

The problems of fundholding

Some benefits to patients but no effect on how doctors practice

General practitioner fundholding is not the unqualified success that the British government would have us believe. That is the verdict of Britain's Audit Commission, which has recently reported the results of a major investigation into fundholding.¹ A research team from the commission surveyed all known fund and practice managers in 1994-5 and one in five fundholders in 1995-6. They also surveyed some of the larger non-fundholding practices. They analysed financial returns and audited fundholders' accounts. They searched the literature for studies related to fundholding. They made site visits to a large number of fundholding practices, family health services authorities, district health authorities, and trusts to collect qualitative data.

The report confirms the success of fundholding in reducing waiting times and outpatient follow up visits. Many fundholding practices report better communication with hospital services, more "primary care friendly" pathology and radiology services, and the development of practice based services for physiotherapy, dietetics, chiropody, psychiatric nursing, and psychology. Many fundholding practices made savings on their drugs budgets in their first fundholding year, but the effect was not maintained. Although fundholders generally spent less on drugs than non-fundholders, these differences may have predated fundholding.

The report does not present the material that the research team collected for non-fundholders. This information is essential if we are to be confident that the changes are attributable to fundholding rather than to other influences. Reduced waiting times were the subject of a major national initiative during this period and had to be achieved by all district health authorities. Many contracts required trusts to improve the quality of their services to general practitioners, and improved communication has been reported by non-fundholding practices as well as fundholders.² The changes achieved by non-fundholding practices have of course been achieved without investing more NHS resources in practices.

The report also documents many apparent failures. Fundholders have made limited use of the processes capable of improving clinical effectiveness such as the development of clinical practice guidelines. For example, few fundholders had read the Clinical Standards Advisory Group guideline on the management of back pain, and only 10% had agreed criteria on when to treat depressed patients. Fundholders also failed to maximise efficiency savings achievable through day case surgery. Although the proponents of fundholding claim that it brings purchasing decisions closer to patients, few fundholding practices had involved patients in purchasing plans. Very few have undertaken any form of health needs assessment, and only a minority have prepared purchasing plans in which they

state what the practice is trying to achieve with its fund. There seems to have been little attempt by either fundholders or district health authorities to develop the coherent strategies that providers need to decide which secondary care services should grow and develop and which should be curtailed. The report does not present information about whether non-fundholders have achieved more or less in terms of patient involvement or clinical effectiveness than fundholders. Fundholding, with its emphasis on contracts and budgets, may have distracted practices from these health-related goals.

None of the old family health services authorities or district health authorities visited by the Audit Commission had developed systems for judging how wisely fundholders were purchasing. Very few were able to offer fundholders comparative information on their performance, and the training offered to fund managers was regarded as inadequate. The authors of the report were clear that fundholders needed training in commissioning, and identified district health authorities, in particular their public health departments, as the best source of such training. Few fundholders had made use of their public health departments, and most were understandably suspicious of public health doctors' expertise in "primary care led purchasing."

Fundholding's apparent successes undoubtedly reflect general practitioners' day to day priorities: fewer patients waiting too long to be seen by a consultant, better discharge information, and easier access to investigations.³ However, the scheme seems to have been ineffective at changing the way doctors practice. Implementing clinical effectiveness initiatives, maximising the use of day case surgery, involving patients in purchasing decisions, and undertaking health needs assessments mean extra work and have largely been neglected. Significantly, none of the practices gave "health for their patients" as a reason for becoming fundholders. Sixty per cent of fundholders' savings have been invested in practice premises. There may be a good case for such investment but it is not clear in what way this is a priority for the NHS, nor whether it is appropriate to invest public monies into private real estate.

The fundholding scheme has been comparatively expensive. Over the first five years, fundholding practices received £232m to cover staff, equipment, and computers. This represents 4% of the fundholding budget. In addition, the report estimates that health authorities spend an extra £6000 each year per fundholding practice, and trusts report employing two to three full time staff to cover the administration relating to fundholding. The research team looked carefully for evidence that investment in practice management brought benefits. They found that practices that had invested most in management had been able to bring about more changes. This may reflect

the "readiness to change" of practices that were prepared to invest in good management.

Although the labour party proposes to replace fundholding with locality commissioning, in reality none of the political parties seem likely at present to abolish the fundholding scheme. Indeed, while the Audit Commission was undertaking its research, the scheme was expanded to include total fundholding and community fundholding. However, the commission's report makes depressing reading for those who would like to believe that fundholding is the answer to the NHS's problems. Policies, like clinical interventions, should be fully evaluated before being implemented, if public monies are to be used to greatest effect. The current priority for the NHS and the research community must be to address the question of how to transform the fundholding scheme so that it enhances the NHS's capacity to improve the public health.

This question needs answering urgently, before the NHS is subjected to yet another unevaluated change of policy.

SARAH STEWART-BROWN
Director

Health Services Research Unit,
University of Oxford

STEPHEN GILLAM
Consultant in primary care

Bedfordshire Health Authority

TONY JEWELL
Acting director of public health

North West Anglia Health Authority

- 1 Audit Commission. *Fundholding: the main report*. London: Audit Commission, 1996.
- 2 Coulter A. Evaluating general practice fundholding in the United Kingdom. *European Journal of Public Health* 1995;5:233-9.
- 3 Dixon J, Glennester H. What do we know about fundholding in general practice? *BMJ* 1995;311:727-30.

Chronic neurological effects of organophosphate pesticides

Subclinical damage does occur, but longer follow up studies are needed

Organophosphate pesticides have replaced organochlorines in the past 20 years and are widely used in both agricultural and structural applications. People working with these compounds receive the highest exposures, but the public can be exposed during structural applications or by drift from aerial spraying. The immediate toxic effects of organophosphates are well described; what remain controversial are the longer term effects.

Organophosphates inhibit the neurotransmitter acetyl cholinesterase, leading to symptoms related to the autonomous nervous system (abdominal cramps, nausea, diarrhoea, salivation, miosis) and the central nervous system (dizziness, tremor, anxiety, confusion). Symptoms usually occur within hours of exposure and typically disappear within days or weeks as new cholinesterase is synthesised. The degree (or rate) of inhibition required to produce symptoms is controversial.

On the basis primarily of animal data and human case reports we know that some organophosphates (such as methamidophos, leptophos, fenthion, merphos) inhibit a second enzyme, neuropathy target esterase. Severe inhibition of this enzyme (animal data suggest inhibition by 70% or more) may be accompanied by a peripheral neuropathy 10-14 days after exposure. This delayed neuropathy typically affects the motor and sensory nerves of the legs and is caused by a "dying back" of the distal axons. Symptoms include tingling sensations with weakness and ataxia that develop into paralysis in severe cases. Effects are often reversible but may persist. A famous human epidemic of delayed neuropathy induced by organophosphate occurred in the United States in 1930 after ingestion of a headache remedy (Ginger Jake) contaminated with triorthocresyl phosphate. Over 4800 cases of delayed neuropathy were reported, often with persistent severe effects.¹

Epidemiological studies are sparse but suggest that exposure to organophosphate pesticides can induce other chronic effects on the central and peripheral nervous system, either after acute intoxication or as a result of lower level long term exposure.²

Acute intoxication with organophosphates remains a problem in industrialised countries; an estimated 3000-5000 cases of accidental systemic poisoning by organophosphates occur annually in the United States (J Blondell, Environmental Protection Agency, personal communication). In the developing world an estimated three million severe pesticide poisonings occur annually, of which 220 000 are fatal. About 3% of the agricultural workforce in developing countries is estimated to suffer some symptoms each year.³

Three large epidemiological studies have examined the chronic effects among patients poisoned by organophosphates.

Savage *et al* studied 100 patients admitted to hospital and matched controls an average of nine years after poisoning.⁴ They found significant deficits among the cases on several cognitive tests of memory and abstraction but no differences on electroencephalography or neurological examination. No analyses for specific pesticides were done. Cases had worse reading ability than controls, and educational differences may have accounted for the results. Rosenstock *et al*⁵ and McConnell *et al*⁶ studied 36 men poisoned by organophosphates (mostly methamidophos) who had been admitted two years earlier, as well as matched controls. They found several cognitive deficits in the poisoned subjects and a significant decrease in vibrotactile sensitivity, an indicator of peripheral neuropathy. Finally, Steenland *et al* studied 128 men poisoned a mean of seven years earlier and 90 controls. Vibrotactile sensitivity and one cognitive test (sustained attention) were significantly worse in the poisoned men, and several tests showed deficits which increased with the severity of the poisoning. Nerve conduction tests and clinical neurological examination showed no differences.

Studies of subjects with long term lower level exposure are also suggestive but not as consistent as studies of poisoned subjects. For example, Ames *et al* studied 45 professional pesticide applicators using a variety of organophosphates who had had at least one documented episode of cholinesterase inhibition but no symptoms.⁸ In comparison to 90 controls, no central or peripheral nervous system effects were observed. On the other hand, Stokes *et al* studied 68 long term (mean of 20 years) pesticide applicators and 68 matched controls, tested during the off season.⁹ The principal organophosphates used were guthion, chlorpyrifos, and diazinon. The applicators showed a significant decrease in vibrotactile sensitivity. Stephens *et al* studied 146 sheep dippers and 143 controls months after exposure.¹⁰ These men averaged 15 years of sheep dipping, and the principal organophosphates were diazinon, propetamphos, and chlorfenvinphos. The authors found significant exposure effects on neurobehavioural tests that examined sustained attention and speed of information processing but no effects on memory or learning.

In summary, therefore, well designed studies have shown chronic subclinical damage to the central and peripheral nervous system among those previously poisoned by organophosphates. Studies of subjects with long term low level exposures have been less consistent, but some have also shown subclinical effects on the central and peripheral nervous system. Low response rates and possible selection biases have affected