Implementing Joint Strategic Needs Assessment

Appendix 2 – Lessons from Health Care Needs Assessment

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Some form of health care needs assessment has always been necessary in health service planning. In the UK, four overlapping periods can be identified (Stevens and Gabbay, 1991):

1. A period of “social concern” in the 1960s – identifying gaps in health service provision relating to deprivation and patchy facilities.

2. The “rational planning” of the 1970s – attempting to plan services systematically, but with no formal needs focus.

3. The Resource Allocation Working Party (“RAWP”) review then placed a focus on spatial inequity (i.e. the relative under-provision of services in different regions) (Department of Health and Social Security, 1976; Buxton and Klein, 1978). Need was recognised and measured by surrogate means, notably demographic.

4. The NHS and Community Care Act of 1990 by contrast required that need be identified so that service requirements could be more closely specified.

We might now add a fifth period of “collaborative action” – in the 2000s – in which the need for health care and the need for other interventions to improve health are to be collectively identified by a range of players, but principally NHS organisations and local government (Stevens and Bickler, 2000).

However, of these perhaps the most important change resulted from the greater introduction of market mechanisms in health care and other areas of the public sector from the 1980s onwards. In particular, the creation of health care purchasers in the 1990 National Health Service (NHS) and Community Care Act put the formal purchasing of health care centre stage in the new NHS. Although the reforms initially emphasised the increased freedom around the independent provider role through the creation of NHS Hospital Trusts, it later became obvious that cost-effective targeting of health care could not happen without a significant role for purchasers (NHS Management Executive, 1989; Audit Commission, 1993; Mawhinney and Nichol, 1993). These were to be capitation-funded, a move that had been started by the report of the 1976 Resource Allocation Working Party and its precursors. These new cost-constrained purchasers required a mechanism for determining what services they should purchase and at what volume that was not simply a product of what was currently provided. This mechanism was to be ‘needs assessment’.
An initial analysis of the role of district health authorities set needs assessment as the first of a series of tasks as follows (NHS Management Executive, 1989):

1. Assessment of the health needs of the local population, including a more positive emphasis on the views of that population.

2. Appraisal of service options for meeting those needs, including close cooperation with (the then) family practitioner committees and general practitioners, both in the short term and strategically.


4. Choosing between providers and placing contracts compatible with the districts' cash limits.

5. Monitoring the provision of contracted services and the health of the population.

6. Controlling expenditure on contracts within the districts' cash limits.

For needs assessment to anchor the process in this way, it was necessary to develop a protocol for the assessment of health care needs, and to drastically improve the information available to health authorities on baseline aspects of their service, and nationally available data relevant to their needs assessment activities. The Birmingham Health Care Needs Assessment series (see below) attempts to tackle these challenges by developing a protocol for health care needs assessment, and then using that protocol to provide data around the protocol headings for disease and client groups. While the NHS is changing again as a result of more recent reforms, the need for a protocol for health care needs assessment remains as relevant now as ever.

**Characteristics of health care needs assessment**

The requirements of the role of purchasing authorities had the following effects:

1. Need for health care must be distinguished from the need for health. The latter concerns who is needy in general terms, and can be measured by morbidity, deprivation and socio-demographic measures. Health problems with no realistic treatments are included here. But these measures alone have little to say that helps the specification of health care services, except perhaps in distinguishing relative levels of need between large areas. The need for health care is much more specific and is now widely accepted to mean the population’s ability to benefit from health care (Culyer, 1976; NHS Management Executive, 1991; Matthew, 1971). It depends on the potential of preventive or treatment services to remedy health problems.

2. Needs assessment for practical purchasing requires a useable level of detail for those who will subsequently specify services. However, it is important not to specify needs so generally that different populations and interventions cannot be distinguished, nor to specify needs in so much detail that the activity of health care
needs assessment becomes overwhelming. A reasonable compromise should be sought.

3. Need is quite different from supply and demand. Put simply, need is what people might benefit from, demand is what people would be willing to pay for in a market or might wish to use in a system of free health care, and supply is what is actually provided. Although this distinction is uncontroversial, the difficulty of measuring need makes it tempting to measure supply and demand as surrogates for need. This is complicated by the price being zero for services free at the point of use. Supply and demand are not tempered by each other as they might be in a market with a price mechanism. Furthermore supply is the consequence of historical patterns mixed with the consequences of political pressure for change. It is clearly misleading to measure existing service provision as though it were an indicator for need. Similarly, the measurement of waiting lists, reflecting as they do demand mediated by doctor as agent, is also misleading. Figure 1 illustrates how need, demand and supply might overlap or differ (Stevens and Gabbay, 1991). It shows eight fields of services divided into (i) those for which there is a need but no demand and supply, (ii) those for which there is a demand but no need or supply, (iii) those for which there is a supply but no need or demand, and then (iv-vii) the various degrees of overlap.

**Figure 1** Need, demand and supply: influences and overlaps
The diagram indicates where work is required not just in assessing health care needs, but also in attempting to make the three circles of need, demand and supply more congruent. This includes demand management and changing supply as well as a better definition of need. Demand management may involve curtailing it where it is inappropriate (areas 2 and 5 in Figure 1), stimulating it (areas 1 and 6), or coping better with it (area 4) (Pencheon, 1998). Varied mechanisms with which demand can be influenced include: the accessibility and organisation of services, the provision of health information, education and financial incentives (Coulter, 1998; Gillam, 1998; Rogers et al., 1998). Supply changes may require subtle mechanisms not easily captured in service agreements. Where the cause of the mismatch between supply and demand is clinical practice, effective strategies to promote behaviour change among professionals are required. These can include educational outreach visits, reminders, interactive educational meetings, audit and feedback, use of local opinion leaders, local consensus processes and patient mediated interventions (Bero et al., 1998). Even need can be shifted somewhat, given that research programmes can be altered, with new findings on pathology and degrees of benefit which matter to patients, and the identification of forms of health care that are effective.

4. Needs are probably best explored by basing the assessment on disease groups. The logic is that a need arises when there is a lesion rather than when a person has reached a certain age, belongs to an ethnic sub-group or because a particular service is provided. However, this is not an absolute rule. The ability to benefit from health care can be assessed at the level of the sub-population who may benefit from a particular intervention (provided competing interventions are considered). Such units can be reassembled around particular services or population sub-groups such as demographic minorities.

5. Often the key element of health care needs assessment is the measurement of the effectiveness of interventions. The evidence-based medicine and evidence-based health care movements are relatively recent and it remains the case that clear information on effectiveness is often absent in service planning. But it cannot be argued that ineffective services are needed. Therefore, where effectiveness is in doubt, a first step is a gathering of effectiveness information.

6. Health care needs assessment is only ever artificially divorced from setting priorities in health care. Some “needs assessors” would prefer not to acknowledge resource shortages, and argue that all needs should be met. The untenability of this view as the proliferation of new potentially effective health care technologies continues apace becomes ever clearer. Needs assessment can be integral to prioritisation, because it is only a short step from need as the ability to benefit from health care to a utilitarian view of relative need as the relative ability to benefit per unit cost. This is not to deny an exploratory phase of needs assessment, a sort of scanning exercise, before such hard calculations are made, nor to deny that precision in quantifying priorities is very elusive.

7. It is worth noting the distinctions between individual need and population need. Population need can be viewed as the sum of individuals' need. But the viability of this assumption is dependent on how the individual needs assessment is
undertaken. If it strays into an assessment of demand, or if it is unconcerned with proven ability to benefit, it is likely to distort assessed population needs. Clearly there are differences between the view of a worker dealing with (assessing the needs of) an individual, and a planner looking at a population. The former is likely to be a strong advocate for the patient, take no account of people who are in need but do not come to the clinic, and (as regards relative need) take little account of costs. The circumstances in which individual needs assessment is a practical means of assessing health care needs at a population level are those in which individual patients are few, highly costly, very heterogeneous and countable (i.e. not hidden from the view of routine data).

8. One can also distinguish between needs for (public sector) services other than health care and services for health care. “Benefit” in the former tends to be more open-ended. In health care, increasing inputs of care can be associated with zero benefit or negative benefit (harm). The limits of benefit are not so clear with education, housing or transport (although even here diminishing returns and even negative benefit is evident sometimes). However, other public sector services have an impact on health, and with a collaborative approach to health care needs assessment across different sectors, the relative contribution of different investment (relative needs assessment) will be important.

9. Needs assessment itself incurs costs. This means that short-cuts can be necessary, and indeed it is argued below that surrogate measures (making comparisons and taking a corporate view) have a valid place in health care needs assessment.

**Aim and objectives of health care needs assessment**

The overall aim of health care needs assessment is to provide information to plan, negotiate and change services for the better and to improve health in other ways. In other words the assessment can be done with an eye to any activities which have an impact on health, whether directly in the hands of health services or not. The working definition of health care need as the population’s ability to benefit from health care reflects this (and can be expanded to cover “services” more widely). Key objectives include:

1. Specifying services and other activities which impinge on health care. The principal activities involved in health care needs assessment are therefore:

   - The assessment of incidence and prevalence (how many people need the service/intervention).
   - The effectiveness and cost-effectiveness of services (do they confer any benefit, and if so at what cost, i.e. what is the relative benefit?).
   - Baseline services (changing provision for the better necessitates knowledge of existing services, both to know which services ought to change and to identify opportunities for the release of resources to enable the change to happen).

These three components – incidence and prevalence, health service effectiveness, and baseline services form the basis of “triangulation” (see Figure 2) whereby health care purchasers and planners can determine the policy directions they wish to pursue.
2. Improving the spatial allocation of resources. This was the principal objective of national needs assessment in the UK at the time of the Resource Allocation Working Party and before, right up to the 1990 NHS reforms. It seems a reasonable supposition that if broadly equal populations are to receive services, the most efficient deployment of services will be to give them broadly equal resources. This supposition works well at a macro level, but weakens as the scale gets smaller – because the chances of small areas having equal needs, other things being equal, reduces. And given that resources will continue to be allocated between sub-national units, spatial allocation continues to be important.

3. Target efficiency (the accurate targeting of resources to those in need) is often a central activity of needs assessors. Strictly, the measurement of target efficiency is the measurement of whether or not, having assessed needs, resources have been appropriately directed. In this sense, target efficiency is related to audit. But, it is always important to know whether, having defined the need, those who get a service need it, and those who need it get it.

A number of new objectives for health care needs assessment have been suggested following the expansion of needs assessment into general practice. They include (in various guises) the three above, but to these can be added:

4. The gathering of general intelligence to get a perspective on population health and population health needs. This objective is, of course, important not just for new primary care needs assessors, and in many respects can be considered the first stage of needs assessment, rather than a separate objective.

5. The objective of health care needs assessment to stimulate the involvement and ownership of different players in the process has been noted. The more members of the primary care team and others are involved in the assessment, the more
likely attention will be paid to the findings of the activity. Again, this argument could be extended to needs assessment undertaken outside primary care.

**Scales of needs assessment**

Although the aim of needs assessment remains the same at all scales, the principal objectives and the process are likely to vary according to the scale of assessment. These can be summarised as follows:

- National
- Regional
- Local Authority/PCT
- Individual General Practice

*National needs assessment*: there are many national health care concerns. National needs assessment is necessary for areas of legislative change. These include modifications of health services – particularly including elements of the public health agenda such as seat-belt and tobacco control legislation. It also applies to elements of planning affecting the national economy – including, for example, very large capital investments - and to politically and media sensitive areas such as those issues raised by “post-code prescribing”. Indeed, part of the rationale for the establishment of the UK's National Institute for Health and Clinical Excellence was to end “unacceptable geographical variations in care” (Dobson, 2000). National needs assessment is also the level for the assessment of spatial equity between large sub-national regions.

*Regional health care needs assessment*: despite both a policy of centralisation and a wish to delegate planning to a more local level, regional planning has been remarkably durable. There are certain services for which the region is an obvious scale of activity. These concern not just such large spatial issues such as fluoridation, but also for medical specialties where provision needs to be at the scale of a population of several million. It is also a useful scale for co-operation between SHAs and regional government – especially at a time of regional devolution. Spatial equity, specific service planning (sum of) and target efficiency are all relevant at the regional level.

*PCT/local authority needs assessment*: this is the traditional level of health care needs assessment. There is, however, a big difference between the traditional agenda of NHS bodies and of local authorities: the former with a tradition of technical planning - increasingly for effective and efficient services - and the latter with a tradition of working with the politics of local democracy. The scope of the services provided by both differs as well, and the combined agenda addressing principally service specification, but also target efficiency, is very large and will need to be highly selective.

*Individual practitioner needs assessment*: the individual practitioner has long had much promise as a needs assessor, given his/her access to case registers, his/her role as a consumer of secondary care (and therefore at arm’s length from it), and his/her feel for a patient perspective on service. However, these advantages are tempered by the difficulties of needs assessment at this level, including the conflict of needs
assessment with general practitioners’ business interests, and the ease with which practitioners can ignore unseen patients. Needs assessment activities at this scale can only include service specification for the most prevalent of diseases, and of primary care services; but target efficiency (audit) can be reviewed intensely.

**Different types of health care needs assessor/“assessments”**

It should also be recognised that technical needs assessors do not have a monopoly on the words ‘needs assessment’. Those who might consider themselves needs assessors could include politicians (both national and local), clinicians (both generalist and specialist), patients and technocrats. The different perspectives of these assessors will obviously influence the characteristics of the assessment. In theory, all can undertake valid assessments but it is worth examining any product against understood criteria.

The following questions have been identified in judging assessments (Stevens and Raftery, 1997):

1. **Is there a clear context of allocating scarce resources?** Needs assessments that fail to acknowledge resource limitations are common, but are of restricted value to health care commissioners. This can be a problem with individual clinical needs assessment, which can put great pressure on health budgets and squeeze the care available to patients with weak advocates. Some population approaches also fail to acknowledge resources used. This is a difficulty, for example, with specialty-specific documents recommending levels of service within a single specialty.

2. **Is the needs assessment about priority setting within the context of a variety of competing needs or is it about advocacy for a single group or individual?** This is closely related to the resource context question. Specialty-specific documents, client group surveys and even policy directives which focus on single groups often represent advocacy rather than balanced contributions to priority setting. Surveys about, for example, the needs of a particular ethnic minority are of limited help in guiding health care planners unless seen in the context of equivalent surveys of other groups. Policy recommendations based on lobbying would be much more prone to distorting resource use than policy directives based on research.

3. **Is the needs assessment exploratory or definitive?** Some approaches to needs assessment are exploratory in that they highlight undefined or under-enumerated problems. This is particularly true of lifestyle surveys that estimate the size of risk groups such as alcohol abusers or teenage smokers. Exploratory surveys are best thought of as just a first stage in a more specific needs assessment process.

4. **Is the determination of the most important needs expert or participatory?** Technocratic needs assessment tends preferentially to be expert, although the Oregon experience demonstrates that participatory approaches and expert ones can be merged. Expert approaches seek to be as objective as possible, although objectivity soon reaches its limits.
Approaches to needs assessment

We have labelled the approach to needs assessment based on the triangulation of incidence and prevalence, effectiveness and cost effectiveness, and existing services (Figure 2) as ‘the epidemiological approach to needs assessment’. This method is described more fully below. Needs assessment will usually aim to make incremental changes to existing services. The epidemiological approach to needs assessment can usefully be supplemented by other tools. Indeed, in view of the shortage of information both on effectiveness and on prevalence, and because of the size of the task of reviewing and applying such information even when it is available, health care purchasers have tended to use two other simple methods: the ‘comparative’ and the ‘corporate’ approach (NHS Management Executive, 1991).

Comparative approach to needs assessment: the comparative approach to needs assessment contrasts the services received by the population in one area with those elsewhere. Comparisons can be powerful tools for investigating health services, especially in the context of capitation-based funding. Variations in costs and service use may be appropriate depending on local circumstances, but with capitation funding of health care, gross departures from the mean require justification. The literature on differential rates of surgery, for example, shows that the more loosely defined the clinical indications for a particular problem, the more likely considerations other than need and benefit are to influence levels of activity undertaken (Saunders et al., 1989; Wennberg et al., 1988). Comparative service provision should take account of local population characteristics, including demographic and morbidity data. To the extent that such sources are beginning to provide detailed mortality and morbidity information, they may start to act as population outcomes data. The use of such data in this way, however, relies on the assumption that health care is a major determinant of mortality and morbidity, which may not be justified (McKeown, 1979).

Corporate approach to needs assessment: the corporate approach to needs assessment is based on the demands, wishes and alternative perspectives of interested parties including professional, political and public views (see Figure 3). While such an approach blurs the difference between need and demand, and between science and vested interest, it also allows scope for managing supply and demand at the same time as assessing need as affected by local circumstances. It would be surprising if important information were not available from those who have been involved in local services over many years. In the National Health Service context, this corporate approach has been widely used, and was encouraged in both the 1989 reforms with its ‘local voices’ (NHS Management Executive, 1992), and the emphasis on partnership and collaboration in the 1997 White Paper (Department of Health, 1997).
A protocol for (the "epidemiological approach" to) needs assessment

Box 1 contains the key headings from a standard protocol. This is based on the belief that non-local epidemiological data are valuable to local needs assessment, and that both costs and cost-effectiveness have to be considered. While need is a function of benefit, not of cost, the purpose of population needs assessment is to help decide between competing priorities. Such decision making requires information on both.

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Statement of the problem: a necessary first step is a precise statement of the problem and its context, including major issues and controversies relevant to health care commissioners. It is not possible (or desirable) to divorce the process of health care needs assessment from contemporary controversies, though a broad population based needs assessment should also provide an appropriate context and perspective from
which such controversies can be viewed. Thus, the emergence of new drugs is a relevant contextual issue in a health care needs assessment of dementia, but a comprehensive needs assessment will not consider these drugs in isolation from other aspects of dementia services, such as provision of basic nursing care and carer support.

**Sub-categories:** There are many different ways of sub-dividing a disease, such as by aetiology, pathology, anatomy, severity or prognosis. In the context of health care needs assessment, what is most useful to a planner or commissioner of health care is a sub-categorisation that is predictive of requirements for services. The most appropriate sub-categorisation will depend upon the disease in question. Thus, aetiological sub-categories are chosen for diabetes (type 1, type 2 and gestational diabetes), severity sub-categories for dementia, and presence or absence of health problems and dependence for alcohol misuse.

**Prevalence and incidence:** Prevalence and incidence forms the first corner of the needs assessment triangle (Figure 3). It is a truism to state that identification of the frequency of occurrence of disease is a core part of the epidemiological approach to needs assessment. However, in isolation of information about treatments available and their effectiveness, prevalence and incidence are not synonymous with need. Prevalence and incidence are most useful in health care needs assessment when they can be directly related to sub-categories that predict service requirements. Thus, the prevalence of radiological osteoarthritis is a poor predictor of need, whereas prevalence based on symptoms and clinical features is a better estimate of the number of people who might benefit from hip replacement surgery (Frankel et al., 1999). This approach, which involves the identification of the number of people in a population with a condition that would benefit from treatment as opposed to simply identifying the number of people with the condition, has been termed the ‘epidemiology of indications’ (Frankel, 1991). However, epidemiologists have in general been more interested in the aetiology of diseases than the scope for benefit; so prevalence and incidence data on sub-categories relevant to service planning are often not available.

The source material for this section comes either from the epidemiological literature, or from official statistics. One caveat on using national data or data from epidemiological surveys carried out in other parts of the country is that incidence and prevalence varies by such factors as age, sex, region, socio-economic status and ethnicity. Therefore, appropriate adjustments need to be made to estimate the frequency of disease in one locality from these data.

**Services available and their costs:** Services available form a corner of the needs assessment triangle (see Figure 3). Although current services are only weakly related to need, it is important to understand them since local levels are required for comparative analysis, and they are the starting point for change. Data about both structure (how many specialists per unit of population) and process (how many people treated per unit of population) are relevant to this section. Health resource groups offer a possible ‘currency’ for measuring health care activity (Buckland, 1994) and combining such data with finance data in a programme budgeting approach can assist the sensible analysis of existing services (Lockett et al., 1995). Data sources include audits and surveys, and official statistics, in particular the hospital episode statistics (HES) for secondary care and GP morbidity surveys for primary care. Costing studies
of health care remain relatively sparse, but the availability of official data such as the National Health Service Reference Costs, a product of the 1997 white paper, and Trust Financial Returns, allow some cost estimates to be made.

Effectiveness and cost-effectiveness of services: the availability of data concerning the third element of the health care needs assessment triangle, effectiveness and cost effectiveness of services, has improved dramatically in recent years. Initiatives such as those of the Cochrane Collaboration and the evidence-based medicine movement have led to a growing recognition of the importance of randomised controlled trials and systematic reviews in the evaluation of health care (see Box 2 for an example of one way of grading evidence of effectiveness).

Box 2 Grading of evidence of effectiveness

SIZE OF EFFECT

A. The procedure/service has a strong beneficial effect.
B. The procedure/service has a moderate beneficial effect.
C. The procedure/service has a measurable beneficial effect.
D. The procedure/service has no measurable beneficial effect.
E. The harms of the procedure/service outweigh its benefits.

QUALITY OF EVIDENCE

I-1. Evidence from several consistent, or one large, randomised controlled trial.
I-2. Evidence from at least one properly designed randomised controlled trial.
II-1. Evidence obtained from well-designed controlled trials without randomisation, or from well designed cohort or case-control analytic studies.
II-2. Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of the introduction of Penicillin treatment in the 1940s) could also be regarded as this type of evidence.
III. Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.
IV. Evidence inadequate and conflicting.

The population benefit achieved by health care depends not just on the efficacy of the service under study conditions, but also on its effectiveness in real life and its acceptability to patients. It can be argued that it is difficult to generalise the results of some randomised controlled trials since all the types of patients to whom the results would be of potential relevance may not be included (McKee et al., 1999). In these circumstances, the findings of non-randomised studies may be of use since they are generally less selective in terms of recruitment. However, a non-randomised study is an inherently weaker design in terms of internal validity since it is prone to selection bias in that treatment allocation is likely to be influenced by factors that might affect outcome. While some of these differences can be adjusted for, it is not possible to adjust for factors that are unknown, unmeasured or unmeasurable.
**Quantified models of care and recommendations**: since need is derived from incidence and prevalence on the one hand and effectiveness on the other, it is tempting to seek a simple formula combining both in order to generate estimates of the need for services. Recommendations would logically emerge from any disparities between the estimates of need and current service provision. For most diseases and treatments however, no such logic exists for the following reasons:

- Inadequate data on incidence and prevalence.
- Inadequate data on effectiveness and cost-effectiveness.
- Lack of agreement on thresholds for intervention.
- Severity levels may be ill-defined.
- Treatment pathways are complex, with numerous filters.

**Outcome measures, audit methods and targets**: the principal objective of health care needs assessment is the specification of services and other activities that impinge upon health care – now at the centre of the NHS world class commissioning agenda.

**Information and research requirements**: a health care needs assessment can help to clarify what information and research priorities should be in a given area, both in terms of epidemiology and effectiveness research. With the development of new NHS research programmes, a greater proportion of clinical research in the UK is now carried out in response to specific calls for research to answer questions that have been identified as NHS priorities. Epidemiological health care needs assessment is one process by which such questions can be identified.

**Conclusion**

While the organisational context of health care needs assessment has changed considerably in recent years, the process remains a core component of health service planning. In this appendix, a protocol for the epidemiological approach to needs assessment has been outlined. Health care systems in the twenty-first century will need to address the challenges posed by demographic change, technological development and changing public expectations within a context of limited resources. An epidemiological approach to health care needs assessment provides a rational framework within which these issues can be tackled.
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