Purchasing evidence: the corollary of evidence-based purchasing

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Summary
The National Health Service (NHS) market led to problems in funding research and development (R&D). The current policy is to resolve these by funding R&D through a national levy on purchasers. The policy does not, however, address the underlying problem that evidence produced by R&D is largely irrelevant to purchasers. The consequences of this policy are likely to be that purchasing will have limited impact in securing health gain most effectively, the progress and impact of R&D will be impaired, and its funding will remain insecure. If R&D and purchasing were integrated each could become more effective. This integration can be fostered through developing the regulation of purchasers and providers within the NHS market.

Keywords: purchasing, evidence-based purchasing, research and development

Introduction
The introduction of the National Health Service (NHS) internal market appeared to make it more difficult to finance research which would produce evidence for use by purchasers. The NHS Executive is implementing the recommendations of the Culyer report to overcome this difficulty by financing research and development (R&D) by a national levy. This makes sense if R&D is a public good: that it is of general benefit and is not divisible (like national defence). The characteristic of a public good is that each individual benefits from its supply. If individuals can decide whether or not to pay for it, they can take a 'free ride' by not paying and still benefit from those who do. This in turn discourages payment by anyone, and means that the public good would be inadequately funded or not funded at all.

The reason why purchasers did not want to pay costs of research appears to have been, however, not because it is a public good, but because it is largely irrelevant. Stocking made this point more forcefully by taking this fact as a given, and seeking to understand why this was so. If evidence is irrelevant to purchasers they will not want to pay the R&D levy. Stocking gave a sympathetic airing to the potential of evidence, and helpful hints on how some of this potential might be realized. Nevertheless, even this optimistic scenario would mean that evidence-based purchasing languishes as an option in which a few enlightened purchasers might indulge.

The need for R&D for common interventions
The low importance of R&D for purchasers may be interpreted as meaning that the NHS has lacked experimentation. This is not so. Rates of most health care interventions are known to vary across populations to such a degree that it is highly unlikely that these differences are explained by variations in morbidity: the underlying cause is likely to be variations in medical practice. Purchasers are already paying for a range of natural experiments in the NHS but without evaluative research there is no information to make sense of them.

Consider a purchaser trying to maximize health gain by deciding at what rate to purchase two common surgical interventions with known variations in rates of treatment: for glue ear and prostatectomies. Because of differing morbidity associated with each procedure, the increase in health gain associated with increasing rates of interventions is likely to differ (Fig. 1). For glue ear, there will be a level at which

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increases in the number of operations produce no further total benefits; stopping excessive surgery will produce benefits predominantly by releasing resources for other effective interventions. In contrast, for prostatectomy, there will be a level at which increases in the number of operations may produce reductions in total benefits; stopping excessive surgery will produce both benefits and release resources (Fig. 1).

The following sections illustrate how R&D can inform the purchaser and that R&D projects may not always result in increased costs. In the study of prostatectomy, the trial is associated with a reduced number of operations (by randomization to 'watchful waiting'). In that case, this reduced but did not offset the costs of the study. In other instances, R&D may make savings which outweigh the costs of the study.

Surgery for glue ear

The average rate of surgical treatment rate for glue ear is 4.7 per 1000 children, ranging from four to nine per 1000 in 1989–1990 and with uncertainty as to the indications for treatment. The rate of surgery of glue ear reached a peak in 1986, since when it has declined by 12 per cent.9 Current expenditure on NHS surgical treatment for glue ear is around £30 million.10

A randomized prospective study of treatment methods for middle ear effusions in pre-school children funded by the South and West Research and Development Directorate in 1993 will cost £170 000 over three years. If the trial showed that 10 per cent of surgery for glue ear were ineffective, then this offers scope to release £3 million for securing other effective care: for example, adult cochlear implants. These are effective but cost £25 000–£30 000 per case. There are 50–100 cases per annum in England and Wales. Meeting this need would cost £2.5 million.11,12

Prostatectomies

District rates for transurethral prostatectomies (TURPs) range from 1.5 to 26.7 per 10 000. Numbers of prostatectomies have been rising gradually, with an increase of 62 per cent between 1975 and 1989–1990. Rates have almost doubled in older age groups. It is estimated that average treatment costs of current practice for benign prostatic hypertrophy for a district of 250 000 are £325 000, of which £240 000 is NHS hospital based costs, and total NHS costs are between £60 million and £100 million (1992–1993 costs). There is uncertainty about what the appropriate rate of surgery ought to be.13,14 It is possible that benefits fall with high rates, as there are real risks of complications with surgery. More treatment does not necessarily equate with increased health gain (Fig. 1).

A randomized controlled trial to assess the effectiveness and cost-effectiveness of TURP, laser or conservative management in the treatment of bladder outflow obstruction has been funded jointly by the Research and Development Directorates of the South and West and Northern Region; this will cost of the order of £266 000 over three years. Nearly 2000 men are included in the trial, with approximately 350 in the conservative management group. If 20–40 per cent of those allocated to conservative management waiting do not require surgery during this period, this would mean a reduction of 70–140 cases of TURP at a cost of £1500 per case, i.e. savings of about £100 000–£200 000 over the course of the study to be set alongside its costs. In addition, there would also be prospects of annual savings of £1.6 million to £3.2 million nationally, and increased benefit for men in this predicament.

The need for R&D for new technology

The lack of evaluation of new technology results in two types of errors. Ineffective technologies may be introduced at the expense of older well-established treatments with potential problems emerging only at a later date. Conversely, technology which is cost-effective will not be known to be so, and its haphazard introduction is likely to mean that it is not introduced as rapidly as it should be. We illustrate this with the example of use of flexible sigmoidoscopy in the prevention of colorectal cancer.

An example of evaluation of new technology

Each year (in England and Wales) there are currently about 30 000 cases of and 20 000 deaths from colorectal cancer. The current annual costs of treatment for colorectal cancer are about £200 million.15 There is now scope to use the new technology of flexible sigmoidoscopy for 'once-only' screening to prevent some cases of colorectal cancer. The annual costs of the screening programme are estimated to be about £30 million.

It would seem folly to commit resources on this scale on a new intervention of unproven effectiveness. However, what are the
opportunity costs of not introducing screening should it prove as effective as its advocates suggest? One current estimate is that the screening programme would prevent 5500 cases and 3500 deaths per year.\textsuperscript{16} If these numbers are correct, then screening would be self-financing: it would save the costs of treatment of 5500 cases (approximately £33 million).

A major trial is about to begin which will examine the effectiveness of screening. This is believed to cost of the order of £0.5 million. Although this seems expensive, it needs to be compared with the alternative of making decisions without an evaluation. Without a trial the NHS may introduce screening and waste £30 million on an ineffective intervention, or balk at its apparent high cost and miss the opportunity to save 35,000 life years a year (at no recurrent cost). The trial will provide the necessary evidence to determine which is right. This investment of £0.5 million appears to be good value.

**Market structure and regulation**

We consider here two ways of developing regulation of the NHS market: first, the performance of purchasers, and second, criteria which providers have to satisfy to enter the market. The relevant distinction in this market is that providers compete and purchasers do not. We propose ways of developing purchaser regulation to encourage use of evidence, and specifying entry criteria to facilitate the production of evidence which any provider has to satisfy to be allowed to have a contract with an NHS purchaser.

Current regulation of purchasers by the efficiency index\textsuperscript{17,18} and the Patients Charter\textsuperscript{19} have nothing to do with the use of evidence. It would be helpful if regulation were developed which used evidence to derive measures of effectiveness, appropriateness and efficiency. We therefore welcome the inclusion of Clinical Effectiveness as a medium-term priority for the NHS.\textsuperscript{20} Such developments will provide incentives for purchasers to use evidence to implement the findings from R&D. NHS purchasers could also be required to contract for certain interventions only in the context of a trial or other formal evaluative framework, and this approach has been suggested.\textsuperscript{21}

In a well-designed regulatory framework, purchasers would be encouraged to share information which improves their purchasing. In a number of regions, initiatives – many under the umbrella of NHS R&D – are developing and fulfilling this function. An example is the Development and Evaluation Committee in the South and West,\textsuperscript{22} and the Aggressive Research Intelligence Facility in the West Midlands.

Regional Directors of Research and Development have a key role in working closely with purchasers to identify their priorities for research and development, to influence both regional and national commissioning of R&D, and to facilitate the sharing of information between purchasers. Purchasers could be required to support local or national data collection systems set up with the purpose of examining the outcome of health care: for example, the Population Health Outcome Indicators for the NHS.\textsuperscript{23}

For providers we also suggest developing regulatory criteria analogous to the stringent requirements laid down by the electricity regulator for any supplier of electricity to be able to use the National Grid.\textsuperscript{23} For the health care market to work effectively, providers with NHS contracts could be required to provide both routine data and data for experiments, for example:

1. To supply a minimum dataset for all patients treated in the unit. In 1986, for example, Nichol \textit{et al.}\textsuperscript{24} estimated that nearly 17 per cent of all residents of England and Wales who had non-abortion elective surgery as in-patients were treated in the private sector. Studies of variations in rates of treatment based only on NHS hospitals are missing important data.

2. To participate in large-scale audits: for example, the National Confidential Enquiry into Perioperative Deaths (NCEPOD).\textsuperscript{25}

3. To participate in multi-centre clinical trials. One of the problems which Stocking\textsuperscript{5} identified is pressure on purchasers to make decisions now, whereas R&D takes a long time to produce results. This applies to new treatments which may produce relatively small, but none the less significant, improvements in outcome. Clinical trials require large numbers of patients. The requirement for multi-centre clinical trials would result in less delay and broader recruitment, with the result that results accrue more speedily and may be more generalizable to routine care, and the expanded range of those who participate in trials will change practice as the result of the findings.\textsuperscript{26}

**Conclusions**

The levy for R&D would solve the problem if R&D were a public good. As the underlying problem is the relevance of the findings of R&D for purchasers, the levy is likely instead to foster a view that R&D is separate from purchasing. At best, it would be seen as an optional indulgence for enlightened purchasers. This would, of course, threaten the future of R&D: the national levy will be opposed because purchasers will be able to see far better ways of using these marginal sums locally. The main concern, however, is that the use of evidence from R&D ought to be central to routine care, and the expanded range of those who participate in trials will change practice as the result of the findings.
Providers that want to receive income from NHS purchasers ought to satisfy new regulations on providing routine information and taking part in experiments. These regulatory developments are thus mainly about the use and production of information. This is as expected. Good information is a prerequisite of effective markets in any commodity. Where that commodity is as complex as health care, regulation to ensure the production of information through R&D will be a necessary regulatory function if the NHS market is to be effective.

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