

What is the evidence for the remarkable hypothesis that standard doses of Schwarz vaccine reduce mortality from conditions other than measles? Firstly, measles causes only 10% of child mortality, but the vaccine reduces mortality in developing countries by at least 30%.⁴ Secondly, immunised children who have not had measles have a much lower mortality than unimmunised children who have not had measles.^{3,4} This reduction in non-measles mortality is greater in girls than in boys.⁵

In developed countries measles vaccine is usually given at 12-15 months of age because seroconversion rates are higher at that age than in younger children. However, in developing countries many children die from measles before they are 12 months old, so measles vaccine is usually given at 6-9 months. In 1990 the World Health Organisation recommended that high doses of the Edmonston-Zagreb vaccine should be given at the age of 6 months,³ because this gave much higher seroconversion rates than standard doses of Schwarz vaccine given at 6 months. However, this recommendation was rescinded when it was found that girls given the high titre Edmonston-Zagreb vaccine had a higher mortality than girls who had received the standard Schwarz vaccine.

The higher mortality was not due to vaccine failure: the girls did not have more measles, and they did not have a higher mortality than unimmunised children. The explanation seems to be that high titre Edmonston-Zagreb vaccine did not protect against mortality from conditions other than measles (an effect that is more marked in girls than boys).³ A little bit of vaccine does you good—but a lot of vaccine is not so good.

When standard doses of Schwarz vaccine are given at 4-8 months of age seroconversion rates are lower than after vaccination at 9 months and more children get measles. However, case fatality rates are lower in the excess cases, and the protection against non-measles deaths occurs earlier, so total mortality is lower with immunisation at 6 months despite the lower seroconversion rate.⁶

Severe measles has a high fatality rate, so it is not surprising that many studies have found that children

who have measles have a higher mortality than children who do not have it. However, many of the children who do not get measles have been immunised, which reduces their mortality from diseases other than measles. Compared with unimmunised children who have not had measles, unimmunised children who have measles as primary cases (with a small inoculum) have a lower mortality, but secondary cases (with a larger inoculum) have a similar or higher mortality.⁷ A little bit of measles does you good—but a lot is bad.

These observations suggest two important conclusions: when measles occurs after immunisation this does not necessarily imply total vaccine failure, and the effects of a new vaccine cannot therefore be assessed solely by antibody responses and protection data. Vaccine trials will provide more useful information if they concentrate on mortality rather than laboratory evidence of seroconversion and clinical illness.

We have the ability to eradicate measles.¹ However, there is strong evidence that measles vaccine protects against death from conditions other than measles, so it might be sensible to continue to give measles vaccine to children in developing countries even if we eradicate the disease.

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Evaluating NHS Direct

Early findings raise questions about expanding the service

The creation of NHS Direct reflects a number of different political and policy concerns. One is consumerism and the growth of the 24 hour society.^{1,2} Another is the need for demand management against a background of growing demand for primary and emergency care and problems in recruiting and retaining nurses and general practitioners. Is the recently announced expansion of NHS Direct supported by its preliminary evaluation?³ This has been reported as showing that it is a success,⁴ but a closer look at the detailed results reveals a more equivocal picture.

NHS Direct is a telephone triage system operated by nurses to advise callers on the most appropriate form of care. The evaluation has so far looked at three aspects of the service in the first three pilot sites: a descriptive account of the organisation and users of NHS Direct; caller satisfaction; and a "before and after" assessment of its effects on other services.³ This last aspect is important because at least part of the rationale for NHS Direct is to reduce unnecessary demand on other NHS services.

The results to date show lower call rates than expected, with only one third of the predicted total

number of calls over the first eight months. This volume might, however, increase as the service becomes better known. Rates of calls varied sixfold between the three pilot areas (Lancashire, Milton Keynes, and Northumbria), for reasons which are not clear. It would be interesting to know whether these variations were related to patterns of provision of other services such as general practice cooperatives. Although the three pilot sites generally ran smoothly, if NHS Direct becomes more popular and more nurses are needed, this may be problematic given the nationwide problems with nurse recruitment.¹

NHS Direct was essentially used as an out of hours service, with most calls happening after general practice surgeries were closed. The demographics of callers reflected user patterns for general practitioner services, except that older people were under-represented, perhaps because of lack of awareness of the service, lack of telephone access, or sensory deficits making telephone use difficult.

Caller satisfaction rates were high and comparable to those of other telephone advice services. Ninety seven percent of those interviewed were "generally satisfied" with the service, and 64% said the service could not be improved. However, the satisfaction data present only weak evidence. Satisfaction is crucially related to expectations⁵; inevitably it reflects only the views of those who succeeded in accessing the service, and many surveys have found high satisfaction levels despite known inadequacies in services.

There were substantial differences between the sites in the proportion of callers advised to attend accident and emergency departments (10-38%) or to contact a general practitioner (32-58%). These differences might be due to case mix. Nevertheless, when the same 120 dummy cases were presented to all three pilot sites sizeable differences in rates of advice to attend an accident and emergency department persisted (50-75%), showing that the three sites were giving different advice in clinically identical situations. The deliberate selection of pilot sites which differed in several aspects (urban versus rural, based in accident and emergency departments versus a base in the ambulance service, and using different triage software) makes it difficult to attribute these observed variations to any specific cause.

About half the callers received advice different from that which they said they expected, but no effect was detected on other services such as 999 calls, attendances at accident and emergency departments, or calls to general practice cooperatives, either in overall numbers or in the severity of cases. It is perhaps not surprising that no effects were detected on the use of other services since the before and after design has methodological limitations. The use of NHS Direct was low, the service had been going for only a short time, and there was a background of seasonal and secular trends. Moreover, the authors rightly point out that there is no evidence from the literature to suggest that NHS Direct would cause a fall in use of other services. Paradoxically, the opposite may be the case as new demand may be created by its existence.

On the basis of these results and a considerable existing body of knowledge about demand management in primary care, there are several reasons to be

wary of extending NHS Direct. Firstly, the evaluation highlights tensions between the often conflicting policy goals of consumer responsiveness and demand management. NHS Direct is popular with its users. While this may be seen as justification enough for its extension, the service may be offering an instant but unnecessary response to anxieties which would otherwise resolve without recourse to the NHS budget. Furthermore, a high proportion of callers were advised to contact their general practitioner or an accident and emergency department, and evidence is not yet available on whether that advice was appropriate or what the callers would have done in the absence of telephone advice. The service is thus being extended in the absence of evidence on the impact of NHS Direct on demand for other primary care services.

Secondly, there is the issue of continuity of care, and the balance between providing information about health and advice on the most appropriate service to use. It may be more appropriate for an anonymous service such as NHS Direct to concentrate on providing information rather than advice. Telephone advice and triage are not new—primary care professionals do it every day. Intuitively it would seem that advice is more likely to be appropriate if it is given by someone who knows a patient's history. Primary care services in the United Kingdom are widely praised for the continuity of care they offer, which cannot be provided by a service such as NHS Direct. The use of telephone nurse triage is established in accident and emergency departments and has been extended to some general practice out of hours cooperatives, where the problem of anonymity can be reduced by keeping files on frequent callers or patients with complex problems. It may be more appropriate for NHS Direct to focus on providing information about health and illness, encouraging nurse triage to develop through carefully constructed relationships with general practice cooperatives.

Finally, NHS Direct is only one piece of the rapidly developing mosaic of first-point-of-contact health services, which will soon also include walk-in centres in stations and shopping malls.⁶ The impact of this plethora of health services on need and demand for NHS care is little understood, and there is a danger that these services will foster inefficiency. Developments in easy access primary care should build on the strengths of existing systems rather than cut across them.

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