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Sources of data on lifestyle risk factors in local populations

Contents

This is a summary of a more detailed report which can be accessed from the APHO website **www.pho.org.uk**

1. Introduction

While lifestyle surveillance systems are broadly in place to monitor progress towards goals and targets at national level in England, this is far from being true at local level. At the time of writing, detailed option appraisal work is underway to generate recommendations on the best sources and methods for monitoring local-level progress in halting the rising prevalence of obesity in children. Progress has also been made on identifying and implementing methods for local-level monitoring of physical activity and participation in sport. However, similar option appraisals have yet to be undertaken for other aspects of lifestyle such as smoking, diet and alcohol consumption.

This briefing aims to contribute to current thinking in this field by providing:

- Brief overviews of potentially useful sources of local-level lifestyle data (Section 4).
- Information on the suitability of the different data sources for local-level surveillance of smoking, obesity, diet, physical activity, alcohol consumption, and multiple risk factors (Sections 5 and 6).
- Pointers to ways in which these sources of lifestyle data could be improved (Section 7).

2. Policy context

A number of current Government strategies and policies highlight the importance of lifestyle factors as determinants of health and identify actions and targets to improve health through lifestyle change. For example, Choosing Health[1] highlights the need for action to:

- Reduce the number of people who smoke.
- Reduce obesity.
- Increase exercise.
- Improve diet and nutrition.
- Encourage and support sensible drinking.

The Department of Health's Public Service Agreement (PSA)[2] includes specific targets for 2010 to reduce adult smoking to 21% overall and 26% amongst routine and manual groups, and to stop the yearly increase in obesity amongst under 11s. The Department for Education and Skills and the Department for Culture, Media and Sport have a further shared PSA target to increase the proportion of school children who spend a minimum of two hours each week on high quality sport to 75% by 2006 and 85% in 2008[3].

National policy goals and targets are mirrored in policy guidance and targets for the public sector at local level. For example in:

- NHS Local Delivery Plan guidance[4].
- Comprehensive Performance Assessment framework for local authorities[5].
- Guidance on Local Area Agreements (LAAs)[6].

3. The need for better lifestyle risk factor data at local level

Local authorities (LAs), primary care trusts (PCTs) and other organisations need local lifestyle data for planning, targeting and evaluating local services and initiatives. Applications include:

- Comparison with other LAs/PCTs.
- Within-area comparisons to identify inequalities between population sub-groups differing by e.g. age, gender, ethnicity, area of residence.
- Analysis of trends over time and progress towards local targets.
- Measuring the outcomes and impacts of services on service users.

Local public sector organisations are increasingly being challenged to provide their respective Government departments with evidence of their performance in improving the lifestyle of local communities. To date, the Government departments concerned have provided only partial guidance on technical solutions to these challenges.

4. Potential sources of local-level lifestyle data

The sources reviewed here have all recently been used as sources of local-level lifestyle data. They are:

- National surveys.
- Synthetic estimates derived from national surveys.
- Local surveys.
- NHS primary care data.
- Datasets offered by commercial organisations.

Some of the advantages and limitations of each source are identified.

4.1. National surveys

In England there are a number of ongoing and occasional surveys which are being used for lifestyle surveillance at national level. These include: the Health Survey for England (HSfE)[7]; the General Household Survey[8]; the National Diet and Nutrition Survey[9]; the National Travel Survey[10]; and the Survey of Smoking, Drinking and Drug Use Among Young People in England[11]. Few of these surveys are sufficiently large-scale to allow disaggregation below regional level.

However, in the case of the HSfE, the organisations which deliver this survey - the National Centre for Social Research (NatCen) and University College London (UCL) - offer a full or partial boost survey service to local organisations. To date relatively few LAs and PCTs have used this service. However, the London Health Observatory are now working with NatCen/UCL to develop an abbreviated version of the HSfE for large-scale application across London. Some of the advantages and limitations of this approach are identified below.

Advantages

- **Flexibility.** Commissioners of local HSfE boosts can specify the areas/populations to be surveyed. Standard data collection processes are available for all age/gender groups: adults aged 16 and over, children aged 2-15 and infants aged 0-1.
- **Robust methodology.** Gold standard, well-established data collection methods.
- **Comparability with national, regional and other benchmarks.** PCTs and LAs will be able to compare their own populations against these benchmarks.

Limitations/Disadvantages

- **Lack of local historical trend data.** Only those areas which have previously commissioned local boosts will have the capacity for historical comparisons.
- **Costs.** These can be comparatively high.

The Active People Survey[12] is the only major national lifestyle survey which has been designed and resourced to provide LA-level data. This survey, which started in 2005, aims to determine how many people take part in sport and physical activity, what kind of activity they undertake and where they undertake it. The survey will sample at least 1,000 people in every LA area in England, around 1 in 20 households, and a total sample of around 350,000 people over a year.

4.2 Synthetic estimates derived from national surveys

The prevalence of lifestyle risk factors in local populations and sub-groups within local populations can be estimated by judicious extrapolation of prevalence data for England or the UK as a whole or for other comparable local populations. This methodology is potentially very flexible and "synthetic estimates" could in principle be generated from a range of national surveys covering a range of different aspects of lifestyle and for any geographical areas for which relevant demographic data are available, e.g. LAs, parliamentary constituencies, strategic health authorities, PCTs, etc.

In 2004, the Health Development Agency published estimates of smoking prevalence in wards and PCTs in England[13]. More recently, the Department of Health (DH) published a wider range of lifestyle synthetic estimates for English wards and PCTs based on pooled data for three years of the HSfE from 2000 to 2002[14]. The dataset includes estimates of prevalence of:

- Current smoking (adults aged 16+).
- Obesity (adults aged 16+).
- Binge drinking (adults aged 16+).
- Consumption of 5 or more portions of fruit and vegetables a day (adults aged 16+).
- Consumption of 3 or more portions of fruit and vegetables day (children aged 5 to 15).

Some of the advantages and limitations of the DH synthetic estimates are identified below.

Advantages

- **Comprehensive geographical coverage.** The estimates relate to all wards (2003 Census Area Statistics wards) and PCT geographic areas in England allowing comparative analysis between areas.
- **Ease of access/Cost.** The estimates are in the public domain, are immediately accessible to users and are free of charge.

Limitations/Disadvantages

- **Lack of flexibility.** From a user's point of view the estimates offer little or no flexibility - users cannot specify their particular local requirements.
- **Lack of sensitivity to local lifestyle interventions.** Synthetic estimates are modelled and represent the expected prevalence of lifestyle behaviour for an area, given the demographic and social characteristics of that area. They do not take account of any additional local factors, e.g. local health improvement initiatives, which may impact on the true prevalence rate. The estimates should therefore not be used to monitor performance or change over time.

With much of the necessary national survey and local demographic data in the public domain, organisations can potentially produce their own synthetic estimates for their own local populations. However, this will require a degree of technical knowledge and skill proportionate to the required level of sophistication of the product.

4.3 Local Surveys

The variety and heterogeneity of local health and lifestyle surveys undertaken around the country reflects the inherent flexibility of this approach to collecting lifestyle data. Data collection may be by postal questionnaire, by phone, or via face-to-face interviews. Settings include GP surgeries, workplaces and on the street as well as in people's homes.

Surveys are often set up to provide baseline prevalence measures for the local area, the intention being to repeat the survey after (for example) two years. Repeating surveys can generate valuable local trend data but requires local commitment, funding and a planned survey programme. This is not always achieved. While most repeat surveys use a fresh cross-sectional population sample each time, some include a longitudinal element.

Some local surveys commissioned by PCTs, LAs or local strategic partnerships (LSPs) are largely delivered by in-house staff. Others are outsourced to universities or research companies. The West Midlands Lifestyle Survey[15] is an example of a regionally-coordinated survey covering a large area of the West Midlands funded by a range of local agencies in that region.

Further examples of local surveys are described in the accompanying more detailed report and in the South East Public Health Observatory's Lifestyle Survey Toolkit[16].

Advantages

- **Flexibility.** Appropriate questionnaire design can allow coverage of a wide range of different aspects of health and lifestyle. It is relatively easy to accommodate new measures or indicators as necessary (as government priorities change). Data collection can, for example, be tailored to the nuances of LAA. It is possible to target 'hard-to-reach groups' e.g. Black and Minority Ethnic groups, residents in priority or high deprivation areas, etc. Data can potentially be generated at small area level, e.g. ward level, provided the survey sample size is large enough.

Limitations/Disadvantages

- **Lack of standardisation of questions and derived indicators.** This impacts on comparability.
- **Uncertain reliability and validity of questions.** While "question banks" are available which include reliable and validated questions[16,17], these are not always used.
- **Risk of biased results.** Sampling and response biases are difficult to exclude. Response rates can be low (although this is not inevitable).

4.4 NHS primary care data

The expansion in the use of IT in patient consultations and the development and application of Read codes underpin the increasingly systematic recording of lifestyle data in primary care, particularly in patients with diabetes, coronary heart disease and other conditions where lifestyle data may be particularly relevant.

Tools have been developed to access, aggregate and analyse the data from practice systems. For example, QMAS (Quality Management and Analysis System)[18] is a national system which automatically retrieves GP practice data on a routine monthly basis. Although the lifestyle data currently captured is limited, the system does currently provide an indication of the smoking prevalence in certain patient groups and, while it is not able to provide measures of overall smoking prevalence in a practice population, it does give an indication of the number of patients for whom a smoking status has ever been recorded.

Advantages

- **Standardised national systems.** QMAS has been rolled out nationwide (England). While the system is not mandatory, the large majority of practices in England are participating in the scheme.
- **Ongoing data collection.** This will allow accrual of historical lifestyle data about individuals over time.
- **Established coding systems.** Read codes exist which enable categorisation of patients according to their smoking status, body composition, level of physical activity, dietary patterns and alcohol consumption.

Limitations/Disadvantages

- **Selective focus on particular patient groups.** Up-to-date lifestyle data will generally not exist for patients who have not visited their practice recently. Nor will it be available for people who are not registered with a practice at all. The latter group are often disadvantaged and may have relatively risky lifestyles.
- **Variability between practices in the completeness and quality of lifestyle data recording.** Practices differ in terms of level of IT support, staffing levels, staff competencies and attitudes to data collection and incentive schemes, all of which will affect whether or not a practice records lifestyle data well.
- **Lack of a geographical focus.** The systems and their outputs relate to practice populations (i.e. registered patients) rather than resident populations of geographical areas.

4.5 Datasets offered by commercial organisations

A number of commercial organisations offer lifestyle data derived from consumer surveys designed primarily to inform marketing. Topics covered by these surveys vary but some include questions on the purchase or consumption of tobacco, food and alcohol. Other organisations are beginning to use data collected via shop loyalty cards to analyse shopping patterns at household or postcode level including food shopping patterns.

Generally, consumer surveys are based on a large sample and, although response rates tend to be low, they can obtain good geographic coverage. In addition, data are often modelled or weighted to allow for non-response by certain sectors of the population.

Advantages

- **Extensive geographical coverage.** Some datasets cover the whole country allowing comparison between areas. Large sample sizes mean that there is often good coverage at local level, potentially providing for direct estimation and measurement of change over time.

Limitations/Disadvantages

- **Potential for bias.** Lack of random sampling and poor response rates increase the risk of bias. For example, data based on shop loyalty cards potentially excludes low income groups.
- **Lack of transparency in methodologies.** Some of the modelling approaches used by the organisations concerned are complex and metadata may not be made available for reasons of commercial confidentiality.
- **Cost.** The datasets can be relatively expensive.

5. Suitability of different sources for meeting different lifestyle information needs

Aspects of lifestyle covered here include smoking, obesity, physical activity, diet, alcohol consumption, and multiple risk factors.

Information will typically be needed for:

- Comparison with other LAs/PCTs
- Within-area comparisons to identify inequalities between population sub-groups differing by e.g. age, gender, ethnicity, area of residence
- Analysis of trends over time and progress towards local targets
- Measuring outcomes and impacts of services on service users

Information needs and solutions may be different for adults and children.

The matrices below indicate which data sources potentially provide solutions to these different information needs. Colour coding is used to indicate sources which are:

suitable | possibly suitable | unsuitable or unavailable

The accompanying more detailed report provides further information on the rationale for classifying the different sources in this way.

Prevalence of smoking **Food consumption patterns** **Alcohol consumption patterns** **APPLICATION**	**SOURCE** Local boosts of national surveys	Synthetic estimates	Local surveys	Primary care data	Datasets from commercial organisations
Comparison with national and regional benchmarks and with other LAs/PCTs					
Analysis of within-area inequalities by age, gender, ethnicity and area of residence.					
Monitoring trends over time and progress towards local targets					
Measuring/auditing outcomes of particular services/initiatives					

Prevalence of obesity **APPLICATION**	**SOURCE** Local boosts of national surveys	Synthetic estimates	Local surveys	Primary care data	Datasets from commercial organisations
Comparison with national and regional benchmarks and with other LAs/PCTs					
Analysis of within-area inequalities by age, gender, ethnicity and area of residence.					
Monitoring trends over time and progress towards local targets					
Measuring/auditing outcomes of particular services/initiatives					

Physical activity levels **APPLICATION**	**SOURCE** Local boosts of national surveys	Synthetic estimates	Local surveys	Primary care data	Datasets from commercial organisations
Comparison with national and regional benchmarks and with other LAs/PCTs					
Analysis of within-area inequalities by age, gender, ethnicity and area of residence.					
Monitoring trends over time and progress towards local targets					
Measuring/auditing outcomes of particular services/initiatives					

Multiple risk factors **APPLICATION**	**SOURCE** Local boosts of national surveys	Synthetic estimates	Local surveys	Primary care data	Datasets from commercial organisations
Comparison with national and regional benchmarks and with other LAs/PCTs					
Analysis of within-area inequalities by age, gender, ethnicity and area of residence.					
Monitoring trends over time and progress towards local targets					
Measuring/auditing outcomes of particular services/initiatives					

6. Conclusions and pointers for local organisations

The different sources of lifestyle data highlighted in Section 4 all have different comparative strengths and weaknesses. It is unlikely that any one source will provide all of the solutions to all of the lifestyle surveillance challenges faced by local organisations - some sources have definite advantages in some situations, others have advantages in other situations. For example, if a PCT needed to quickly identify those wards in its area likely to have low levels of fruit and vegetable consumption, the DH synthetic estimates dataset provides an easily-accessible, low-cost solution. However, for the reasons set out in Section 4.2., synthetic estimates do not provide a basis for monitoring local trends in fruit and vegetable consumption.

Some commercial companies offer estimates of fruit and vegetable consumption and other aspects of lifestyle at small area level based on survey responses from local residents. However, unless full details of sources and methods are made available, it is not possible to confirm one way or the other whether these estimates are reliable. High cost is a further drawback, although sponsorship deals and consortium purchases can help to reduce the burden on purchasers.

Much has been made of the new opportunities offered by data collected in primary care and now made available to secondary users through the QMAS system (Section 4.4.). There are strong arguments for improving the recording of lifestyle characteristics in general practices since these provide a basis for more systematic preventive health care of patients who smoke, are sedentary or overweight, or who have poor diets or drink excessive amounts of alcohol. Good practice in informatics demands that maximal use should then be made of these data to avoid duplicating effort and overburdening patients by asking them similar questions in a local survey. However, the current reality is that across the country, aggregated primary care lifestyle data for local populations will generally be incomplete and of variable quality even for smoking which has been a focus for prevention in primary care for many years. The completeness and quality of data on the diets, physical activity levels and alcohol consumption patterns of patients will be poorer still. This said, as more and more lifestyle data is collected during consultations in primary care, it would be perverse not to similarly develop its use in population-level lifestyle surveillance.

Local surveys or local boosts of national surveys are particularly flexible and provide the only currently available solution to some of the lifestyle information challenges faced by local organisations.

Where a single source is thought to be inadequate, the use of more than one source can be considered. For example:

- Supplementing lifestyle data collected in general practice by means of questionnaire surveys of patients who rarely attend.
- Triangulation of data from different sources where the reliability of a single source is uncertain.

7. Further development of sources of lifestyle data

The analysis of the different sources of lifestyle data presented in this briefing is a snapshot at one point in time (Autumn 2005) of a constantly developing scene. Alongside this analysis it is useful to understand how the different sources are developing and, more importantly, how they could most usefully be developed. The relative advantages and disadvantages of the different sources will change as the systems develop.

7.1. National surveys

Projects such as the pan-London boost of the HSfE (Section 4.1) will test the feasibility, utility and affordability of a local-level, cut-down version of this major national survey. Cut-down surveys asking fewer questions of larger numbers of people open up the possibility of disaggregation to lower levels of geography. The Active People Survey (Section 4.1), a national survey disaggregable to LA level, is an example of what is possible. Telephone-based lifestyle data collection systems in North America provide an alternative model.

7.2. Synthetic estimates derived from national surveys

There is enormous scope for further work to generate synthetic estimates of the prevalence of lifestyle characteristics in local populations. Scoping work for the DH Synthetic Estimates project (Section 4.2) identified a wider range of lifestyle characteristics in the HSfE dataset which were then subsequently prioritised. The longer list could be revisited. The principles of synthetic estimation could be applied to a range of other national lifestyle surveys.

7.3. Local surveys

The analysis in this briefing demonstrates that local surveys are still an important tool for obtaining local-level lifestyle information. Given this, the SEPHO Lifestyle Survey Toolkit[16] could now usefully be further developed to provide advice to local organisations on the design and implemention local surveys. The development should concentrate on issues such as:

- **Agreement on data requirements,definitions, and indicators.** Surveys need to provide the appropriate data to support the monitoring of progress towards Choosing Health and other national lifestyle-related targets plus lifestyle indicators relating to LAAs.
- **Standardisation of questions.** This will allow ongoing comparisons within and between geographical areas and over time.
- **The reliability and validity of questions.**
- **Guidance on appropriate methods of delivery.** Postal, interview, telephone and web-based surveys may all be appropriate depending on the purpose and circumstances of the survey and on required sample sizes.

Comparability between areas is valuable and there are examples in local government where coordination has been used to ensure comparability of local surveys. The Best Value (BV) Surveys in LA areas[19], although not primarily concerned with lifestyle, are a good example. These surveys are conducted every three years to measure, for example, satisfaction with the neighbourhood and local service provision. The methodology is prescribed. It uses a standard questionnaire, which can be added to, but with core questions which cannot be amended. Local authorities either conduct the survey data collection themselves or commission a survey research organisation to do it. Response rates have frequently exceeded 60% using two reminders. The data from the surveys for each LA are returned to a central organisation where they are weighted before the final results are returned to the LA. This provides a possible model for better-coordinated, standardised lifestyle surveys in local areas. There is the potential for economies of scale leading to reduced costs.

7.4. Primary care data

Although designed to support a payments process rather than serve a public health function, QMAS is the first system which is potentially able to collect lifestyle data from general practice systems on a national basis automatically and routinely. Section 4.4 describes the current, rather limited lifestyle data available currently from the QMAS system. Future versions of the system could potentially be developed to include more extensive lifestyle data. However, this will depend on whether more targets requiring the collection of lifestyle data are included in future national contracts for general practices.

Looking further ahead, the NHS Care Records Service (NHSCRS) has been tasked with providing health and care professionals with access to nationally held electronic patient records by 2010. These records will include data collected in primary care. Access to an anonymised form of this data for public health purposes is likely to be facilitated through the NHSCRS Secondary Uses Service (SUS). However, the level of detail about patients held in these records is not entirely clear at this stage. Whilst the diagnosis and treatment of conditions will be recorded, lifestyle risk factors may not.

7.5. Datasets offered by commercial providers

Market research-based data from commercial providers clearly have potential. However, local users will clearly need to be reassured that these are fit for purpose. This will require greater transparency regarding methodologies including information on local sample sizes, response rates and modelling approaches. Cost is also an issue, although sponsorship deals and consortium purchases may provide ways to reduce this in future.

Some companies offer the possibility of sponsoring questions on future surveys. The Regional Development Agency Yorkshire Forward has sponsored questions within the National Shoppers Survey. Exploring and developing partnership working between public and private sector organisations to obtain consumer data which satisfies the needs of both is a possible way forward.

Finally, this briefing focuses on challenges and solutions relating to local-level lifestyle information in England only. It would be useful to extend this work to identify how other countries in the UK, Europe and beyond have addressed similar problems. Future work could also consider sources of data on an extended range of lifestyle measures including, for example, drugs and sexual behaviour.

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About the APHO

The Association of Public Health Observatories was established in 2000 and has as a main focus facilitating collaborative working between the PHOs in the UK and Ireland. The APHO Technical Group was established to coordinate effort and share methodology, good practice and knowledge across the PHOs in relation to public health indicators and is the commissioning group for the Technical Briefings series. Further information about APHO, the PHOs and their work can be obtained from www.pho.org.uk