and proportion of old people in Britain have been growing in recent years, particularly the elderly over 75 years, who have very special needs. There is now evidence that many of these needs are unmet but that planned intervention by the primary health care team can be effective.

Occasional Paper 35 reports a national workshop held in Harrogate in March 1986 which explored ways of meeting this challenge. Edited by Dr Rex Taylor and Dr Graham Buckley, it describes 10 schemes currently undertaking case-finding or screening programmes in primary care and includes six review papers by experts in the field. Many valuable ideas are explored, including the effectiveness of using nurses, occupational therapists and health visitors, as well as volunteers in screening programmes.

Preventive Care of the Elderly — a Review of Current Developments, Occasional Paper 35, is available from the Central Sales Office, Royal College of General Practitioners, 14 Princes Gate, Hyde Park, London SW7 1PU, price £5.00 including postage. Payment should be made with order and cheques made payable to RCGP Enterprises Ltd. Orders by Access and Visa are welcome.