or casual contact, so that safety precautions for the care of patients have been adopted on the lines of those already in use for hepatitis B. In November 1982 the Centers for Disease Control formalised this approach by issuing safety guidelines for clinical and laboratory staff. These served to identify the potentially affected groups at risk and the precautions required to avoid infection with the putative AIDS agent, using the hepatitis B model.¹⁵ The recommendations were "not meant to restrict hospitals from implementing additional precautions," and, for example, our district has made some minor modification while still recognising the essential good sense of the American guidelines. Possibly further precautions may be required to combat the potential transmission of opportunistic pathogens which patients with AIDS may be excreting.¹⁶ In particular, other patients and staff may be at risk because of their own immune state—for example, those with diseases or receiving treatment associated with immunosuppression, and pregnant staff, in whom cytomegalovirus infection should be avoided.

With the exponential increase to well over 3000 cases in the past four years in the United States, increasing numbers of health care workers have been exposed to the blood (including needle stick injuries), secretions, excretions, and tissues of patients with AIDS. No reports have been confirmed of patients having transmitted the disease to those who care for them. The future occurrence of such cases remains a theoretical possibility—AIDS seems likely to have a long disease free incubation period. The incidence of disease, however, among health care staff seems no greater than in the general population as a whole. Cases have occurred in health personnel, but all belong to groups at risk or with insufficient information to exclude known risk factors, and none of these has had direct contact with patients with AIDS.^{17 18}

We seem, therefore, to be dealing with an agent of low infectivity similar to hepatitis B virus—which, if handled sensibly, is not a risk to health workers. The epidemiological data from the United States have enabled us to use the safety precautions already largely established through experience with hepatitis B. Examination of the facts does not support the contention that health workers coming into social or caring contact with patients run a risk of developing AIDS. These facts should now allow all of us to be able to carry on caring for extremely ill patients in the usual medical tradition. None of us would like to adopt attitudes and postures towards our patients based on ignorance which, with hindsight, may make us feel ashamed.

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Problems of hospices

Hospices and other specialist units for the care of patients dying from cancer have grown in numbers dramatically in the past two decades—with near universal approval from doctors, nurses, and the public. Indeed, "the hospice movement" has about it an odour of goodness that upsets many of its members. For, in practical terms, terminal care units are hospital units like any others. Their staff have to be paid, buildings repaired, and bills met for food, laundry, and heating. Sadly, some of the independent hospices are facing financial problems.

Twenty years ago there were only 12 hospices in Britain; now there are 81, with 30 more in the planning stage. Many of these were built with capital raised locally by a community and some are still funded entirely from charitable sources. Others have contractual arrangements with the NHS which pays the cost of some beds. Those built in association with the National Society for Cancer Relief provide 300 beds in units constructed by capital raised locally but on the sites of NHS hospitals and with the intention all along that they should be run by the NHS. Almost exactly half the 1730 hospice beds are currently funded by the NHS, either directly or contractually. Five hundred and thirty one beds are in Sue Ryder and Marie Curie homes (of which 89 are funded by the NHS) but of the 40 other independent units 18 have no contribution at all to their costs from the NHS. In the past five years the National Society for Cancer Relief has helped to start and finance domiciliary nursing services as an extension to hospice care—and again its policy has been pump priming, with the NHS agreeing to pick up the revenue costs after three years.

At present, therefore, whether or not an individual patient can be given specialist care when dying depends on geographical chance. He (or she) may find himself in an NHS unit, possibly attached to an oncology department—or in a religious foundation, many miles from the nearest hospital (though such foundations nowadays admit patients of all denominations—or none). His doctor may be a full time consultant or a general practitioner who attends a few times each week. Or he may be looked after at home by nurses trained in the skills required before and after death. Some hospices are well endowed;

others scrape along and one claims that it cannot afford to keep all its beds in use. Payments from the NHS to many units are unpredictable—and the prospects for the next few years look very gloomy, with ever increasing pressure on NHS budgets.

Much of this confusion was apparent last year when the BMA annual representative meeting debated the issue. Among the problems raised were the high cost of drugs in independent hospices—a familiar problem in all branches of non-NHS medicine—the lack of any planning in the distribution of hospices around the country, and the need for specialist training for the medical and nursing staff.

Now at least two groups are being formed from doctors and charitable workers to promote the financing and further development of the hospice movement. Several questions need to be answered at this stage if the era of well intentioned amateurism is to be succeeded by hard headed professionalism.

Firstly, should the care of the dying be part of the NHS? Or should it be part NHS, part private sector? If the private sector is to provide for much of the future expansion of terminal care, who will plan the siting of new units? Who will set standards of staffing and performance? If, on the other hand, the NHS is to take on the responsibility, will enough new money be found to provide both capital and revenue costs? Or will the sorry story of end stage renal failure be repeated, with never enough money to treat the patients in need?

Secondly, whether in NHS or private units, whose responsibility should be the training of staff? The National Society for Cancer Relief has helped organise an ad hoc education group which is planning two training courses for doctors and two for nurses, but very soon the policy making bodies will need to decide whether patients in hospices should be looked after by any doctor willing to do the work or by consultants and junior staff trained in the same way as in other medical specialties. Ideally at least some medical staff should be in undergraduate teaching units; and account needs also to be taken of the risk of "burnout" in staff working in this specialty; possibly career appointments should be part time or rotating with other branches of oncology.

What should not be allowed is a continuing drift with no planning, no long term financial provision for running costs, and no system of either training or audit. Many people in the hospice movement are practical, experienced, and knowledgeable; what is needed now is a meeting of the various charities and other parties with a view to achieving consensus.

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Pneumococcal infections

Streptococcus pneumoniae has been recognised as a pathogen for 100 years, yet we still do not know its full clinical importance. Recent diagnostic techniques such as counter-immunoelectrophoresis have helped reawaken interest in this organism and in the importance of serotyping the pathological strains. *S pneumoniae* is a main cause of pneumonia, but the severity of the disease varies both among patients and among serotypes. In Nottingham counter-immunoelectrophoresis and culture implicated *S pneumoniae* as a pathogen in three quarters of patients with community acquired pneumonia.¹

In patients with pneumonia but negative sputum cultures in Edinburgh, pneumococcal antigen was detected by counter-immunoelectrophoresis in 69% of sputum samples and from 37% of serum samples.² Despite intensive care and antibiotic treatment non-bacteraemic pneumococcal pneumonia still has a mortality of 6-19% in hospital patients³; in bacteraemic pneumococcal pneumonia this rises to 30-40%.^{1 4-6} In patients with renal or hepatic insufficiency the mortality for bacteraemic pneumococcal pneumonia may be as high as 68%.⁶ Increasing age appears to be an independent risk factor in bacteraemic disease,⁶ though this effect may be attributed in part to atypical presentation and delayed treatment in the elderly.⁷

In both bacteraemic and non-bacteraemic pneumonia the type 3 pneumococcus has long had a sinister reputation.^{4 8} In Nottingham 37% of patients with type 3 infection died as opposed to 17% with type 1 and 10% with type 7 infections.¹

S pneumoniae meningitis may follow bacteraemia or be associated with an underlying mastoiditis, sinusitis, or skull fracture. In children under 10 it is the third most common cause of meningitis but may carry a higher mortality than infections with meningococci or *Haemophilus influenzae*.⁹ Most cases occur in children under 2, and the risk of neurological sequelae was found to be 14% in Danish children.¹⁰ In adults the highest incidence and mortality are seen in people over 60.

Occult pneumococcal bacteraemia in children deserves further interest and study.¹¹ If North American experience is representative, two or three per 100 young children presenting with fever—and often with signs of an upper respiratory tract infection only—will have *S pneumoniae* bacteraemia.¹² Of those who do not have an obvious focus of infection, some recover without antibiotic treatment. A substantial proportion will, however, develop pneumonia, meningitis, or otitis media, occasionally even when antibiotics have been given for the initial illness.¹² The incidence of occult pneumococcal bacteraemia in British children is unknown,^{13 14} and its relation, if any, to pneumococcal carriage and concurrent viral infection has yet to be elucidated.¹⁵

The epidemiological features of infection with *S pneumoniae* and carriage of the organism have been the subjects of many studies. Healthy people frequently carry *S pneumoniae* in their noses and throats, and most pneumococcal disease is probably contracted from carriers. In family studies children under 2 have the highest rates of carriage (38% in preschool children in one study) and carriage declines with age; in the absence of an epidemic, adults with children have a higher rate of carriage than those without (19% compared with 6%).¹⁶ A new strain of pneumococcus may be acquired from another carrier or from a patient with pneumococcal disease, and families with one member with pneumococcal disease have a carriage rate of up to 74%.¹⁷ Strains may be carried for months^{18 19} though possibly most disease is caused by recently acquired strains.¹⁸

Studies of contacts of patients with disease caused by pneumococci resistant to antibiotics have helped our understanding of the spread of the pneumococcus in closed communities. In one incident starting with a patient with pneumococcal meningitis 27% of children from the same room at a day care centre carried the strain, as did 11% of older children and staff.²⁰ Families of the colonised children had a carriage rate of 33%, but no carriers were found in other day centres.

In Johannesburg in 1977, an outbreak of antibiotic multi-resistant pneumococcal disease occurred in several hospitals.²¹