Improving Health Outcomes

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Primary care outcome measures in Lambeth, Southwark and Lewisham

Geographical Area covered: Lambeth, Southwark and Lewisham

Focus: Case studies focusing on subdistrict variation in health outcome

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Editorial comments on how case study is linked to improving health outcomes: (also published in Volume 1)

Shanks describes the development of several proxy measures of health outcome which are relevant to primary care providers and purchasers. Most nationally derived population based health outcome indicators are not relevant to the small populations typically served by primary care services. The numerical measures of outcome are being introduced in inner South East London to make more transparent and rational the sort of resource allocation decisions which would otherwise be based on subjective impressions. Many of the measures described are used as a basis for discussion in regular visits by the pharmaceutical adviser and in identifying priorities which wish to review or audit or where special additional support may be required.

Shanks argues for a system which is sufficiently flexible to allow individual practices to select the outcome measures most relevant to their own population e.g. sickle cell for a population with a high proportion of Black Caribbeans. He concludes that there are very few patient-centred outcome measures currently available and that there is a need to invest in development of more of these. Possible routes suggested include patient focus groups to identify those symptoms of common conditions which are regarded as most important by patients and incorporation of measurement of these patient-selected issues alongside those regarded by clinicians as most important.

Abstract (also published in Volume 1)

Lambeth, Southwark and Lewisham Health Authority has identified a range of outcome measures which are relevant both to providers and commissioners of primary care services. The boroughs of Lambeth, Southwark and Lewisham are in inner southeast London and comprise a deprived, ethnically-mixed population of about 750,000 served by many small and single-handed practices and two community health Trusts. The emphasis in the choice of measures is on general practice as the principal provider of primary health care services. The measures are based on data which is either already available for or readily collectable from primary care services and which is relevant to the small populations typically served by primary care services. This rules out many of the traditional measures of health outcomes - disease-specific mortality rates - because the frequency of events on which these are based are too low in a small population. Most of the measures are proxy measures of health outcome - that is, they do not directly measure health status of service users but they are reliably linked to health status e.g. ratio of inhaled steroids to bronchodilators prescribed. Some of the prescribing measures have been in use for five years or more; their combination with other measures to form the current set has taken place during 1995 and 1996. Two of the measures are still rather speculative and experimental but are included because of their potential value and relevance to clinical practice.

In order to be useful in the context of primary care, measures of outcome should reflect the characteristics of primary care. The following list of criteria, based on general characteristics of primary care services (Starfield 1994) and specific local circumstances:

- relevant to health - the item measured should relate to a change in health status of service users;
- patient-centred - should relate to outcomes viewed from the patient's perspective;
- undifferentiated populations - should apply to self-referred populations undifferentiated by age, gender or disease group;
- rapid turnover - must be suitable for use in a setting of short consultations for large numbers of people;
- multiple small service providers - should relate to and allow comparisons between practices and other small providers;
- attributable to primary care intervention - must be at least partly attributable to the activity of primary care services.

The examples of outcome measures selected are:

- rates of prescription of a selection of drugs of limited therapeutic value;
- prescribing ratio of inhaled steroids relative to bronchodilator drugs;
- proportion of cervical smears taken which are returned as inadequate;
Introduction:

Why this clinical area was chosen:

Why these measures were developed

These primary care-based outcome measures were selected and developed in a context of an early merger of the local DHA and local investment of Tomlinson funds to improve standards of local primary care from what was in many cases quite a low base. This brought public health staff and methods into contact with the new realities of primary care and demanded new solutions. The rapid development of primary care services created an opportunity to make decisions about how additional resources should be invested for health benefit.

A growth in the involvement of practice staff in commissioning - through the development of multifunds and locality commissioning - created a demand among these new commissioners for information which could allow them to base their decisions on results.

The move towards a primary care-led NHS has been accompanied by a shift of some services from secondary to primary care e.g. people with diabetes and asthma. Health Authorities have a responsibility to monitor the success of this and other service changes to ensure that standards of care are being maintained or improved.

In common with other London Health Authorities, LSLHA received a substantial allocation of “Tomlinson” money to improve standards of primary care provision.

It is the responsibility of the Health Authority to ensure and demonstrate that the health of local people benefits from this investment of public money.

There is now long-standing familiarity among practices with a range of proxy outcome measures (e.g. immunisation rates, screening) as such procedures as assessment of achievement for target payments or prescribing incentive schemes. Such measures are not usually explicitly identified as proxy outcome measures but they nevertheless provide a basis for introducing what can otherwise seem the rather arcane and difficult concept of outcome measures.

The increasing introduction of the concept of outcomes to primary care services comes in the context of growing interest in other areas of service provision e.g. the local piloting of the Health of the Nation Outcome Scale (HoNOS) in mental health services.

Description, derivation and characteristics of each measure

A) Rates of prescription of a selection of drugs of limited therapeutic value

A number of drugs prescribable by doctors have been identified as either lacking any sound basis of scientific evidence of effectiveness or likely to cause health problems than to solve them. These would include drugs whose potential for abuse outweighs their potential for benefit (e.g. appetite suppressants) and drugs whose additional cost seems unjustified by any additional benefit compared to cheaper alternatives e.g. topical non-steroidal anti-inflammatory agents. These value judgements apply at the level of populations; there can be individual exceptional circumstances.

A number of such drugs have been identified for which there is a reasonable consensus of professional opinion on the limited nature of their therapeutic value. The selected drugs are:

- benzodiazepines
- appetite suppressants
- anti-diarrhoeals
- systemic decongestants
- cough suppressants
- topical non-steroidal anti-inflammatory agents

Rates of prescribing of each of these drugs are calculated from PACT data for each general practice. Rates are fed back to each practice via PACT printouts and by inclusion in a practice profile alongside epidemiological and demographic information which compares the practice value to the local average (Figures 1-4). They are used as a basis for discussion in regular visits by the pharmaceutical adviser and in identifying priorities which a practice may wish to review or audit or where special additional support may be required e.g. enhanced training or community support in managing patients who misuse drugs.

Why this clinical area was chosen

good quality data on practice prescribing;
high local prevalence of drug misuse;
other measures of prescribing quality suggest scope for improvement e.g. lower than national average ratio of inhaled steroids to bronchodilators the wish to set prescribing budgets in a way which rewards good quality prescribing;
some professional consensus already developed through e.g. Audit Commission report (Audit Commission 1994).

Data validation
Validation is possible for those practices which use a computer to generate prescription forms by comparing the PACT data held by the Health Authority with the prescribing information on the practice's own computer.

The practice-held data also allows identification of the individual patients or groups of patients receiving the prescriptions in question, which is essential to develop a rational strategy to tackle a problem: e.g. patients on long-term benzodiazepines in one practice clearly fall into two populations - a younger group on anxiolytics and an older group on hypnotics (Figure 5). Prescribing rates for drugs of limited therapeutic value form part of the calculation of a prescribing quality index which is used in calculating the prescribing budget for fundholding practices and to identify practices eligible for local payments as incentives towards more cost-effective prescribing. The measurement of quality in prescribing is based on the standards proposed by the Audit Commission (Audit Commission 1994).

Changes made:
practice formulary introduced;
practice prescribing policies for identified drugs e.g. benzodiazepines to prevent abuse;
invitation to patients on long-term benzodiazepine scripts for review;
identification and referral of patients with drug misuse problems to specialist teams.

Figure 1: Male age-sex profile of a practice population
Figures 1 and 2 compare the registered list ("observed") to the age-sex profile predicted from 1991 census returns in the practice catchment area ("estimated") and to the age-sex profile for the Health Authority area as a whole (continuous line).

The practice shown above has a list which is much more elderly than the population of its catchment area and the Health Authority area as a whole.

Figure 3: Sociodemographic characteristics of a practice population.

Characteristics in figure 3 are attributed from 1991 census returns within the small areas (enumeration districts) corresponding to.
patients currently registered with the practice. Each variable is compared to the mean value for the Health Authority area as a whole. This practice has a much higher than average level of deprivation and would be expected to have above average proportions of people who are council tenants, unemployed, from ethnic minority communities, lone parents.

Figure 4 comprises a selection of measures which reflect some aspects of clinical activity and patient choice.

For the first two of these measures (generic rate and steroid:broncho ratio) - higher is better. For the others, lower is better. Further detail of these measures follows.

**generic rate:** is the proportion of prescriptions which are for generic preparations. In general, a higher generic rate indicates more cost-effective prescribing. There are a very few drugs for which it may be clinically inadvisable to prescribe generically because of variable activity between different generic preparations (e.g. aminophylline, lithium)

**steroid:broncho ratio:** is the ratio of inhaled steroids to inhaled bronchodilators prescribed. A higher ratio is now thought to indicate good clinical practice in the management of asthma because inhaled steroids prevent asthma attacks, whereas bronchodilators mainly treat the symptoms.

**inadequate cervical smears:** is the proportion of the cervical smears taken in the practice which were technically inadequate (e.g. incorrectly taken or stored).

**left without changing address:** is the proportion of registered patients who left the practice list while remaining at the same home address. Patients leaving in this way may be doing so because of dissatisfaction with some aspect of the service provided by the practice.

**drugs of limited therapeutic value:**
the following five measures show the proportion of all prescribed drugs made up by drugs generally thought to be of limited therapeutic value either because the risk of harm or abuse often outweighs any benefits or because there is little evidence that they are effective. All are shown in items per 1000 pu (prescribing units)

- **BZP:** benzodiazepines
- **cough:** cough suppressants
- **nsaid:** topical non-steroidal anti-inflammatory preparations
- **decongest:** systemic decongestants (eg ephedrine)
- **antidiarr:** diarrhoeal preparations
- **app supp:** appetite suppressants

Figure 5 shows the age-distribution of people who are taking benzodiazepines long term. This is data derived from a practice’s own computer and long term use was defined as more than 6 weeks usage and more than 2 scripts.
It shows the age-distribution of patients in the practice who are on a long-term prescription for benzodiazepines. Note that there are two separate populations - a younger one (who are mostly receiving the drugs as anti-anxiety agents) and an older one (who are mostly receiving the drugs as hypnotics).

Figure 5: Age-distribution of people who are taking benzodiazepines long-term - more than 6 weeks usage and more than two scripts

B) Prescribing ratio of inhaled steroids to bronchodilator drugs

Recent clinical guidelines on the management of asthma in primary care emphasise the value of appropriate use of inhaled corticosteroid preparations as a means of preventing further acute attacks in patients with asthma (British Thoracic Society 1993; North of England Asthma Guideline Development Group 1996). The adoption of these or similar guidelines on good clinical practice would generally result in an increase the proportion of those patients whose asthma is severe enough to require regular use of bronchodilators who would be judged suitable to receive a prescription for a corticosteroid inhaler. It is therefore possible to regard the ratio of inhaled steroids to bronchodilators prescribed by a practice as one measure of the quality of clinical management of asthma and directly related to the risk of further acute attacks among their asthmatic patients. The beneficial impact of evidence-based clinical management of asthma in primary care has been empirically confirmed at practice level by the demonstration of an association between a higher prescribing ratio of inhaled steroids to bronchodilators and a lower rate of emergency admissions with asthma (Griffiths et al. 1996). The prescribing ratio of inhaled steroids to bronchodilators can be readily calculated for each individual practice and for the Health Authority area as a whole from the PACT data available to the Health Authority.

PACT data is generally of high accuracy relative to other NHS data. It is not possible at Health Authority level to make the link between patients and prescriptions from data held on the practice computer for computer-generated prescription forms. A low ratio would prompt a suggestion to the practice to review its policy on managing asthma against established clinical guidelines and/or to take part in a multi-practice clinical audit of asthma management such as that supported by the local MAAG (Medical Audit Advisory Group).

Rates are fed back to each practice via PACT printouts and by inclusion in a practice profile alongside epidemiological and demographic information which compares the practice value to the local average (Figures 1-4). There is an approximately fourfold range of variation. They are used as a basis for discussion in regular visits by the pharmaceutical adviser and in identifying priorities which the practice may wish to review or audit. Additional support may be required e.g. enhanced training or specialist support in managing patients with asthma. The prescribing ratio may form part of the calculation of a prescribing quality index which is used in calculating the prescribing budget for fundholding practices eligible for local payments as incentives towards more cost-effective prescribing. The scarce resource of a local consultant with a special interest in primary care has been targeted towards those practices whose prescribing ratio suggests that they have additional input of specialist support and advice via outreach clinics.

Why this clinical area was chosen

- good up to date evidence-based guidelines on effective practice;
- good quality data on practice prescribing;
- particular professional interest among local clinicians and academics;
Particular public concern about effects of air pollution from traffic and industry; existing clinical audit programme supported by MAAG.

**Data validation**

- PACT prescribing data can be validated against the practice’s own prescribing data in those practices which use their computer to generate prescription forms.

**Changes made**

- Clinical audit of asthma management against published consensus standards of good practice;
- Increasing use over time of inhaled corticosteroids monitored by prescribing ratio;
- Introduction of specialist asthma clinics in practices. These are mainly practice nurse-led clinics where asthmatic patients are monitored and educated about the implications of their asthma and correct use of inhalers and other medication.

**C) Proportion of cervical smears taken which are returned as inadequate**

An effective programme for preventing cervical cancer deaths relies on an effective system for taking cervical smears. A smear which cannot be read by the cytology laboratory is an adverse event which means at least the additional trouble of a return visit and repeat smear for the woman concerned, and at worst may result in an opportunity which cannot be repeated or which provides a misleading sense of reassurance. All cytology laboratories should participate in a scheme of quality assurance which ensures a consistent standard for rating a cervical smear as inadequate. Variations in the proportion of smears taken by the practice which are rated as inadequate should therefore reflect differences in the effectiveness of delivering a readable smear to the laboratory. A high proportion of inadequate smears, relative to other practices in the area or to the practice’s own past performance, may indicate a problem which requires a review of the smear-taking procedure and perhaps additional training or checking. The proportion of smears graded as inadequate for each practice can be readily obtained from the information routinely available to calculate eligibility for target payments. This can be fed back to practices in the context of a profile of other measures of clinical activity or performance as a basis for reflection and review (Figure 4). The measure may be unreliable where the number of smears taken by the practice is very small. Where practices in a Health Authority area send smears to more than one cytology laboratory, there is the possibility of inconsistency between laboratories in rating a smear as inadequate. It may be possible to take account of this by checking for laboratory participation in a single recognised quality assurance programme and by comparing laboratories on their aggregate rates of inadequate smears.

**Why this clinical area was chosen**

- Characteristics of local population suggest higher risk for cervical cancer;
- Local problems meeting targets for screening coverage;
- Perceived relevance by local practices.

**Data validation**

- Check that all cytology laboratories used by local GPs are participating in a consistent scheme of quality assurance.

**Changes made**

- Clinical audit of smear-taking procedures
- Training and re-training for practice nurses who take smears

**D) Proportion of patients leaving the practice without changing address (experimental measure)**

The most common reason for a patient to leave a practice list is a change of home address. Where a patient remains at the same home address but changes to be registered with a different practice, it may indicate relative dissatisfaction with the services provided by the former practice (Crayford et al. 1995). The Health Authority must transfer the patient’s medical records from the former practice to the new practice and generate a process of doing this. It is possible to extract from the main computer at Exeter data on those patients formerly registered with a general practice whose records have been transferred to a different practice but whose home address has not changed. This can be calculated as a rate for the practice over a convenient standard period of time (say one year).
The potential value of the measure is that it represents one of the very few measures currently derivable from routine data which perspective on outcome. It is, however, subject to a number of influences which may reduce its usefulness as an indicator of patient obvious factor is the availability of a feasible alternative practice to register with; in some areas there is no other practice sufficient practices may have an agreement not to register each other's patients. Elderly and deprived patients may be less likely to take the practice on grounds of dissatisfaction. It is possible to apply a simple test of criterion validity to the measure by identifying a subset services which are fairly near to larger practices with better premises and a wider range of services, practices with an above-average complaints by patients. If the average value of the measure for these practices is higher than the average value for local practices some reassurance that the measure is to some extent capturing the issue of interest. Preliminary testing for criterion validity in this reassurance on the value of the measure across the Health Authority area as a whole but has identified some localities for which local "closed-shop" agreements on not registering patients from neighbouring practices.

**Why this clinical area was chosen**

- attempt to capture some element of patient focus on outcome;
- relevance to practice income.

**Data validation**

- check that higher values are found in those practices where there are other indications of patient dissatisfaction e.g. higher numbers or limited services;
- Practices with high values are often aware of a shrinking list size and a neighbouring practice to which their patients are known to transfer.

**Changes made**

- personal survey of individual patients who have recently transferred off practice list;
- survey of patient preferences for optional additional services in the practice;
- introduction of additional services most favoured by patient survey.

**E) Male: female ratio of patients diagnosed as hypertensive (experimental measure. Dr Tim Crayford - personal communication)**

This measure is experimental in two ways: in its interpretation and in the fact that it relies on diagnostic data recorded by the practice, which at present only a minority of practice consistently do. Its potential value is in the fact that it may represent an up to date measure ability effectively to prevent deaths from stroke and other hypertensive disorders. Community surveys of blood pressure in the general show a broadly similar prevalence among men and women of hypertension (however defined) with a tendency towards higher prevalence (Breeze et al. 1994). Surveys in general practice generally show a higher prevalence of diagnosed and treated hypertension in women, which is almost certainly a phenomenon of detection; practices are more likely to detect hypertension among women. Probable reasons for this are that women are more likely to have their blood pressure taken because of examinations in the course of ante-natal or family planning services; greater willingness than men to attend preventive health services of all kinds. One measure of the success of a practice's efforts to prevent strokes and other hypertensive disorders would therefore be their ability to detect the hypertensive males who exist in the community but who are currently missing from the diagnosed pool of hypertensive patients. An indicator of success would be a male: female ratio among patients which approximates that seen in recent community surveys of similar populations. The measure can be validated against prescribing data for anti-hypertensive treatments and by observing time trends which coincide with a related change in practice (e.g. ratio of diagnosed hypertensives over a period of time following establishment of a "well man" clinic). A possible problem in interpreting this could arise if the practice population is very different from any of the existing populations for which we have community survey prevalence for hypertension. Different ethnic groups might have different gender distributions of hypertension and different consulting behaviour in reference populations represented in community surveys.

Figure 6 shows the male-female distribution of diagnosed hypertension in a sample of eleven practices in the London borough of a female preponderence. This is quite different from the actual distribution of hypertension in community surveys and probably represents detection due to greater opportunities to measure blood pressure in women.

**Figure 6: Percentage of patients labelled as hypertensive 1994/5, sample of 11 practices in Lambeth**
Why this clinical area was chosen

- reduction in stroke deaths is local and national health priority;
- availability of effective treatment and clinical guidelines.

Data validation

- Possible to check diagnostic data for internal consistency by data audit - e.g. is diagnosis of "hypertension" consistent with recorded blood pressure reading;
- Some cross-validation possible against prescribing data - e.g. what proportion of patients diagnosed as hypertensive are receiving anti-hypertensive treatment?

Changes made

Introduction of "well man" clinic in a practice. These clinics are modelled on the more familiar well-woman clinics. The precise design depends on the specific intentions but they often focus on preventive health topics of particular relevance to men e.g. heart disease, fitness checks, drug and alcohol misuse, accidents. They are delivered in a style which is designed to fit in with the lifestyle of the target group of men e.g. outside working hours, separate times and/or waiting areas from children and patients consulting with illnesses.

Further information that was required:

Data validity studies:

Summary findings from initial work:

Changes which were made:

How changes will be monitored:

Resource Implication:
Most centrally-held data about general practice is a by-product of administrative systems designed for the purpose of making payments, usually needs to be re-analysed and re-presented in a more user-friendly format. This requires Health Authority staff time and willingness to discover what is most useful to primary care staff themselves.

In order to make practice-collected diagnostic data more widespread and more consistent it may be necessary to select a set of practices who will be representative of local practices as a whole and offer additional payment for the task of data collection (Pearson et al. 1996).

The development of valid patient-centred outcomes is quite a sophisticated task which will demand research skills. Like the development of clinical guidelines, this should be undertaken on a national basis for local adaptation.

Some of the changes in practice indicated by the selected measures are resource-releasing (e.g. less prescribing of unnecessary medicines). Other changes increase resource cost in primary care but may save costs in hospital care (e.g. more effective prescribing for asthma).

**Practical lessons learnt:**

Data which is held by the Health Authority has the advantage that it is equally available for all practices, permits comparisons between practices and makes few demands of data processing on the practice. It can be out of date and incomplete and may not contain the data of greatest clinical interest and relevance.

Data which is collected and held by the practice itself on its computer or generated in the course of clinical activity is usually more up to date, more accurate and more relevant. It relies on the capacity and interest of the practice to set up and operate the data recording systems, it may be inconsistent between practices and its availability is usually limited to a minority of practices.

Some of the traditional outcome measures for larger populations (e.g. disease-specific mortality rates) are meaningless for populations of primary care services because the frequency of events is too low.

Measures which are seen as relevant but difficult to interpret (e.g. rate of patients leaving the practice without changing address) become usable when placed alongside the practice’s own informal knowledge of patient concerns and priorities.

The measures become more meaningful and useful when placed in a context e.g. the practice profile of local demography and epidemiology. This underlines the relevance of some measures over others e.g. asthma management is particularly relevant to practices with a young deprived population where there are local anxieties about the effect of air pollution from a newly-built refuse incinerator.

The usefulness of the measures as a force for change depends on there being some understanding and acceptance of the principles behind them among the services to which they are applied. The steroid:bronchodilator ratio would cease to be useful as a proxy measure of management of asthma if practices decided just to increase their ratio by prescribing every patient a few steroid inhalers to take away and discard. Similarly, practices could reduce the meaningfulness of the measure of patients leaving the practice without changing address or agreeing a closed shop in which no practice would accept patients currently registered with another local practice unless they were changing address.

Practices will challenge the validity of measures used to make resource decisions. It is essential to be able to demonstrate a link between the measure and the clinical situation, e.g. proportion of cervical smears returned as inadequate matters because of the trouble of a return visit for the woman concerned and may represent the loss of an unrepeatable opportunity to prevent cervical cancer. It is important also to remember why numerical measures of outcome are being introduced and what is the alternative; they are designed to make more transparent and rational the sort of resource allocation decisions which would otherwise take place on the basis of the subjective impressions of NHS managers.

**Conclusion:**

Outcome measures have an intrinsic advantage of perceived importance. People may argue about interpretations but there is agreement that they matter.

Practices are currently more familiar with measures which relate to their role as providers of primary care. Measures which relate to specialist services they might commission are more difficult for them to interpret.

We need a system which is sufficiently flexible to allow individual practices to select the outcome measures most relevant to their population e.g. sickle cell for a population with a high proportion of Black Caribbean, HIV-related for a practice with a high proportion of patients with AIDS.

There are very few patient-centred outcome measures currently available. We need to invest in development of more of these routes might include patient focus groups to identify those symptoms of common conditions which are regarded as most important by patients and incorporation of measurement of these patient-selected issues alongside those regarded by clinicians as most important.

**References:**


Organisational Context: