

new research programmes should form part of an integrated attempt to develop the productive resources of our society, to equip people to take a full role in its economic life, and to reduce the burden of deprivation.

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- 1 Department of Health. *Variations in health. What can the Department of Health and the NHS do? A report from the variations subgroup of the chief medical officer's Health of the Nation Working Group, Department of Health, 1995.* London: DoH, 1995.
- 2 Karasek R, Theorell T. *Healthy work: stress, productivity and the reconstruction of working life.* New York: Basic Books, 1990.
- 3 NHS Centre for Reviews and Dissemination. *Review of the research on the effectiveness of health service interventions to reduce variations in health.* York: University of York (in press). (Centre for Research and Dissemination report No 3.)
- 4 Hills J. *The future of welfare.* York: Joseph Rowntree Foundation, 1994.
- 5 Schweinhart LJ, Weikart DP. Success by empowerment: the high/scope Perry preschool study through age 27. *Young Children* 1993;49:54-8.

Antenatal screening for carriers of hepatitis B virus

Britain needs a standardised nationwide universal screening programme

See p 1197, 1200

Acute hepatitis B is becoming much less common in Britain now that blood and blood products are safe, health care staff are being vaccinated, infectious health care workers are being steered away from procedures that could transmit the virus, drug misusers have needle exchange schemes, and sexually active people have counselling and condoms. The current morbidity and mortality from hepatitis B mostly result from the chronic carrier state,¹ and the prevention of persistent infection must be central to any strategy to control the virus and its effects.

The probability that infection with hepatitis B will become persistent decreases with the age at which infection occurs. Between 60% and 90% of babies born to the most infectious mothers (those positive for hepatitis B e antigen) become carriers if infected perinatally, whereas this happens to less than 10% of those people infected as adults.¹⁻³ Perinatal infection can be prevented by prompt administration of immune prophylaxis at birth,^{4,5} and the prevention of perinatal infection in this way will have a substantial impact on the numbers of carriers in the future.

The Netherlands is one of Britain's closest neighbours in Europe, and its population includes immigrants from other parts of Europe and from parts of Asia, reflecting its colonial past. The two countries compare much better with each other than with the United States, with its financially polarised health care system. Britain should take advantage of two Dutch reports published in this week's journal (p 1197,⁶ p 1200⁷). Data have been gathered on antenatal screening for carriage of hepatitis B in nearly 100 000 women over seven years in four centres. The results, therefore, present the overall position in the Netherlands with great accuracy.

Any programme to prevent perinatal infection must identify mothers who are carriers of hepatitis B virus. Within a largely European population the prevalence of infection can be expected to be relatively low, so some screening system is needed to identify the pregnancies at risk. Screening in late pregnancy proved not to be practical in those areas where half of the women were delivered at home under the care of midwives. The answer found was to incorporate screening for hepatitis B surface antigen with the antenatal screening tests for blood group and for syphilis routinely carried out at 14 weeks. This approach found 705 women who were positive for the surface antigen, of whom only two proved not to be long term carriers. The effectiveness of the screening programme was checked by looking for the results of screening tests at delivery and by cross checking the laboratory screening lists against birth registrations. Coverage in excess of 95% was reached by all centres by the end of the study. Of the 99 706 women screened, 97.3% were screened prenatally; only 2.7% needed screening at delivery. The overall prevalence of carriage of hepatitis B surface antigen was 0.74%, with

higher rates in big cities—Rotterdam and Utrecht—and lower rates in rural areas, the suburbs, and communities with high socioeconomic indicators.

Unsurprisingly, the mothers presenting at delivery without antenatal care had a higher risk of being carriers of hepatitis B virus (4.0%) and included more women in their first pregnancy. Sixty five per cent of the carrier women identified were European, and in a small study on women of Dutch origin in one centre a risk factor could be identified in only about half.

Many previous studies in countries with low endemicity, such as Britain and North America, have looked at selective versus universal antenatal screening.⁸⁻¹² When a direct comparison has been made, selective screening failed to identify about half of the women whose babies were at risk.⁸⁻¹⁰ Among the reasons for the failure of selective systems are the difficulty of discussing risk behaviour in a busy antenatal clinic, the possibility that women with no risk factors might have been infected by a partner with a "risk history," and many infected women have no recognised risk factors. Selecting all non-European women would discriminate against the indigenous population—whose babies also need to be protected against this infection. As a result of the study in the Netherlands the Dutch national health authority has adopted as policy non-selective screening for hepatitis B infection with tests for blood group and syphilis early in pregnancy. Laboratories were requested to add an assay for hepatitis B surface antigen to their screening package for "a nominal sum."

In Britain the policy on antenatal screening for hepatitis B surface antigen acknowledges that selective screening fails to identify some carriers and that clinics should therefore consider offering screening to all patients.¹³ In a recent survey 32 districts out of 198 in England and Wales were found to be operating a universal screening policy, while 126 offered selective screening—not necessarily all on the same basis—but those districts offering universal screening were estimated to account for 27% of all the pregnancies (J Heptonstall, personal communication). Where universal testing was being offered the blood samples obtained at antenatal booking were tested by the regional blood transfusion centres, with confirmatory tests and tests for infectivity being referred to regional virology laboratories.

Previously, new large scale initiatives in public health have rarely happened without new funding, and finance may be one of the obstacles to the adoption of universal antenatal screening for hepatitis B in Britain. The cheaper the screening test the closer the cost of universal screening matches the cost of selective screening when the additional "interview" time is taken into account.¹⁴

In those parts of Britain where universal screening has been in place longest regional blood transfusion centres carry it out.

The transfusion centres are computerised and automated for screening hundreds of blood samples each day. The huge workload with blood donors assures the lowest possible costs of reagents for antenatal screening, and, so long as the close links with virology reference laboratories ensure that all reactive samples are referred for confirmation those laboratories will continue to test for markers of infectivity and advise the maternity units directly.

We need a standardised, nationwide universal screening programme for hepatitis B carriage. The blood transfusion service is likely to be the most cost effective provider.

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1 Jacyna MR, Thomas HC. Pathogenesis and treatment of chronic infection. In: Zuckerman AJ, Thomas HC, eds. *Viral hepatitis: scientific basis and clinical management*. Edinburgh: Churchill Livingstone, 1993:185-205.

- 2 Derso A, Boxall EH, Tarlow MJ, Flewett TH. Transmission of HBsAg from mother to infant in four ethnic groups. *BMJ* 1978;ii:949-52.
- 3 Beasley RP, Hwang LY, Stevens CE. Efficacy of hepatitis B immunoglobulin for the prevention of perinatal transmission of the hepatitis B carrier state: final report of a randomised double blind placebo controlled trial. *Hepatology* 1983;3:135-41.
- 4 Boxall EH. Maternal transmission of Hepatitis B. In: Mortimer PP, eds. *Public health virology: twelve reports*. London: Public Health Laboratories, 1986.
- 5 Wong VCW, Ip HMH, Reesink HW, Lelie NP, Reerink-Bronges EE, Yeung CY, et al. Prevention of the HBsAg-carrier state in newborn infants of mothers who are chronic carriers of HBsAg and HBsAg by administration of hepatitis B vaccine and hepatitis B immunoglobulin. *Lancet* 1984;ii:921-6.
- 6 Grosheide L, et al. Antenatal screening for hepatitis B surface antigen. *BMJ* 1995;311:1197-9.
- 7 Grosheide L, Klokman-Houweling JM, Conyn-van Spaendonck MAE, and the National Hepatitis B Steering Committee. Programme for the prevention of perinatal hepatitis B infection through screening of pregnant women and immunisation of infants of hepatitis B positive mothers in the Netherlands, 1989 to 1992. *BMJ* 1995;311:1200-2.
- 8 Cozen W, Mascola L, Enguidanos R, Bauch S, Giles M, Paxton P, et al. Screening for HIV and hepatitis B virus in Los Angeles County prenatal clinics: a demonstration project. *Journal of Acquired Immune Deficiency Syndromes* 1993;6:95-8.
- 9 Banatvala JE, Chrystie IL, Palmer SJ, Kenney A. Retrospective study of HIV, hepatitis B and HTLV-1 at a London antenatal clinic. *Lancet* 1990;335:859-60.
- 10 Sweet LE, Brown MG, Lee SHS, Liston RM, MacDonald MA, Forward KR. Hepatitis B prenatal screening in Nova Scotia, 1990-1991. *Can J Public Health* 1993;84:278-82.
- 11 Okun NB, Larke RPB, Waters JR, Joffres MR. Success of a program of routine prenatal screening for hepatitis B surface antigen; the first two years. *Can Med Assoc J* 1990;143:1317-21.
- 12 Chernesky MA, Blajchman MA, Castriciano S, Basbaum J, Spiak C, Mahony JB. Analysis of a pregnancy-screening and neonatal-immunisation program for hepatitis B in Hamilton, Ontario, Canada, 1977-1988. *J Med Virol* 1991;35:50-4.
- 13 Department of Health. *Immunisation against infectious disease*. London: HMSO, 1992.
- 14 Audet A-M, Delage G, Remis RR. Screening for HBsAg in pregnant women: analysis of the universal screening policy in the province of Quebec. *Can J Public Health* 1991;82:191-5.

Second opinions for patients with cancer

Can give peace of mind but should be used wisely

Cancer is a common disease. Currently it will affect one in three of us in Britain, but by 2020 the figure will be one in two because of changes in the age distribution of the population. The report of the Expert Advisory Group on Cancer has recently been accepted by health ministers in Britain.¹ When fully implemented this will provide a hub and spoke system for cancer care based on protocols devised by about 25 cancer centres linked to units in every sizeable general hospital. This will reduce the problem of variations in the quality of care, but it will take time, money, and effort to achieve. There will also be considerable advances in the technology of cancer care, spawned mainly by a revolution in molecular genetics.²

Cancer evokes considerable emotion in patients, their families and carers, and health care professionals. The information charities BACUP and Cancerlink have been remarkably successful in providing objective information about various aspects of cancer and its treatment, and since their creation they have dealt with an increasing number of telephone inquiries. But often the apparent hopelessness of the situation and the way in which it is conveyed to patients by doctors leaves patients with more questions than answers. The media constantly bombard us with success stories in cancer. These range from apparent breakthroughs in molecular genetics that promise novel treatments through press releases from drug companies before the launch of new and often expensive cytotoxic drugs to personal stories of actors and actresses "beating" the disease. We know that most patients will accept intensive treatment even when the chances of appreciable benefit are minimal.³ It is therefore not surprising that some patients seek second opinions if the first does not tell them what they want to hear. Are such opinions worth while, and, if they are, how should doctors and health services respond?

There is almost no information available that addresses these questions, although the new contracting environment should change this. Most second opinions stem from patients' dissatisfaction and in many cases are the result of poor communication. An overoptimistic initial approach in a patient starting chemotherapy for metastatic breast cancer,

which we know carries a 90% chance of relapse within two years, is likely to cause subsequent loss of confidence. In my experience a failure to deal honestly with problems, because of the emotional stress of breaking bad news, is perhaps the biggest single factor in driving a patient to seek an opinion elsewhere. Most patients trust their doctors, and surprisingly few go elsewhere when the chips are down, provided the approach is honest and straightforward. A second opinion can also have a down side: it can create false hope, which, if shattered, leads to even greater despair and despondency.

In certain situations, however, another opinion may be a useful therapeutic tool. These include the following: rare types of cancer in which recent advances have taken place (such as aggressive germ cell tumours, certain lymphomas, soft tissue sarcomas, and early breast cancer with a poor prognosis), when it is vital that the opinion should come from a team specialising in the appropriate problem; cases in which a radical therapeutic option that is associated with a high morbidity and potential mortality is being recommended and the patient and general practitioner are uncertain of the benefits; cases in which unresolved conflicting views on the best management have been conveyed to the patient; cases in which the patient cannot accept that nothing more can be done; cases in which communication between patients and their doctors has broken down; cases in which a new drug or technique is available for the patient's specific condition and its use is limited to specific centres; and those rare cases in which litigation against the primary treatment centre is pending.

It is always vital that the patient's general practitioner acts as the conduit for the arrangements and as the final arbiter. The opinion should be sought at a different institution from the one at which the patient is being treated. All clinical details should be available at the time of consultation, including past and intended treatments, with exact doses of drugs and radiation. Without this information the consultation will have little chance of providing a fresh look at the situation. X ray films and pathology samples may also be required. In the United States patients going from one institution to another are likely to have investigations,