

Using local authority data for action on health inequalities: the Caerphilly Health and Social Needs Study

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SUMMARY

Background: Primary care organisations in the United Kingdom have been given new and challenging population health responsibilities to improve health and address health inequality in local communities through partnership working with local authorities. This requires robust health and social needs assessment data for effective local planning.

Aim: To assess the use and value of local authority data shared through partnership working between Caerphilly Local Health Group and Caerphilly County Borough Council.

Design of study: Cross-sectional analysis of aggregate electoral division data.

Setting: Caerphilly County Borough, south-east Wales.

Method: Local authority datasets identified were categorised into one of six domains: income, unemployment, housing, health, education, and social services. Data were presented at electoral division level as rates in thematic maps and correlations between the variables within and between each domain were explored using Spearman's rank correlation coefficient, with particular focus on children in families. Local planning documents were scrutinised to ascertain the use and value of the data.

Results: A broad range of data described a comprehensive picture of health and social inequalities within the borough. Multiple deprivation tended to cluster in electoral divisions, particularly for data relating to children, painting an overwhelming picture of inequality in life chances. The data were used in a wide range of local partnership planning initiatives, including the Health Improvement Programme, Children's Services Plan, and a successful Healthy Living Centre bid.

Conclusion: Local authority data can help primary care organisations in a population approach to needs assessment for use in local partnership planning targeted at reducing health inequalities.

Keywords: health status; socioeconomic factors; data collection; small-area analysis; cross-sectional studies.

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Introduction

PRIMARY care organisations in the United Kingdom (UK) have been given new and challenging population health responsibilities to improve health and address health inequality in local communities through partnership working with local authorities and other agencies.¹⁻³ To be effective, local planning requires robust health needs assessments drawing on collation of all relevant sources of health and social needs data. Despite the continuing debate on the role and appropriateness of needs assessment in primary care,⁴ general practitioners (GPs) have a central role to play in the process of targeting resources to address health inequalities, and there is a clearly articulated need for more robust data to inform decision making.^{5,6}

Local authorities collect a wide range of potentially useful health and social needs data as a by-product of service delivery⁷ that could provide an important component of the local population-based needs assessments required of primary care organisations. However, the use and value of these datasets to primary care has not previously been described.

In Wales a key feature of the public health strategy to improve health and reduce health inequalities^{8,9} is partnership working across agencies, facilitated by co-terminosity between local authorities and local health groups (LHGs). Caerphilly County Borough is situated in Gwent Health Authority (GHA), south-east Wales, and has a population of 170 120 (Office of National Statistics mid-year estimate in 1999), and it contains some of the most deprived census wards in England and Wales.¹⁰ We were asked to support the developing partnership planning arrangements between the LHG and Caerphilly County Borough Council (Caerphilly CBC) with robust health and social needs assessments to inform local planning and targeting of resources. A collaborative study, the Caerphilly Health and Social Needs Study, was initiated to share, collate and use multi-agency data for action on health and social inequality. The aim of this paper is to assess the use and value of local authority data shared through local partnership working in the study.

Method

The area level chosen for analysis was the 1998 electoral division, which was defined by the April 1998 boundary changes to the original 1991 census wards. In Caerphilly borough there are 33 electoral divisions, of average population size 5470 (range = 1862 to 10 800). Figure 1 shows the borough with the Townsend index of deprivation¹¹ mapped at enumeration district level, average population size 520, to

HOW THIS FITS IN

What do we know?

Primary care organisations in the UK (United Kingdom) have been given new and challenging population health responsibilities, to improve health and address health inequality in local communities through partnership working with local authorities. Effective local planning requires robust health and social needs assessment data. Partnership working has opened up a new source of potentially useful needs data collected by local authorities during delivery of local services.

What does this paper add?

A wide range of data collected by local authorities relating to income, unemployment, housing, health, education, and social services can be converted into small area information for action to address health inequalities.

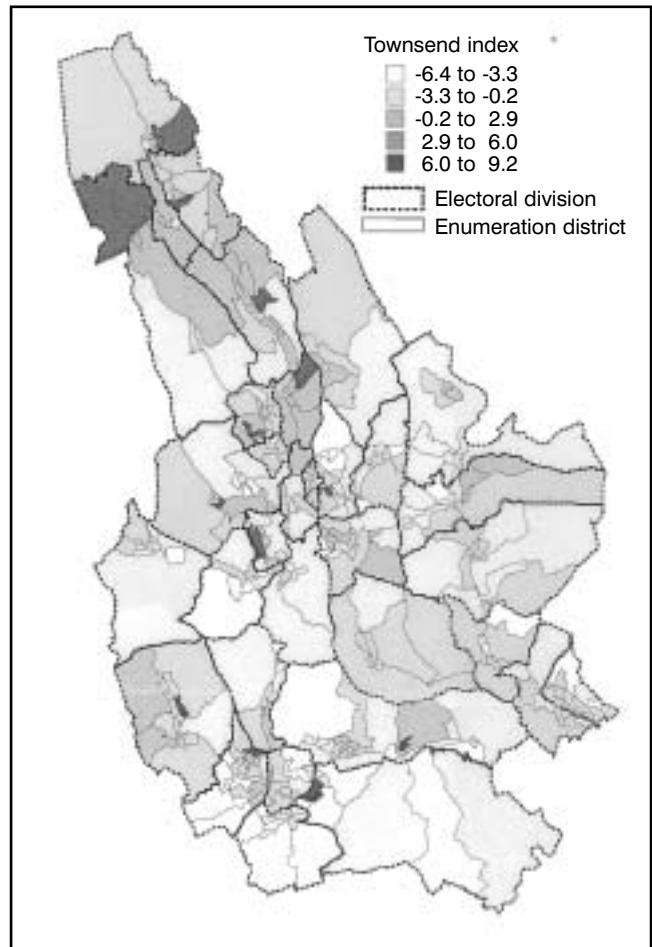


Figure 1. Townsend index of deprivation: Caerphilly County Borough enumeration districts.

highlight where there is variation in deprivation status within electoral divisions.

New sources of data were identified from the Chief Executive's, Education, Environmental Services and Housing, and Social Services directorates within Caerphilly CBC. In addition, Department of Social Security (DSS) claimant count data by age group on means tested and non-means tested benefits were supplied at electoral division level to the Chief Executive's Directorate by the Improvement and Development Agency (a UK-wide government agency that works to support local government). Dates of the data extracts received for the different benefits varied between May 1998 and March 1999. Benefits data were only analysed where there were sufficient numbers of claimants to allow meaningful analyses. Population denominators were extracted from the health authority general practice administrative Exeter database for April 2000. Household denominators were taken from the 1991 census.

Counts of unemployment at electoral division level were requested by the Chief Executive's Directorate from the National Online Manpower Information Service (NOMIS) database. Data for April 1998 were used in this study. An inter-censal economically active denominator was estimated by Caerphilly CBC for males/females aged 15 to 64/59 years for April 1996 by weighting the 1991 data by the ratio of the 1996 electoral roll to the 1991 census population. The Council Tax and Benefits division supplied data for the proportion of houses in each council tax band from A to H by electoral division for February 1999.

The Education Directorate supplied data for the school year 1998/1999 on educational achievement for Key Stage 1 (for six to seven-year-olds in Year 2, the final year of infant school), Key Stage 2 (for ten to eleven-year-olds in Year 6, the final year of junior school), and Key Stage 4 (General Certificate of Secondary Education [GCSE]), together with data on free school meal uptake and children with special educational needs. Since individual level data with postcodes were not available for Key Stages 1 and 2, assignment by the Education Directorate to the electoral division of residence was based on the distribution of school catch-

ment populations.

We allocated anonymised datasets of GCSE achievement, children with special educational needs and free school meals directly to the electoral division of residence through postcode linkage. From a five-stage classification on the identification and assessment of special educational needs,¹² data were aggregated for stages 3, 4 and 5, where, as a minimum, teachers and the special educational needs co-ordinator are supported by specialists from outside the school. Denominators were based on school roll data supplied to Caerphilly CBC by the National Assembly for Wales (NAfW) Schools Census (Stats 1) return.

Social services data on referrals, assessments, home care and meals-on-wheels were extracted from the Caerphilly Social Services Information Database. These data were geocoded and aggregated to electoral division level to calculate crude incidence rates per 1000 population for the nine-month period from April 1999 to December 1999. Since a person referred could undergo several assessments, data for referrals only were analysed.

Each of the new Caerphilly CBC datasets identified by the study were classified into one of six domains: income, unemployment, housing, health, education, and social services. The study data and a wide range of other data routinely available to public health departments were compiled

into a Health and Social Needs Profile report.¹³ Thematic maps of all variables were prepared to highlight variation between electoral divisions within Caerphilly borough and to illustrate their value in highlighting areas of greatest need and inequality. In the maps each electoral division is assigned to one of five colour scales, based on dividing the range of the distribution of the variable into equal fifths. This enables easy identification of the lowest-ranking electoral divisions for any particular variable.

The correlations between the variables within and between each domain were explored using Spearman's rank correlation coefficient, to avoid making assumptions about the distributions of the data. Relationships within domains were focused on the theme of children in families. Local planning documents and progress reports were scrutinised to assess the use and value of the data in the year following completion of the data.

All linking of postcodes to electoral divisions and thematic maps were prepared in MapInfo version 6.0 and the analysis was undertaken in SPSS version 8.

Results

Data

Table 1 provides a summary of the data used in the analysis. It shows the classification used for the domains and sub-domains, the description of each variable, the time period and appropriate denominator. Figure 2 illustrates the variation in the electoral division distribution using four variables as examples in thematic maps: children in families claiming income support, council tax bands A and B, referrals to social services of children under 15 years of age, and GCSE educational achievement. The maps show a clear relationship between deprivation and the inequalities in these outcomes that relate to the circumstances of children in families.

The correlation matrix for the variables chosen from each domain that relate to the circumstances of children in families is available from the authors. The overall picture is of a host of interrelated circumstances of multiple deprivation and poor outcomes that cluster in electoral divisions.

Use and value of the data

Local ownership of the profile was obtained through presentations to meetings of the executive directors of the health and local authority, the local authority decision-making cabinet, and the full council. The profile was a policy tool for the LHG to progress its population-based responsibilities in a variety of existing health and local authority partnership planning processes to improve health and reduce health inequality in the local community.

The first use of the profile was in the LHG Local Action Plan of the Health Improvement Programme.¹⁴ The local authority also has statutory service planning responsibilities and the profile has contributed to the development of the information used to formulate the Children's Services Plan,¹⁵ the Social Care Plan,¹⁶ and the Housing Strategy and Operational Plan.¹⁷

The profile has also been used by the partnerships in the borough to inform bids to a range of additional funding

opportunities, including a successful bid to the New Opportunities Fund Healthy Living Centre Initiative and a portfolio of primary care bids to the new NAW Health Inequality fund for the prevention of coronary heart disease. These successful primary care bids have been linked to a local community regeneration strategy aimed at addressing the wider socioeconomic determinants of health in one of the most deprived electoral divisions in the borough.¹⁸ This strategy forms close links between a new purpose-built primary care centre and the development of proposals for a new community school, community resource centre, and transport links. The profile is now making an important contribution to the borough-wide community planning process required of primary care, engaging as a major partner with local authorities and local communities to develop overarching 'community strategies'.

Discussion

The Caerphilly Health and Social Needs Study has identified a broad range of local authority data at electoral division area level within the domains of income, unemployment, health, education, housing, and social services. We have used these data to build a comprehensive picture of the wider determinants of health, and health and social outcomes, within the borough of Caerphilly.

This study has shown how multiple deprivation across the domains tends to cluster within electoral divisions in the borough. In general, these electoral divisions have the highest levels of income deprivation and unemployment, low-value housing, the lowest educational achievement, the highest levels of disability, and the poorest health outcomes, with higher levels of social service assessments. These relationships are strongest for children living in deprived electoral divisions and they paint an overwhelming picture of multiple deprivation and inequality in life chances for these children in Caerphilly borough.

Some of the difficulties with the process of sharing data have been highlighted. Extracting data from a range of local authority databases and administrative systems that relate to different time periods and spatial levels, and of varying data quality, required a considerable investment of time and people. It was found that executive level support was essential to the process because all departments need to recognise the importance of such work by raised awareness of the need for continuous improvement of data quality and allocation of appropriate priority to the tasks involved. Valid, reliable, and completely postcoded datasets are required for robust spatial analysis. This requires commitment and resources to improve the quality of local authority datasets. It is remarkable how little information has been utilised and jointly published in a period of unprecedented development of IT tools that can be used to collate, analyse, and present data. These issues will need to be addressed by all those engaged in local partnership working. General practitioners in primary care organisations now have the opportunity to use a team-based multi-disciplinary collaborative approach to health and social needs assessment, and to influence and focus the public health, epidemiological and statistical skills available through detailed knowledge of their local practice populations.

Table 1. Summary table of data at electoral division level.

Domain	Sub-domain	Variable	Year	Denominator
Income	Means-tested income benefits	Percentage of households claiming family credit	Mar 1999	All households with dependent children (1991 census)
		Percentage of children aged between 0 and 15 years in households claiming family credit	Mar 1999	Children aged between 0 and 15 years (GHA Exeter database April 2000)
		Percentage of persons on income support, aged 16+ years, aged 60+ years	Aug 1998	Persons aged 16+ years, aged 60+ years (GHA Exeter database April 2000)
		Percentage of children aged between 0 and 15 years in households claiming income support	Aug 1998	Children aged between 0 and 15 years (GHA Exeter database April 2000)
		Percentage of persons on income-based job seekers allowance	Aug 1998	Total economically active population (Caerphilly CBC 1996)
		Percentage of children between 0 and 15 years in households claiming income-based job seekers allowance	Aug 1998	Children between 0 and 15 years (GHA Exeter database April 2000)
		Percentage claiming free school meals	School year 1998/1999	All children aged between 4 and 16 years on school roll (NAfW)
		Percentage claiming disability living allowance	May 1998	Population aged under 65 years (GHA Exeter database April 2000)
Health	Disability	Percentage claiming attendance allowance	May 1998	Population aged 65+ years (GHA Exeter database April 2000)
		Percentage claiming long-term incapacity benefit	Dec 1998	Population aged between 16 and 64 years (GHA Exeter database April 2000)
		Percentage claiming long-term severe disablement allowance	Dec 1998	Population aged between 16 and 64 years (GHA Exeter database April 2000)
		Percentage male	Apr 1998	Economically active aged between 16 and 64 years (Caerphilly CBC)
Unemployment	Unemployed	Percentage female	Apr 1998	Economically active aged between 16 and 59 years (Caerphilly CBC)
		Percentage total persons	Apr 1998	Total economically active population (Caerphilly CBC)
		Percentage achieving level 2+ at Key Stage 1	School year 1998/1999	Total children in year group (NAfW)
Education	Achievement	Percentage achieving core subject indicators at Key Stage 2	School year 1998/1999	Total children in year group (NAfW)
		Percentage achieving 5+ GCSEs grades A* to C at Key Stage 4	School year 1998/1999	Total children in year group (NAfW)
		Percentage of children aged between 4 and 16 years with special educational needs in groups 3 to 5	School year 1998/1999	Total children in year group (NAfW)
Housing	Council tax bands	Percentage of households in bands A and B	Feb 1999	All households paying council tax (Caerphilly CBC)
		Percentage of households in bands G and H	Feb 1999	All households paying council tax (Caerphilly CBC)
Social services		Referrals all ages, 0 to 14 years, 15 to 64 years, 65+ years	Apr to Dec 1999	Total population, 0 to 14 years, 15 to 64 years, 65+ years (GHA Exeter database April 2000)
		Assessments all ages, 0 to 14 years, 15 to 64 years, 65+ years	Apr to Dec 1999	Total population, 0 to 14 years, 15 to 64 years, 65+ years (GHA Exeter database April 2000)
		Home care	Apr to Dec 1999	Population 65+ years (GHA Exeter database April 2000)
		Meals-on-wheels	Apr to Dec 1999	Population 65+ years (GHA Exeter database April 2000)

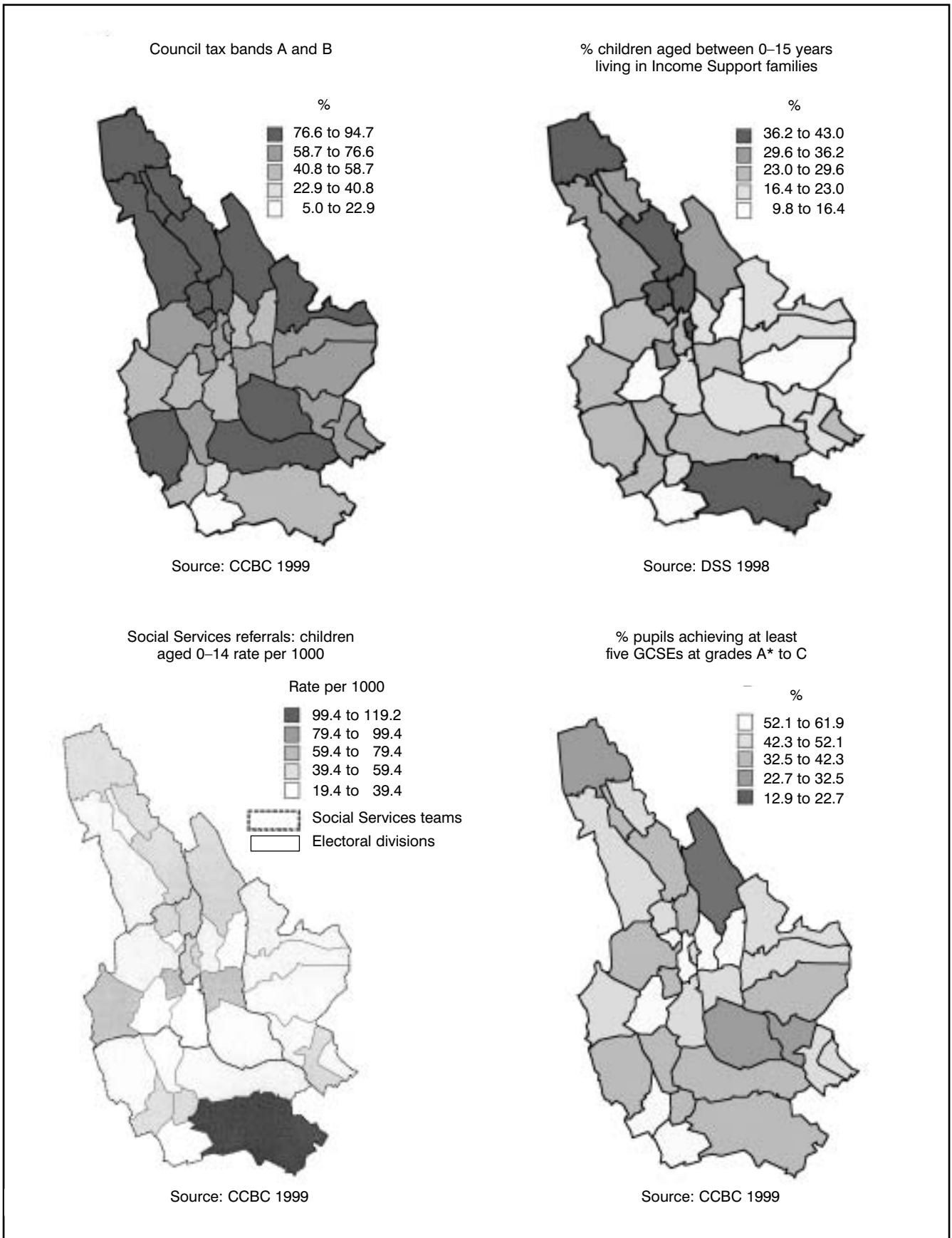


Figure 2. Thematic maps of selected variables at electoral division level.

Methodological problems that arose merit discussion. Although the aggregate DSS claimant counts are likely to be sufficiently robust, the allocation of Key Stage 1 and 2 data by school catchment area to electoral division is likely to have suffered from a degree of misclassification bias. However, it was possible to geocode GCSE data using individual postcoded records, and so electoral division GCSE data are likely to be more robust. Social services data were of high quality, with the postcode field 98% complete and accurate. It is shown that it is possible to exchange and analyse social services data in aggregate format in a secure fashion.

Converting numbers of claimants or cases to electoral division counts and calculating rates required precise definitions of the eligibility to claim, so that appropriate denominators could be chosen. Some data that were available did not have an appropriate denominator and were excluded from the analysis. In many instances the denominators are population counts with a choice of population base from either the 1991 census or the population resident in Caerphilly borough registered with a GP on 1 April 2000. Since the numerator data were from different time periods, numerator/denominator mismatch may have been a source of bias, but is unlikely to have altered the overall findings.

Although a broad range of data has been identified, many other potentially useful datasets were not available in the timescale of the study. For example, this included data on void council properties (vacant for up to 10 weeks), hard-to-let properties (vacant for over 10 weeks), and means-tested housing benefit (rented council properties only) and council tax benefit (all properties eligible, means tested). Aggregate data on child protection and looked-after children could not be used owing to small numbers per electoral division.

This study shows that local authority data are useful and have value in their contribution to a broader understanding of the determinants of health, social, and educational outcomes. Caerphilly LHG have used the data shared in this study to complement other routine sociodemographic, morbidity and mortality data for the comprehensive local population health and social needs assessment required by local partnership planning to address health inequality. Planning is now in progress to extend this approach to LHGs and unitary authority partnerships across Wales.

Conclusions

The recent NHS reforms have given a pivotal role to GPs in tackling health inequalities. This collaborative work has shown that, working in partnership with local authorities, GP members of primary care organisations in the UK now have the opportunity to use a new source of data to gain a broader understanding of local health inequalities. In Caerphilly County Borough this information has influenced key local planning and decision-making processes to improve the health of local communities and their patients.

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