

ANALYSIS

Dismantling the signposts to public health? NHS data under the Health and Social Care Act 2012

A shift away from area based populations in England will have severe implications for population health data, argue **Allyson M Pollock**, **Alison Macfarlane**, and **Sylvia Godden**

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The Health and Social Care Act 2012 will replace the administrative structure of the NHS in England, currently based on the resident populations of defined geographical areas, with one that relates instead to the shifting populations of individuals registered with specific general practices at given points in time.¹ This will radically change the longstanding basis for collecting data routinely about the health needs of local populations, making it difficult to monitor the effect of new legislation on the health of the population locally or nationally.²⁻³ We discuss some of the implications of the act for existing routine data systems and the production of routine statistics that underpin essential NHS functions, including monitoring healthcare provision and ensuring equity of access, allocation of resources, and measurement of outcomes.

Shifting data

Population based data have had a key role in public health and the development of healthcare since the mid-19th century when, as a byproduct of the introduction of death registration for legal purposes, William Farr set up systems to use death data for the "promotion of practical medicine."⁴

Since the NHS was established in 1948, the secretary of state's unifying duty to promote, secure, and provide comprehensive healthcare for the whole population of England has been delegated to regional and subregional bodies responsible for the populations of geographical areas that collectively cover the whole of England.

All public health functions and health services provided by the NHS have been organised on the principle that everyone should be included and that no individual or group of individuals can be selected for exclusion. Information and resource allocation systems are organised on the same basis. Geographical populations form the denominators for a wide range of health and disease rates for population groups defined by age, sex, or ethnicity, such as the number of cardiac deaths per 100 000

population, the proportion of people aged 75 and over who live alone, and the infant mortality rate per 1000 live births to residents, and enable comparisons between rates for rich and poor areas. Time trends and changes in the size, age profile, and socioeconomic circumstances of the population are used to plan services, allocate resources for healthcare, monitor the uptake and outcome of health services, assess inequalities in the health of the population, and plan the workforce required to deliver appropriate services.

This will change under the Health and Social Care Act because all health services other than emergency care will be funded, planned, and provided on the basis of individuals registered with general practices within clinical commissioning groups (CCGs).⁵ Unlike primary care trusts (PCTs), commissioning groups will no longer have responsibility for geographical areas and their practices will be able to recruit patients living anywhere in England.⁶

Some health services for which PCTs were responsible will either fall out of the health service entirely or may be provided under the new public health system, which will be based in area based local authorities.⁶

This confusing plethora of arrangements, coupled with the discretionary powers that CCGs, local authorities, and providers will be given over which health services they offer, will lead to a loss of comprehensive population coverage and the national nature of the health service in England. It will be difficult to compile the data needed to monitor the effect of the changes on NHS patients and local populations because denominators will be based on numbers of people registered with general practices rather than numbers of residents in geographical areas.⁷

Implications for public health

Under the new arrangements, indices of disease and health service provision will no longer be based on residents of

geographical areas but on CCG populations. This poses a threat to the integrity and basis of nationally collected datasets. CCGs will assemble their population data from general practice registrations rather than population estimates. Such practice registrations may be unreliable as denominators because list sizes are often inflated by inclusion of people who have deregistered, moved, or died.

In contrast, annual population estimates are derived from data on factors such as age and sex recorded in the preceding decennial national population census. Data are updated annually, taking into account numbers of birth and death registrations and making allowances for factors such as migration, using data from the Labour Force Survey, the International Passenger Survey, and other sources unrelated to NHS care, although some use is made of the NHS register at a national level.⁸ In future, patients are likely to use both services provided by CCGs and services that are the responsibility of local authorities, leading to instability in both numerators and denominators of indices to be used for comparisons. Even if a CCG includes only practices located within a defined area, such as that of a local authority, it is likely that not all patients registered with the practices will live in the area.

General practices collect few socioeconomic data, and those that are collected may not be recorded consistently. In addition, general practice computer systems differ from each other and from hospital episode statistics (HES) in how they code clinical conditions, although they all record postcodes that can be used as a link to the Index of Multiple Deprivation scores for where the patient lives.⁹ These scores, which are constructed using data from the population census and updated with local data on subjects such as unemployment derived from other routine sources,⁹ are used in planning services for populations. However, because wide socioeconomic differences can exist between residents of even the smallest geographical areas, postcodes are an unreliable proxy for socioeconomic status.¹⁰

Equity of resource allocation

Resources are currently allocated to PCTs and general practices by formulas that attempt to estimate need for health services based on the characteristics of all residents in a PCT area. The government has instructed the advisory committee on resource allocation to develop two sets of formulas for use from 2013-4. One will be for allocating the public health budget to local authorities on the traditional basis of population need. The second will be for allocations to CCGs "to ensure equal opportunity of access to NHS services relative to the burden of disease and disability."¹¹

Although all geographical formulas developed for resource allocation have had acknowledged limitations,¹² the introduction of resource allocation to general practices and CCGs based on groups of practices will create major new problems.¹³ For example, if practices selectively recruit healthier patients from deprived areas, allocation of resources will become distorted. As the new formulas largely predict the extent to which historical costs can be projected forward, the change to allocations to CCGs will be likely to end attempts to allocate resources on the basis of needs.¹⁴

Monitoring inequalities

Monitoring access to care and inequalities will become extremely difficult. Although a range of socioeconomic data exists for geographical areas, CCGs will be able to use only the limited data about individual socioeconomic characteristics in the NHS Personal Demographics Service and HES.^{15 16} These

contain only an individual's age and sex, and, in the case of HES, incompletely coded data about ethnicity, plus the area based indices derived from postcodes. This will make it difficult to measure inequalities in the uptake of hospital care within and between groups of people or to use the data to fulfil the secretary of state's duty to measure inequalities between people rather than populations. Cancer registries will also be affected because they have not recorded patients' GPs in the past and will therefore be unable to monitor trends over time.¹⁷

Even if geographical codes are included in data systems, this will not ensure continuing analysis by geographical area or action on observed inequalities. For this analysis to happen, commissioners must have permission to access the data, an analytical workforce with the time and skills to analyse them, and, most crucially, a reason to access the data in the first place. This is because CCGs will not have area based responsibilities and local authorities will be commissioning relatively few services. This loss of responsibilities and provider functions is likely to lead to erosion of data quality, accuracy, and completeness.

For example, childhood immunisation is a concern. Responsibility for immunisation will be with public health, which will be located in local authorities, although the services are usually provided by GPs from their surgeries and monitoring is undertaken by community child health services, which are now mostly part of hospital or community trusts.

Since the residents of a local authority may be registered with any one of a number of different CCGs, the local authority will have to subcontract immunisation to a CCG, which will in turn outsource the commissioning function to other bodies, which could contract the service to several providers. Although it will be possible to compare reported differences in immunisation rates between CCGs, the instability of the denominator population will hinder accurate interpretation of the data.

Recruitment and selection bias and lack of sensitivity of ward and output area based variables mean that the same parallels can be drawn for HIV and sexual health, dental public health, and mental health services plus other as yet undefined services and functions that are to be relocated to local authorities.

To provide cancer information for CCGs, cancer registries will need to be able to identify the numbers of cases of cancer and the population for each CCG, and major investment will be needed to retrospectively populate its database. Until now NHS agencies have been tied to the population for which they are responsible and have had an interest in knowing as much as possible about cross sectional patterns and temporal trends in health and health outcomes at area level. CCGs will have no need to do this.¹⁸ Even if data are returned and published at geographical area level as at present, neither the secretary of state nor the NHS Commissioning Board will be able to hold a plethora of CCGs and providers to account because cancer monitoring, infectious disease control, and immunisation coverage are area based responsibilities.

Other possible consequences

Commissioning for individuals rather than on the basis of the needs of area based populations may have other consequences. It is possible that CCGs and their constituent practices will merge and demerge on commercial criteria, without reference to any geographical area considerations. This would make it virtually impossible to monitor inequalities, let alone explore reasons for differences or propose strategies to address them.

It is also difficult to see how indices such as standardised mortality ratios could be constructed and interpreted in a meaningful way, whether for resource allocation to individual CCGs or for comparing CCGs' health service provision and outcome. These changes will affect routine data more generally. Analysis of statistical trends will be disrupted, making it difficult to measure the effect of the change in arrangements on equity, access, and outcome except at national level.

Use of any qualified provider

Increased outsourcing of hospital and community based care to private providers is a further challenge to the quality and completeness of data. Previous experience from the independent sector treatment centre programme has shown that data about NHS care commissioned from private providers have been under-reported to HES. There are more general problems with the quality, completeness, and accuracy of coding of data from private providers.^{18 19 20} HES data are therefore likely to be further impaired if the proportion of care commissioned from private providers rises. Monitoring of community services is even more of a problem as there is no core minimum dataset.

Monitoring inequalities in supply of services

Transfer of resources and NHS staff, including doctors, nurses, midwives, allied health professionals and scientific staff, to the private sector, means that they will no longer be counted in NHS bed availability and workforce statistics, creating problems for long term planning and monitoring of expenditure, supply and access to services, and planning of education provision. Even where staff and beds are retained within the health service, trusts' new powers to generate up to half their income privately will make it impossible to monitor the use of government funded resources, beds, and staff, as has happened with long term care (figure 1).

An information revolution?

Despite promises of an "information revolution," the NHS information strategy has yet to appear, and the problems we have described were not considered in the consultation documents issued to inform it. A key feature of the proposals in the consultation document was for sets of outcome indicators to enable the effect of resources invested in the NHS and public health to be monitored.^{22 23} The first sets of public health and NHS outcome indicators have been published, without any reference to the use of practice based denominators. The stated aim of the NHS indicators is to hold the National Commissioning Board to account nationally, but it does not say how they would be used locally.^{24 25}

Conclusion

The NHS is founded on the principle of comprehensive coverage. Equitable public health activity requires reliable information. The abolition of area based structures and the transfer of most responsibilities to non-geographically based CCGs, as well as some responsibilities to local authorities, undermines the availability of information and routine data required to monitor the comprehensiveness of the health service, inequalities in access, the resourcing of services, and outcomes of care. Private income generation coupled with the loss of

population basis and responsibilities for comprehensive data collection and monitoring will make it almost impossible to take the action needed to tackle inequalities in health and in access to healthcare.

Contributors and sources: AM is a statistician specialising in the analysis and interpretation of routine and has written extensively on this. SG is a specialist in public health with over 20 years' experience in service and academic public health, as has AMP. The three authors have collaborated in writing on this subject over many years. AP conceived the article; AP, AM, and SG jointly researched and wrote it.

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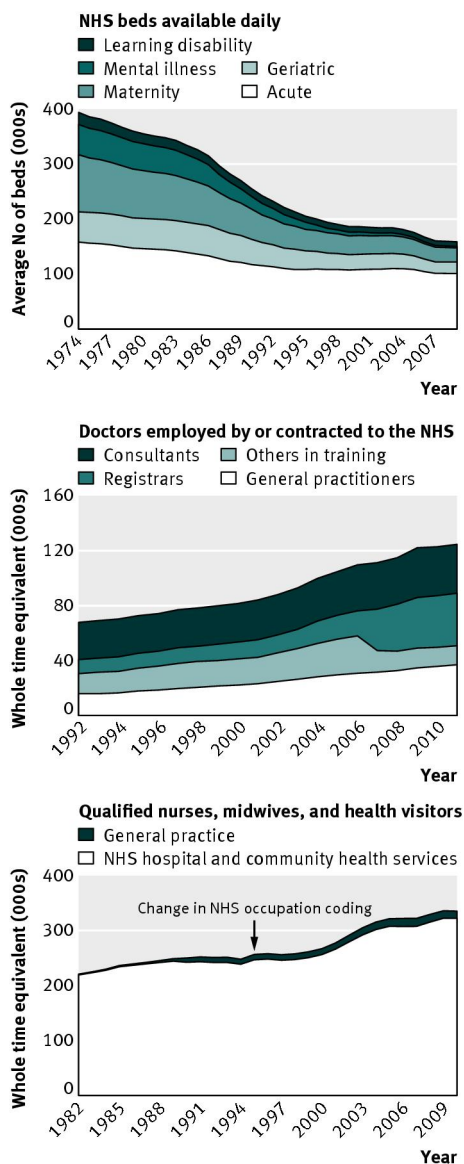
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Figure



Trends in average numbers of beds and whole time equivalent doctors and nurses in England.²¹ Data on beds comes from Department of Health and Social Security and Department of Health statistical bulletins 5/85, 1995/20, 1997/20, and 1998/31 and KH03 1998-9 to 2009-10. The bed graph cannot be updated because from 2010-11 the method of data collection was changed without doing any bridge coding. Data about doctors are from the NHS Information Centre's medical workforce census and data about nurses, midwives, and health visitors are from its non-medical workforce census. The grading of doctors in training changed in 2007 and the resulting discontinuity is shown in the graph. Data about nursing, midwifery, and health visiting staff include bank staff. As collection of data about these ceased in 2011, the graph cannot be continued on a comparable basis