

August 1997

**WORKING GROUP ON PRIMARY AND COMMUNITY
CARE PURCHASING**

**REPORT OF THE SUB-GROUP ON INFORMATION
FOR HEALTH NEEDS ASSESSMENT AND
RESOURCE ALLOCATION**

*T Baxter
A Howe
C Kenny
D Meechan
M Pringle
P Redgrave
J Robinson
A Sims*

Trent Institute for Health Services Research
Universities of Leicester, Nottingham and Sheffield

DISCUSSION PAPER 97/02

Published by the Trent Institute for Health Services Research

© 1997 Trent Institute for Health Services Research, Universities of Leicester, Nottingham and Sheffield.

ISBN 1 - 900733 - 16 - 1

Referencing information:

Baxter T, Howe A, Kenny C, Meechan D, Pringle M, Redgrave P, Robinson J and Sims A. *Working Group on Primary and Community Care Purchasing: Report of the Sub-Group on Information for Health Needs Assessment and Resource Allocation*. Sheffield: Trent Institute for Health Services Research, Universities of Leicester, Nottingham and Sheffield, 1997. Discussion Paper 97/02.

Further copies of this document are available (price £10.00) from:-

Suzy Paisley
Information Officer
Trent Institute for Health Services Research
Regent Court
30 Regent Street
SHEFFIELD S1 4DA

Tel 0114 222 5420
Fax 0114 272 4095
E-mail scharrlib@sheffield.ac.uk

Please make cheques payable to "The University of Sheffield"

ABOUT THE TRENT INSTITUTE FOR HEALTH SERVICES RESEARCH

The Trent Institute for Health Services Research is a collaborative venture between the Universities of Leicester, Nottingham and Sheffield, with support from NHS Executive Trent.

The Institute:

- provides advice and support to NHS staff on undertaking Health Services Research (HSR);
- provides a consultancy service to NHS bodies on service problems;
- provides training in HSR for career researchers and for health service professionals;
- provides educational support to NHS staff in the application of the results of research;
- disseminates the results of research to influence the provision of health care.

The Directors of the Institute are: Professor R L Akehurst (Sheffield);
Professor C E D Chilvers (Nottingham); and
Professor M Clarke (Leicester).

Professor Akehurst currently undertakes the role of Institute Co-ordinator.

A Core Unit, which provides central administrative and co-ordinating services, is located in Regent Court within the University of Sheffield in conjunction with the School of Health and Related Research (SchARR).

FOREWORD

Recent years have seen the emergence of evidence-based medicine, evidence-based commissioning and, to an extent, evidence-based policy. All GP practices in Trent and their Health Authorities face a range of similar issues. As decisions become more evidence-based, then the scope for sharing that evidence increases.

Following the establishment in Trent of the Working Group on Acute Purchasing, a similar group was set up to consider issues of importance to purchasers and providers of primary and community health care services.

The Department of General Practice at the University of Nottingham and the Nottingham Unit of the Trent Institute facilitate the Working Group on Primary and Community Care Purchasing. The topics for consideration were suggested at an initial meeting in 1996 of representatives from purchasing authorities, from primary and community care and from academic departments. Small groups consider the topics and draft reports are circulated for consultation and presented at subsequent Working Group meetings. Comments and suggestions received at those meetings are incorporated into the final text. The topics are approved by the Purchasing Authority Chief Executives (PACE) group and the final reports are submitted to them prior to publication.

CONTENTS	Page
EXECUTIVE SUMMARY	1
1. Introduction	2
2. Aims and Objectives	3
3. The Background to Health Needs Assessment	4
a Historical Perspective	4
b The Importance of Health Needs Assessment in General Practice	5
c The Theoretical Framework for Health Needs Assessment	6
4. Examples of Good Practice in Trent	9
a Sheffield's Practice Based Needs Assessment Pack	9
b Doncaster's Acuity Comparative Database	9
c Practice Gazettes in Leicester	10
d Lincolnshire's MAAG	10
e Equip (Evaluating Quality in Practice), Practice Data Comparison Project and FACTS (Framework for Appropriate Care Throughout Sheffield)	11
f Moves towards equitable resource allocation in North Derbyshire	11
5. Cost Implications of these Projects	12
6. Conclusions	13
7. Recommendations	14
8. Recommendations for Future Research	15
REFERENCES	16
APPENDIX A	28

LIST OF TABLES

Table 1

The main methodologies and data sources used in Health Needs Appraisal 6

Table 2

The main data categories and data items, with their rationale 7

EXECUTIVE SUMMARY

At the first meeting of the Working Group on Primary and Community Care Purchasing, information issues were highlighted as crucial for the development of Primary Care. This Sub-Group agreed to meet on six occasions over a six month period and produce a report. After consultation with other interested organisations and individuals, aims and objectives were agreed. These related to the development of information for:

- health needs assessment (HNA);
- the purchasing function of Primary Care;
- the management of Primary Care as providers;
- resource allocation within districts.

The background to HNA is covered in some detail and a number of examples of good practice in the use of information in Trent are described. Estimates have been made of the costs of these projects. Considerable variation was found between Health Authorities (HAs) in the availability of information, the systems for handling information and in what information was used for. Based on examples of best practice, the Sub-Group drew up a model dataset which is presented in an Appendix. This dataset would enable detailed profiles to be drawn up of practices and the populations they serve. These profiles are the basis of HNA and they should guide practices in drawing up business and purchasing plans. In addition, they should guide HAs in resource allocation to Primary Care and in monitoring and strategically developing services.

Recommendations are made regarding the collection and dissemination of information and regarding future research requirements in this field.

1. INTRODUCTION

The terms of reference for the Sub-Group on Information for Health Needs Assessment and Resource Allocation were to examine:

- the sources and quality of data and availability of data on services provided in Primary Care and accessed through Primary Care;
- the use of data for:
 - health needs assessment (HNA);
 - developing the purchasing function of Primary Care, and joint commissioning between Primary Care and Health Authorities (HAs);
 - the management of Primary Care as providers;
 - resource allocation within districts.

It is envisaged that the information gathered will be available to, and used by, GPs and by HAs to inform the above processes. The availability of quality information underpins all the Trent Institute's Working Groups on Primary and Community Care Purchasing and is clearly necessary for the development of a Primary Care led NHS.

The material prepared by the Sub-Group was presented to the Trent Purchasing Authorities Chief Executives (PACE) group. This report also provides a comprehensive section on the background to HNA written by Professor Mike Pringle.

2. AIMS AND OBJECTIVES

The aims of the Sub-Group were to produce an outline of information requirements to enhance HNA in Primary Care, to provide an interactive audit tool and to enable more equitable allocation of resources.

The objectives of the group were:

- to consider the background to HNA;
- to find evidence of best practice in the use of data for the purposes outlined in the aims, so that it can be disseminated;
- to investigate sources of data and recommend a common dataset;
- to make recommendations and to identify requirements for future research in Trent in this field.

3. THE BACKGROUND TO HEALTH NEEDS ASSESSMENT

a. A Historical Perspective

Preventive care, in the sense of parenting advice, early detection and holistic care, has been a long term feature of Primary Care through general practitioners, community nurses, and most notably health visitors¹. Immunisation programmes, cervical cytology, hypertension screening, lifestyle advice, well person clinics, disease control in chronic disease, and now lipid screening have been adopted, often with contractual incentives and rewards².

This preventive activity, the focus of which has moved from community nurses onto general practitioners and practice nurses, was placed into a strategic framework by the Health of The Nation³, the objectives of which can only be met through primary, secondary and tertiary prevention co-ordinated in Primary Care.

The second pressure for HNA has come from an increasing awareness of the social and political context of health care. From the Black Report⁴ through to the recent Department of Health report on variations in health⁵⁻⁷, there has been an increasing appreciation of the effect of sex, age⁸⁻¹⁰, social class and economic status¹¹⁻²⁵, ethnicity²⁶⁻³⁰ and geography on health experience and outcomes, and recently that the gap between the "haves" and the "have nots" is increasing³¹⁻³⁵. Providing health care to the "have nots" is more expensive³⁶ and health gain is more difficult to obtain^{12,37,38}.

Alongside the burgeoning of preventive activity and social awareness, the third major trend that has led to the requirement for HNA is the internal market and its accompanying commissioning ethos³⁹. Not only are HAs commissioning Primary Care from general practices and Community Trusts, but practices are increasingly commissioning Secondary Care.

These three trends have been aided by, and themselves have stimulated, the development of high quality computer databases in general practices, HAs and nationally⁴⁰⁻⁴⁵. These have enabled the data for HNA to be more readily accessible to individual practices, Trusts and HAs.

b. The Importance of Health Needs Assessment in General Practice

General practices now live in a world in which they must justify the resources they receive for Primary Care. This varies from examination of their staffing, which is commonly calculated as a ratio of registered population to the number of partners and other staff, to prescribing budgets adjusted for age, sex and temporary residents, to consideration of premises, the quality of which largely depends on historic investment. Part of GPs' income depends on hitting targets and demonstrating chronic disease programmes². A large proportion of resources allocated to practice populations for Secondary Care services is also based on historic activity in that practice.

Such arrangements are not equitable to practices which have a high patient demand and low potential for meeting targets. Deprivation payments based on the social characteristics of the registered list have helped, but these payments are not a full compensation for the considerable needs and demands of some practice populations.³⁶ Despite the difficulties encountered in attempting to derive an equitable capitation formula, there is increasing likelihood that in the future such calculations will be developed and will be based on assessment of the needs of practice populations⁴⁶.

Practices themselves, especially fundholders, make decisions on priorities when re-shaping or developing their services. A practice can decide whether to employ a counsellor or to prescribe more psychotropics. It can choose a physiotherapist or an osteopath or more joint replacements. It can train a team member in sigmoidoscopy or continue to use the hospital service. In order to make these decisions a practice needs to understand the comparative needs of groups within its population.

For all these reasons, practices have to undertake HNA. These imperatives apply equally to Community Trusts and HAs, where the concepts of HNA are integrated into public health medicine and epidemiology⁴⁷. The thrust of this report is on HNA in Primary and Community Care, and it will concentrate on general practice, which, while being only a part of the Primary and Community Care sector, acts as a paradigm for the whole.

c. The Theoretical Framework for Health Needs Assessment

HNA does not just involve looking at “needs” (explicit or implicit, expressed or hidden, met, unmet or overmet) and “wants”⁴⁸. It also includes considering the capacity of services to meet needs, the current, predicted and potential use of resources and the cost-effective use of resources, and, most importantly, current and predicted outcomes from developments in care^{1,6,7,49-51}. There are four established methodologies for assessing the health needs of a geographical area^{1,49-51}, all of which are suitable for use in a general practice. They each overlap and offer different insights into health problems. They are shown in Table 1:

Table 1: The main methodologies and data sources used in Health Needs Appraisal

Methodology	Main data sources
Use of Health Authority, census and other population databases	Census, General Household Survey, MSGP4, and other OPCS surveys; regional and local lifestyle surveys
Use of practice derived information, including computer databases and clinical audit	The practice database; cohort and significant event audits
Rapid appraisal	A rapid appraisal
Patient surveys	Patient satisfaction surveys; local opinion polls; specific surveys of patient groups

While census data can be useful for HNA as the only source of some data and the most cost-effective source in other instances^{1,49-53}, it has been heavily criticised for being untimely and often inaccurate⁵⁴⁻⁵⁷. Social class data⁵⁸ and ethnicity data⁵⁹ might be better continuously recorded in Primary Care.

Practice databases are becoming more accurate⁴⁰⁻⁴³, and can be combined with data from conventional and significant event auditing⁶⁰⁻⁶⁷. Rapid appraisal is an established technique for looking at the views of a community concerning their health, special risks and the health care offered to them^{1,49-51,68}. Patients can be surveyed to establish their views on health priorities, the quality of services offered and the options for development⁶⁹⁻⁷⁴.

These methods supply a range of data items which have relevance to Primary Care as shown in Table 2.

Table 2: The main data categories and data items, with their rationale

Demographic and socio-economic data on the population	
Age/sex of population	The age/sex profile of a practice influences morbidity, and resource usage ^{8-10,60-67}
Social class and deprivation	Social class and economic status is linked to morbidity, mortality, lifestyle, and resource use ^{4,5,11-25,75}
Ethnicity	Ethnicity is linked to morbidity, mortality, risk factors and resource use ^{4,5,26-30}
Risk and illness in the practice population	
Morbidity	Morbidity has resource implications ⁷⁵⁻⁷⁸
"Long term illness"	Asked in the Census, it may be a reliable indicator of population morbidity ⁵³
Mortality	In normal size practices numbers are too small for mortality to be a good index, but it can inform auditing ⁶⁰⁻⁶⁷
Risk and lifestyle	Smoking, alcohol, exercise and high risk behaviour all influence morbidity, mortality and outcome
Use of resources by the practice population	
Consultation rates	Workload varies with social variables, age and ethnicity ^{36,79}
Prescribing e.g. PACT	Prescribing costs are linked to age and deprivation ⁸⁰
Investigations	Patterns of investigations vary and have resource implications ⁸¹⁻⁸⁷
Referrals	Referral rates vary by practice, but are influenced by social factors and ethnicity ⁸⁸⁻⁹³
Quality of care	
Cohort audits	Audits can reflect patient needs, demands, and the quality of care, including outcomes ^{75,94-107}
Significant event audits	Offers valuable insight into process and outcome of care ⁶⁰⁻⁶⁷
Patient/community views	
Surveys	Give patient views on services ⁶⁹⁻⁷⁴
Rapid appraisal	Offers insight into local priorities ^{1,49-51.68}

The data items that we recommend for collection in Trent as a model dataset for Primary Care are given in Appendix A. These are based on work by the Sub-Group and by Muir¹⁰⁸. Relatively few of the data items listed have to be collected by practices themselves. Most items are derived from the Exeter System, district Patient Information Systems, PACT data, and Census data. In order to use Census data, based on enumeration districts, they have to be mapped together with a HA's patient register, based on postcodes¹⁰⁹. This enables social and economic data to be presented on practice populations, rather than just on electoral wards as has previously been possible. There are several national and local projects underway developing methods for collecting and using morbidity data from practices. These can be added to this dataset in the future.

4. EXAMPLES OF GOOD PRACTICE IN TRENT

The Sub-Group found examples of projects in Trent which are using data in innovative ways for HNA, planning and developing Primary Care services, purchasing and resources allocation to practices.

a. Sheffield's Practice Based Needs Assessment Pack¹¹⁰

This is a comprehensive document the aim of which is to provide a useful tool for practices to help them carry out more HNA. It covers all of the important aspects of needs assessment in Primary Care and explains the reasons why this has become such an important subject. Most data sources are discussed, including: practice demography and Census data; routine hospital data available from districts at practice level; practice based data; special surveys; and, participative research. Crucial to this work is the Sheffield Health Information Project (SHIP) which collects data from various sources and the Locality and Practice Information System (LAPIS) which presents information in a user friendly way. Work has been done with selected practices using some of the available data and the whole pack is about to be piloted.

b. Doncaster's Acuity Comparative Database¹¹¹

In Doncaster, data from numerous sources are assembled in this system which can then generate practice profiles and enable comparisons between practices to be undertaken. It has many similar features to the LAPIS system used in Sheffield and has been used to examine various issues. These include a study of GP prescribing in which it was possible to look at practice rates and correlate them with socio-economic data, referral patterns and practice characteristics. This enabled the reasons for high prescribing in Doncaster to be determined more accurately and addressed. A related project used a variety of data to look at the distribution of coronary heart disease and the use of cardiac services by the total purchasing project practices. This information has been used to influence the purchasing of cardiology and cardiothoracic services.

c. Practice Gazettes in Leicester¹¹²

Over the past 18 months practices in Leicester have received detailed information on their practice populations, resources available to them and their performance on a range of issues. It is possible for them to compare their practices with locality, Leicestershire and sometimes national averages. The Gazettes have been produced quarterly and each one covers different topics. Not only are important process measures, such as, the admission rates for diabetics in the past year included, but also provided are outcome measures such as the percentage of diabetic patients reviewed. This is thought to be an indicator of the overall quality of care for diabetics and is prominent in the St Vincent's Declaration. Discussions with practices about the information on diabetes led to a dramatic increase in the number of practices taking part in an on-going Medical Audit Advisory Group (MAAG) audit of the management of diabetes in the parts of Leicester with the highest prevalence of diabetes. 70% of practices responded to a questionnaire evaluating the Gazettes and 88% of these welcomed the publication. Further evaluation of the project is underway.

d. Lincolnshire's MAAG¹¹³

Since 1993 audits of a variety of topics such as asthma, diabetes and hypertension, have been carried out. It is clear from the results of these audits that progress is being made on two fronts. Firstly, practices are becoming more aware of the benefits of keeping data in a structured and organised way. Secondly, practices have demonstrated clear improvements in intermediate outcomes for diabetes. For example, in an audit of 31 practices, blood sugars, blood pressure and cholesterol levels were better controlled in the second audit in 1994 than in the first audit in 1993. Currently 45 practices are involved in this audit. Another initiative is a pilot with two practices analysing their current use of their clinical computer systems, assessing their training needs and implementing focused education. Lincolnshire MAAG liaises with the HA on practice development training and continuing medical education. On behalf of the NHS Training Division, it has developed a curriculum specification for Primary Care information training for undergraduate and postgraduate medical courses.

e. EQUIP¹¹⁴ (Evaluating Quality in Practice), Practice Data Comparison Project and FACTS¹¹⁵ (Framework for Appropriate Care Throughout Sheffield)

These projects have been initiated by GPs in Sheffield and have received funds from a variety of sources including the HA and Department of Health. EQUIP has been running since 1992 and it now involves 55% of Sheffield practices in data collection to assess the quality of services received from Trusts by patients and GPs. Results are disseminated to GPs, providers and the HA. The 27 practices in the Data Comparison Project share information on activity, and 8 also share data on morbidity and practice finances. The FACTS project is highly innovative using a variety of well researched techniques to encourage Primary Care teams to change clinical behaviour and promote evidence-based medicine. Motivating GPs to collect and use practice-based data and audit activity within the practice is a crucial feature of the project. 64% of Sheffield practices are involved.

f. Moves towards equitable resource allocation in North Derbyshire¹¹⁶

Current resource allocation for services accessed through general practice and to general practice itself have been found to be haphazard and inequitable. North Derbyshire has attempted to find a rational and fairer method of resource allocation that is as rigorous and scientifically based as possible but is also practical and politically acceptable to GPs and the HA. The York Relative Needs Index (RNI),^{117,118} which uses a combination of health and social variables, has been chosen as a measure of need for health services. Details of the method used to apply the RNI to practices are available¹¹⁹. Broad agreement has been reached between the HA and GPs on the principles involved.

5. COST IMPLICATIONS OF THESE PROJECTS

Leaders of the projects described above were asked to try and quantify their expenditure in terms of capital costs and running costs. This was difficult as some of them are part of bigger projects, others have outside funding and many have used varying amounts of HA staff time. There was a feeling that increasingly this type of work should become an integral part of the activity of Information and Public Health Departments.

The Sheffield LAPIS project is now run by HA staff. The shell of the interface is available free of charge to other districts with installation and user guides (but no training or support). The cost of the Acuity system for installation, consultancy support and training was approximately £30,000. In Leicester it was estimated to take six months to put together the necessary database to produce the Gazette. It now costs between £5,000 and £10,000 per annum to produce it quarterly. The overall budget of the Lincolnshire MAAG is £110,000 per annum for 108 practices. The FACTS project in Sheffield have estimated that it would need approximately £45,000 to set up similar projects in other districts.

6. CONCLUSIONS

Considerable variation was found between HAs in the availability of information, the systems for handling information and in what information was used for. Based on examples of best practice, the Sub-Group drew up what can be regarded as a model dataset, see Appendix A. The information from such datasets enables practice profiles to be developed. These profiles are the basis of HNA and they should guide practices in drawing up business and purchasing plans. In addition, they should guide HAs in resource allocation to Primary Care and in monitoring and strategically developing services.

The Sub-Group found that most HAs are beginning to bring together data on the use of secondary and tertiary care services by general practice. Work is just beginning to try and understand more fully the meaning of some of the wide variations in data between practices.

7. RECOMMENDATIONS

The Sub-Group made the following recommendations:

- Districts should have comprehensive computer information systems that can provide practice-based information along the lines of the LAPIS, Acuity and Leicester systems for the data items outlined in Appendix A.
- Each district should have a well resourced task group to assist anyone wishing to undertake HNA and to promote the use of such data for commissioning, the management of Primary Care teams as providers and for resource allocation to practices.

8. RECOMMENDATIONS FOR FUTURE RESEARCH

a. Key questions that need researching are:

- what are the best ways to motivate Primary Care teams to use information to do HNA;
- what are the most effective and efficient ways of doing HNA;
- what resources are needed in Primary Care teams and in HAs to promote HNA?.

b. Several of the projects mentioned above are being evaluated. Questions regarding the ability of the projects to effect change in practice should be an important aspect of those evaluations.

c. Evaluation of the use of resource allocation formulae at a sub-district level. Specific questions that need researching are:

- how to determine the choice of formulae in each district;
- what are the best methods of implementation of formulae;
- what are the outcomes of the exercise?

REFERENCES

- 1 Robinson J, Elkan R. *Health Needs Assessment: Theory and practice*. London: Churchill Livingstone, 1996.
- 2 Pringle M, Hayden J, Procter A. *A Guide for New Principals*. (Oxford General Practice Series no 35) Oxford: Oxford University Press, 1996.
- 3 Secretary of State for Health. *The Health of the Nation: A strategy for health in England*. London, HMSO, 1992
- 4 Black D. *Inequalities in health: Report of a Research Working Group*. London: Department of Health, 1980
- 5 *Variations in health: What can the Department of Health and the NHS do?* Variations Sub-Group of the Chief Medical Officer's Health of the Nation Working Group. London: Department of Health, 1995
- 6 Mooney G. *Economics, Medicine and Health Care 2nd edition*. London: Harvester Wheatsheaf, 1994.
- 7 Pickin C, St Leger S. *Assessing Health Need using the Life Cycle Framework*. Buckingham: OUP 1994.
- 8 Cassel C. Researching the health needs of elderly people. *British Medical Journal* 1994;308:1655-6.
- 9 Philp I, McKee K, Meldrum P, Ballinger B, Gilhooly M, Gordon S, et al. *Community care for demented and non-demented elderly people: A comparison study of financial burden, service use, and unmet needs in family supporters*. *British Medical Journal* 1995;310:1503-6.
- 10 Marmot M, Shipley M. *Do socio-economic differences in mortality persist after retirement? 25 year follow up of civil servants from the first Whitehall study*. *British Medical Journal* 1996;313:1177-80.

- 11 Sloggett A, Joshi H. *Higher mortality in deprived areas: Community or personal disadvantage*. British Medical Journal 1994;309:1470-4.
- 12 Griffiths C, Cooke S, Toon P. *Registration health checks: Inverse care in the inner city?* British Journal of General Practice 1994;44:201-4.
- 13 Lloyd D, Harris C, Clucas D. *Low income scheme index: A new deprivation scale based on prescribing in general practice*. British Medical Journal 1995;310:165-70.
- 14 Gunnell D, Peters T, Kammerling R, Brooks J. *Relation between parasuicide, suicide, psychiatric admissions and socio-economic deprivation*. British Medical Journal 1995;311:226-30.
- 15 Pekkanen J, Tuomilehto J, Uutela A, Vartiainen E, Nissinen A. *Social class, health behaviour, and mortality among men and women in eastern Finland*. British Medical Journal 1995;311:589-93.
- 16 Eachus J, Williams M, Chan P, Smith GD, Grainge M, Donovan J, et al. *Deprivation and cause specific morbidity: Evidence from the Somerset and Avon survey of health*. British Medical Journal 1996;312:287-92.
- 17 Atri J, Falshaw M, Livingstone A, Robson J. *Fair shares in health care? Ethnic and socio-economic influences on recording of preventive care in selected inner London general practices*. British Medical Journal 1996;312:614-7.
- 18 Smith GD. *Income inequality and mortality: Why are they related?* British Medical Journal 1996;312:987-8.
- 19 Kaplan G, Pamuk E, Lynch J, Cohen R, Balfour J. *Inequality in income and mortality in the United States: Analysis of mortality and potential pathways*. British Medical Journal 1996;312:99-1003.
- 20 Kennedy B, Kawachi I, Prothrow-Stith D. *Income distribution and mortality: Cross-sectional ecological study of the Robin Hood index in the United States*. British Medical Journal 1996;312:1004-7.

- 21 Carr-Hill R, Rice N, Roland M. *Socio-economic determinants of rates of consultation in general practice based on fourth national morbidity survey of general practices*. British Medical Journal 1996;312:1008-13.
- 22 Ben-Shlomo Y, White I, Marmot M. *Does the variation in the socio-economic characteristics of an area affect mortality?* British Medical Journal 1996;312:1013-5.
- 23 Watt G. *All together now: why social deprivation matters to everyone*. British Medical Journal 1996;312:1026-9.
- 24 Pell J, Pell A, Morrison C, Blatchford O, Dargie H. *Retrospective study of influence of deprivation on uptake of cardiac rehabilitation*. British Medical Journal 1996;313:267-8.
- 25 Blane D, Hart C, Smith GD, Gillis C, Hole D, Hawthorne V. *Association of cardiovascular disease risk factors with socio-economic position during childhood and during adulthood*. British Medical Journal 1996;313:1434-8.
- 26 McKenzie K, Crowcroft N. *Race, ethnicity, culture and science*. British Medical Journal 1994;309:286-7.
- 27 Aspinall P. *Department of Health's requirement for mandatory collection of data on ethnic group of inpatients*. British Medical Journal 1995;311:1006-9.
- 28 Atri J, Falshaw M, Livingstone A, Robson J. *Fair shares in health care? Ethnic and socio-economic influences on recording of preventive care in selected inner London general practices*. British Medical Journal 1996;312:614-7.
- 29 Balarajan R. *Ethnicity and variations in the nation's health*. Health Trends 1995; 27:114-9
- 30 Balarajan R. *Ethnicity and variations in mortality from coronary heart disease*. Health Trends 1996;28:45-51.
- 31 Phillimore P, Beattie A, Townsend P. *Widening inequality of health in northern England, 1981-91*. British Medical Journal 1994;308:1125-8.

- 32 Smith GD, Morris J. *Increasing inequalities in the health of the nation*. British Medical Journal 1994;309:1453-4.
- 33 McLoone P, Boddy F. *Deprivation and mortality in Scotland, 1981 and 1991*. British Medical Journal 1994;309:1465-70.
- 34 Wilkinson R. *"Variations" in health*. British Medical Journal 1995;311:1177-8.
- 35 Roberts I, Power C. *Does the decline in child injury mortality vary by social class? A comparison of class specific mortality in 1981 and 1991*. British Medical Journal 1996;313:784-6.
- 36 Worrell A, Rea J, Ben-Shlomo Y. *Counting the cost of social disadvantage in primary care: Retrospective analysis of patient data*. British Medical Journal 1997;314:38-42.
- 37 Austoker J, Sanders D, Fowler G. *Smoking and cancer: Smoking cessation*. British Medical Journal 1994;308:1478-82.
- 38 Sweeney K, Gray DP. *Patients who do not receive continuity of care from their general practitioner: Are a vulnerable group?* British Journal of General Practice 1995;45:133-5.
- 39 Stewart-Brown S, Gillam S, Jewell T. *The problems of fundholding*. British Medical Journal 1996;312:1311-2.
- 40 Pearson N, Brien J, Thomas H, Ewings P, Gallier L, Bussey A. *Collecting morbidity data in general practice: The Somerset morbidity project*. British Medical Journal 1995;312:1517-20.
- 41 Pringle M, Ward P, Chilvers C. *Assessment of the completeness and accuracy of computer medical records in four practices committed to recording data on computer*. British Journal of General Practice 1995;399:537-41.

- 42 Whitelaw FG, Taylor R, Nevin S, Taylor M, Milne R, Watt A. *Completeness and accuracy of morbidity and repeat prescribing records held on general practice computers in Scotland*. British Journal of General Practice 1996;46:181-6.
- 43 Whitelaw F, Nevin S, Taylor R, Watt A. *Morbidity and prescribing patterns for the middle-aged population of Scotland*. British Journal of General Practice 1996;46:707-14.
- 44 McCarron P, Smith GD, Womersley J. *Deprivation and mortality in Glasgow: Changes from 1980 to 1992*. British Medical Journal 1994;309:1481-2.
- 45 Cleary R, Beard R, Coles J, Devlin B, Hopkins A, Schumacher D, et al. *Comparative hospital databases: Value for management and quality*. Quality in Health Care 1994;3:3-10.
- 46 Majeed A. *Allocating budgets for fundholding and prescribing*. British Medical Journal 1996;313:1274-5.
- 47 Trichopoulos D. *The future of epidemiology*. British Medical Journal 1996;313:436-7.
- 48 Hopton J, Dlugolecka M. *Need and demand for primary health care: A comparative survey approach*. British Medical Journal 1995;310:1369-73.
- 49 Shanks J, Kheraj S, Fish S. *Better ways of assessing health needs in primary care*. British Medical Journal 1995;310:480-1.
- 50 Murray S, Graham L. *Practice based health needs assessment: Use of four methods in a small neighbourhood*. British Medical Journal 1995;310, 1443-1445.
- 51 Gilliam SJ, Murray SA. *Needs assessment in general practice*. Royal College of General Practitioners. Occasional Paper 1996; Oct (73): 1-55
- 52 Majeed FA, Cook D, Poloniecki J, Griffiths J, Stones C. *Sociodemographic variables for general practices: Use of census data*. British Medical Journal 1995;310:1373-4.

- 53 Cohen G, Forbes J, Garraway M. *Interpreting self reported limiting long term illness.* British Medical Journal 1995;311:722-4.
- 54 Majeed FA, Cook D, Poliniecki J, Martin D. *Using data from the 1991 census.* British Medical Journal 1995;310:1511-4.
- 55 Scrivener G, Lloyd D. *Allocating census data to general practice populations: implications for study of prescribing variation at practice level.* British Medical Journal 1995;311:163-5.
- 56 Majeed FA, Martin D, Crayford T. *Deprivation payments to general practitioners: Limitations of census data.* British Medical Journal 1996;313:669-70.
- 57 Raleight V, Balarajan R. *Public health and the 1991 census.* British Medical Journal 1994;308:287-8.
- 58 Fleming D, McCormick A, Charlton J. *The capture of socio-economic data in general practice.* British Journal of General Practice 1996;46:217-20.
- 59 Pringle M, Rothera I. *Practicality of recording patient ethnicity in general practice: descriptive intervention study and attitude survey.* British Medical Journal 1996;312:1080-2.
- 60 Mohan G, Harrison B, Badminton R, Mildenhall S, Wareham N. *A confidential enquiry into deaths caused by asthma in an English health region: Implications for general practice.* British Journal of General Practice 1996;46:529-32.
- 61 Hussain L, Redmond A. *Are pre-hospital deaths from accidental injury preventable?* British Medical Journal 1994;308:1077-80.
- 62 Pietroni R, de Uray-Ura S. *Informal complaints procedure in general practice: First year's experience.* British Medical Journal 1994;308:1546-8.
- 63 Matthews K, Milne S, Ashcroft G. *Role of doctors in the prevention of suicide: The final consultation.* British Journal of General Practice 1994;44:345-8.

- 64 Pringle M, Bradley C. *Significant Event Auditing: A user's guide*. Audit Trends 1994;2:20-3.
- 65 Robinson L, Stacy R, Specer J, Bhopal R. *Use of facilitated case discussions for significant event auditing*. British Medical Journal 1995;311:315-8.
- 66 Khunti K. *A method of creating a death register for general practice*. British Medical Journal 1996;312:952.
- 67 Pringle M, Bradley C, Carmichael C, Wallis H, Moore A. *Significant Event Auditing. Occasional Paper 70*. London: Royal College of General Practitioners, 1995
- 68 Dale J, Shipman C, Lacock L, Davies M. *Creating a shared vision of out of hours care: using rapid appraisal methods to create an interagency, community orientated, approach to service development*. British Medical Journal 1996;312:1206-10.
- 69 Hopton J, Dlugolecka M. *Patients' perceptions of need for primary health care services: useful for priority setting?* British Medical Journal 1995;310:1237-40.
- 70 Lewis J, Williamson V. *Examining patient perceptions of quality care in general practice: Comparison of quantitative and qualitative methods*. British Journal of General Practice 1995;45:249-53.
- 71 Dicjer A, Armstrong D. *Patients' views of priority setting in health care: An interview survey in one practice*. British Medical Journal 1995;311:1137-9.
- 72 Bowie C, Richardson A, Sykes W. *Consulting the public about health service priorities*. British Medical Journal 1995;311:1155-8.
- 73 Maeseneer J. *Priority setting in general practice at the local level: From patient participation to community orientation?* Eur J Gen Pract 1996;2:3-4.
- 74 Pringle M, Wallis H, Fairbairn S. *Involving practice staff and patients in determining standards and priorities in primary care*. Eur J Gen Pract 1996;2:5-8.

- 75 Bisset A, Russell D. *Grommets, tonsillectomies and deprivation in Scotland*. British Medical Journal 1994;308:1129-32.
- 76 Tennant A, Fear J, Pickering A, Hillman M, Cutts A, Chamberlain M. *Prevalence of knee problems in the population aged 55 years and over: Identifying the need for knee arthroplasty*. British Medical Journal 1995;310:1291-3.
- 77 Power C, Matthews S, Manor O. *Inequalities in self rated health in the 1958 birth cohort: lifetime social circumstances or social mobility*. British Medical Journal 1996;313:449-53.
- 78 Dunsmuir R, Allan D, Davidson L. *Increased incidence of primary total hip replacement in rural communities*. British Medical Journal 1996;313:1370.
- 79 Carr-Hill R, Rice N, Roland M. *Socio-economic determinants of rates of consultation in general practice based on fourth national morbidity survey of general practices*. British Medical Journal 1996;312:1008-13.
- 80 Lloyd D, Harris C, Clucas D. *Low income scheme index: a new deprivation scale based on prescribing in general practice*. British Medical Journal 1995;310:165-70.
- 81 Houghton D, Aitchison F, Wilkinson L, Wilson J. *Use of sinus x-ray films by general practitioners*. British Medical Journal 1994;308:1608-9.
- 82 Malcolm P, Chan T, Li P-L, Richards J, Hatley W. *Management of dyspepsia among Asians by general practitioners in East London*. British Medical Journal 1995;310:910-1.
- 83 Winkers R, Grol R, Beusmans G, Kester A, Knottnerus J, Pop P. *Does a reduction in general practitioners' use of diagnostic tests lead to more hospital referrals?* British Journal of General Practice 1995;45:289-92.
- 84 Winkens R, Pop P, Grol R, Bugter-Maessen A, Kester A, Beusman G, et al. *Effects of routine feedback over nine years on general practitioners' requests for tests*. British Medical Journal 1996;312:490.

- 85 Murphy J, Frain J, Ramash P, Siddiqui R, Bossingham C. *Open-access echocardiography to general practitioners for suspected heart failure*. British Journal of General Practice 1996;46:475-6.
- 86 Kelsey M, Kouloumas G, Lamport P, Davis C. *Relation between general practitioners' prescribing of antibacterial drugs and their use of laboratory tests*. British Medical Journal 1996;313:922.
- 87 van der Weijden T, Schouten B, Knotternus JA, Grol R. *Trends in cholesterol testing in general practice*. Eur J Gen Pract 1996;2:148-52.
- 88 Elwyn G, Stott N. *Avoidable referrals? Analysis of 170 consecutive referrals to secondary care*. British Medical Journal 1994;309:576-8.
- 89 McColl E, Newton J, Hutchinson A. *An agenda for change in referral: Consensus from general practice*. British Journal of General Practice 1994;44:157-62.
- 90 Chaturvedi N, Ben-Shlomo Y. *From the surgery to the surgeon: Does deprivation influence consultation and operation rates?* British Journal of General Practice 1995;45:127-31.
- 91 Surender R, Bradlow J, Coulter A, Doll H, Brown S. *Prospective study of trends in referral patterns in fundholding and non-fundholding practices in the Oxford region, 1990-4*. British Medical Journal 1995;311:1205-8.
- 92 Jones Elwyn G, Williams L, Barry S, Kinnersley P. *Waiting list management in general practice: a review of orthopaedic patients*. British Medical Journal 1996;312:887-8.
- 93 Wright J, Wilkinson J. *General practitioners' attitudes to variations in referral rates and how these could be managed*. Family Practice 1996;13:259-63.
- 94 Lawrence M, Griew K, Berry J, Anderson J, Humphreys J. *Auditing audits: Use and development of the Oxfordshire Medical Audit Advisory Group rating system*. British Medical Journal 1994;309:513-6.

- 95 Oakeshott P, Kerry S, Williams J. *Randomised controlled trial of the effect of the Royal College of Radiologists' guidelines on general practitioners' referrals for radiographic examination*. British Journal of General Practice 1994;44:197-200.
- 96 Leary B, Wareham K, Cheung W. *Practice characteristics associated with audit activity: A medical audit advisory group survey*. British Journal of General Practice 1994; 44:311-4.
- 97 Pringle M, Bradley C, Carmichael C, Wallis H, Moore A. *A survey of attitudes to and experience of medical audit in general practice: implications for MAAGs*. Audit Trends 1994;2:9-13.
- 98 Baker R. *Clinical audit in primary health care: Towards quality assurance*. British Medical Journal 1995;310:413.
- 99 Hartmann P, Bott U, Gruber M, Kronsbein P, Jorgens V. *Effects of peer-review groups on physicians' practice*. Eur J Gen Pract 1995;1:107-12.
- 100 Tabenkin H, Steinmetz D, Eilat Z, Heman N, Dagan B, Epstein L. *A peer review programme to audit the management of hypertensive patients in family practice in Israel*. Family Practice 1995;12:309-12.
- 101 Grol R, Wensing M. *Implementation of quality assurance and medical audit: General practitioners' perceived obstacles and requirements*. British Journal of General Practice 1995;399:548-52.
- 102 Holden J, Pringle M. *Delay pattern analysis of 446 patients in nine practices*. Audit Trends 1995;3:96-8.
- 103 Feder G, Criffiths C, Highton C, Eldridge S, Spence M, Southgate L. *Do clinical guidelines introduced with practice based education improve care of asthmatic and diabetic patients? A randomised controlled trial in general practices in east London*. British Medical Journal 1995;311:1473-8.

- 104 Siriwardena N. *Clinical guidelines in primary care: A survey of general practitioners' attitudes and behaviour*. British Journal of General Practice 1995;45:643-7.
- 105 Bateman D, Soutter J, Eccles M, Roberts S, Campbell M, Smith J. *Setting standards of prescribing performance in primary care: Use of a consensus group of general practitioners and application of standards to practices in the north of England*. British Journal of General Practice 1996;46:20-5.
- 106 Redhead K, Tasker P, Suchak K, Ahmed M, Copsey G, Roberts P, et al. *Audit of the care of patients with epilepsy in general practice*. British Journal of General Practice 1996;46:731-4.
- 107 Rethans J-J, Westin S, Hays R. *Methods for quality assessment in general practice*. Family Practice 1996;13:468-76.
- 108 Muir B. *Developing health profile for general practice*. Master of Public Health thesis: Nottingham University, 1996.
- 109 Details of the statistical techniques used available from Anita Sims, Doncaster Health, White Roe House, Ten Pound Walk, Doncaster, DN4 5DJ
- 110 The health needs assessment in primary care group. Practice Based Needs Assessment Pack. Sheffield: Sheffield Health, 1996. Contact person Dr Nick Payne.
- 111 Details available from David Meecham, Doncaster Health, White Rose House, Ten Pound Walk, Doncaster, DN4 5DJ
- 112 Copies of anonymised examples of the Gazettes are available from Dr Siobhan Jennings, Leicestershire, Health, Gwendolen Road, Leicester LE5 4QF
- 113 Details of this work available from Sheila Teasdale, Lincolnshire MAAG, PO Box 206, Cross O'Cliff, Bracebridge Heath, Lincoln, LN4 2JE.
- 114 Reports available from Rosalind Eve, EQUIP, Woodhouse Medical Centre, 7 Skelton Lane, Sheffield S13 7LY

- 115 Various reports available from The Facts Project, Sheffield Centre for Health and Related Research, Regents Court, 30 Regents Street, Sheffield S1 4DA.
- 116 Fewtrell C, Martin D and Layzell A. *Fair Ground Reaction*. Health Service Journal 1996;Feb 22:30-31.
- 117 Carr-Hill RA, Sheldon TA, Smith P, Martin S, Peacock S, Hardman G. *Allocating resources to health authorities: Development of method for small area analysis of use of inpatient services*. BMJ 1994;309:1046-9
- 118 Smith P, Sheldon TA, Carr-Hill RA, Martin S, Peacock S, Hardman G. *Allocating resources to health authorities: results and policy implications of small area analysis of use of inpatient services*. BMJ 1994;309:1050-4.
- 119 Details of the statistical techniques used available from Anita Sims, Doncaster Health, White Rose House, Ten Pound Walk, Doncaster, DN4 5DJ

SUGGESTED MODEL DATASET FOR GENERAL PRACTICES

INFORMATION AREA	DATA ITEMS	SOURCE
1. INDICATORS OF NEED		
Age/sex profile	Defined by sex/age bands 0-5years 6-14 years 15-44 years 45-64 years 65-74 years > 75 years	HA (Exeter System)
Socio-economic indicators Data items can be aggregated to provide indices such as the York Relative Needs Index, Townsend or Jarman Scores	% unemployed % head of households born in New Commonwealth and Pakistan % elderly living alone % single parent household % limiting long term illness % overcrowded household % permanent sick % unskilled % moved in last year % no car % children <5 years	HA (enumeration district based Census data extrapolated to practices)
Mortality Rates*	All causes SMR All causes SMR <75 years Mortality rates by cause:- CHD (ICD9 410-414) Stroke (ICD9 430-438) Resp Dis (ICD9 460-519) All cancers (ICD9 140-208) Accidents and poisoning-(ICD9 800-999)	Calculated for practices from ONS data - These need to be based on 5 years data
Births	Birth rate (per 1,000 population) Fertility rate (births per 1,000 women 15-44 years) Stillbirth rate (per 1,000 total births) Low birthweight (% births < 2,500 kg) Abortion rate (per 1,000 women >11 years)	Calculated for practices from ONS data or from practice register - These need to be based on 5 years data. Abortion rate only available at practice level from practice register

* Note: Public Health Mortality File data from the Office of National Statistics (ONS) currently [1997] uses ICD9. In the future ICD10 will be used. Conversion files are available to map from one to the other.

INFORMATION AREA	DATA ITEMS	SOURCE
2. INDICATORS OF DEMAND/NEED		
a) Primary Care (all per 1,000 list population)		
GP Consultation Rates	Total consultation rate Daytime rate Home visits (daytime and evening) Night visits rate	Practice data HA
Practice Nurse Attendances	Total consultation rate	Practice data
Community Services	District nurse contacts Health visitor contacts Chiroprody contacts Clinical psychology contacts Physiotherapy and OT contacts Speech therapy contacts Mental health nursing contacts	Practice register/local trust(s)
Investigations	Pathology requests X-ray requests	Local trust(s)
b) Secondary Care (all per 1,000 list population)		
Hospital activity	Elective, non-elective and day case admissions, by specialty and provider. Standardised admission rates all causes and by disease categories:- CHD (ICD 9 410-414) Stroke (ICD 9 430-438) Resp dis (ICD 9 460-519) All cancers (ICD 9 140-208) Injury and poisoning (ICD 9 800-999) Mental Illness (ICD9 290-319)	HA
Out-patient attendances	By major specialty and broken down by new and follow-up cases	HA

INFORMATION AREA	DATA ITEMS	SOURCE
3. RESOURCE INDICATORS		
Staffing (all whole time equivalent per 1,000 list population)	GPs Practice nurse and other direct patient care staff Administration staff Community nurses, health visitors, community psychiatric nurses, midwives	HA, local trust(s) and practice records
Budget/expenditure (all per 1,000 list population)	GMS cash limit expenditure GMS non cash limit expenditure GMS total expenditure HCHS expenditure Total expenditure	HA
Prescribing	Total items, cost per 1,000 list population, per ASTRO-PU and % generic prescribing. As above by condition:- CHD (BNF Ch2) Stroke (BNF Ch 2.9) Resp. disease (BNF Ch 3.1/3.2/3.3) Cancers (BNF Ch 8) Mental illness (BNF Ch 4.1/4.2/4.3)	PACT data from HA Any other variables of interest e.g. inhaled corticosteroids, can be produced from PACT database.

INFORMATION AREA	DATA ITEMS	SOURCE
4. QUALITY OF CARE		
Screening/immunisation	% achieved Immunisation - up to 2 years Immunisation - up to 5 years Cervical cytology Breast screening	Practice records and HA returns Screening programme data
Chronic disease management	Diabetes Number of patients with - insulin-dependent diabetes - non-insulin dependent diabetes - hospital or shared care programme - programme conducted by the practice alone Asthma Number of patients who - received regular prophylactic medication for their asthma - had a measurement of their peak flow rate within the past year	Practice disease register and HA returns
Special data	Locally collected data from audits, surveys, focus groups, rapid appraisal, complaints etc.	Practice or locality projects