current demand and capacity—which is dictated by the number of qualified consultant radiologists. To balance supply and demand in the NHS, where there is no payment or other means of restricting eligibility, there are only three options: to increase supply, to reduce demand, or to increase waiting times.

Increasing supply means training more radiologists. The Royal College of Radiologists estimates that we need about one-third as many again immediately, with a similar addition during the next decade. Yet even now the number of new consultants appointed without the FRCR is increasing, particularly in deprived regions such as Manchester, where the manpower deficiency is critical. So we have to make diagnostic imaging more attractive than other specialties, including general practice. But radiology is not easily shown as an attractive specialty when its practitioners are burdened by such unreasonable work loads. Attempts made so far to improve recruitment have not been universally encouraging—and, even if successful, this solution would have no effect for at least four years. The only hopeful sign is that emigration appears to be declining, though not because the NHS is becoming more attractive.

The desirability and feasibility of limiting demand for radiology were closely argued by the group. In some areas provision is so meagre that any reduction in work would be an unjustifiable and unreasonable reduction in service to the patient. In other areas the provision of services, especially for GPs, was regarded as excessive and in need of some control. X-ray requests from the casualty department were denied by Dr G de Lacey, who has calculated that medioclegal demands represent only 5-10% of total casualty requests. Moreover, casualty requests must be seen in a wider context. For example, a normal skull x-ray may encourage a casualty officer not to admit a patient, with consequent savings to the service. He illustrated how research into practical clinical problems might help; for example, the significance of soft-tissue swelling in ankle injuries could be related to the potential value of an x-ray. Professor K T Evans discussed the irrational approach to preoperative chest radiography, having found wide variations in the proportion examined and little evidence that the result influenced the decision on whether to operate. The use of a computer was recommended by Dr W B James as a means of improving efficiency and correlating information to help to identify abuses of the limited resources. Many of the group thought that the clinical radiological conference, where clinicians and radiologists could learn about each other’s problems, was the best place to reduce unreasonable requests—as well as being the best means of showing students and junior doctors the potential of a career in diagnostic imaging.

In the discussion on the waiting list as a means of balancing supply and demand (which was distinguished from the waiting time required for efficient organisation of a department), Dr M J Brindle described an experiment in which reasonable capacity rather than reasonable need became the criterion.

Having defined a reasonable capacity, the department decided on priorities in consultation with the district medical committee. This experiment attracted great interest; but few thought that the scheme could be transported to urban areas, where potential users could “shop around” between hospitals for the fastest service.

In summary, diagnostic imaging must improve its own image, attract more candidates, and, in consultation with users, ensure that the best clinical value is obtained from a specialty whose capacity will never be sufficient to meet demand.

Antibiotic lavage for peritonitis

Infections in serous cavities are easily treated with antibiotics but the largest of these, the peritoneal cavity, presents two special problems. Firstly, the circulation within it is impeded by viscosa, so that an injected solution may fail to reach every recess. Secondly, the bacterial causes of peritonitis are many and infections are usually mixed. The predominant organism may vary from case to case, and the importance attached to each main bacterial type has varied at different times; present the non-sporing anaerobes such as Bacteroides spp are in fashion. But in mixed infections it may be unwise to concentrate the attack on a single type of organism, however important: the result may be compensatory proliferation of others, insusceptible to the drug used. Good results have been claimed for local treatment with a single antibiotic; kanamycin—to which, of the various bacteria likely to be present, only Escherichia coli and other enterobacteria are highly sensitive—has been strongly commended for intraperitoneal instillation, particularly for peritonitis complicating appendicitis. Nevertheless, more confidence may be reposed in a mixture of antibiotics with a much broader spectrum of activity; in dealing with so mixed a flora as that of the lower bowel such “shotgun” therapy seems amply justified, inadvisable as it may be in other circumstances.

A triple mixture is one element in a scheme of treatment proposed by M Stephen and J Loewenthal of the Department of Surgery, University of Sydney, Australia. The antibiotics are gentamicin, cephalothin, and lincomycine, aimed at Gram-negative, Gram-positive, and anaerobic organisms respectively, of which 10, 50, and 30 mg are dissolved in a litre of 1-5% Dianol, a solution used for peritoneal dialysis. In their study the same antibiotics were administered parenterally in conventional doses. At the end of the operation at which it was sought to control the contaminating source Portex drains (which must have rounded ends) were inserted in the hepatorenal pouch, the subsplenic area, and the pelvis. Each of these was used in turn, the others being spigoted, and through it 1 litre of solution was infused every hour, left for 30 minutes, and then drained for 25 minutes. This process was continued for 72 hours, and, apart from actual therapeutic effect, the Australian workers claim three advantages for it. Firstly, the maintenance of adequate antibiotic concentrations in both blood and peritoneal fluid; secondly, the action of the dialysing fluid in maintaining normal serum electrolyte values, and thirdly the control of body temperature so that the patient was rendered afebrile. The patients felt well as long as dialysis was used, but the authors rightly warn that such a course of treatment should not be undertaken lightly.

The results of this regimen were assessed by comparison with a former series of 68 patients treated conventionally during 1970-5, of whom 33 died. Some 27 patients were treated by the new method during 1975-8, of whom six died. This difference is all the more striking in that the second

2 De Lacey, G, and Bradbrooke, S, British Medical Journal, 1979, 1, 1597.
series was selected for severity, the criteria being hypotension, multisystem failure with multiple intra-abdominal abscess, the presence of intra-abdominal faeces, or anastomotic breakdown causing generalised peritonitis. Moreover, when the results of conventional and the new treatment in these patients were compared, it was just in those with severe illness—particularly faecal peritonitis—that antibiotic lavage showed the clearest superiority. In simple purulent peritonitis (that is, with no leaking bowel, but source of infection unstated) there was no significant difference in mortality between the two groups.

We need more details of this study, but it seems that the authors may have made a definite advance. The merits of the system are a triple combination of antibiotics administered by two routes, and the elaborate method of peritoneal lavage whereby, so far as possible, every part of the cavity is assured of adequate treatment. Such thorough application may well be a major factor determining success. Antibiotics do not act by magic; like other remedies they may need to be given the best chance.


Prospects in pathology

The two main questions facing the young doctor contemplating a career in pathology are the chances and rate of his achieving consultant rank and how the career compares with other specialties in job satisfaction.

Pathology is in a period of change. With the foundation of the Royal College of Pathologists training programmes have been introduced, leading to examinations for a formal qualification (which previously was lacking). The general pathologist is, however, fast being replaced by specialist histopathologists, haematologists, microbiologists, chemical pathologists, and immunopathologists. The president of the Royal College of Pathologists has recently suggested that even greater specialisation will be necessary in the future, with superspecialists such as neuropathologists and other consultants who, while covering one main branch, might also acquire additional specialist skills (for example, in endocrinology).

The trainee must choose between these alternatives early in his career, for the primary examination—usually attempted within the first two years—consists (for medical graduates) of a paper covering all branches, together with a written, practical, and oral examination in just one of the disciplines. The single-discipline final is taken about three years later, giving a minimum training period of five years. Postponing the hurdle of the final examination to a late stage—contrasted with, say, medicine or surgery—has important consequences. A trainee who decides to change careers has lost much ground. Preparing for examinations militates against undertaking research. Furthermore, since the number of junior (SHO and registrar) posts is so closely geared to consultant vacancies (0.36 per consultant compared with 1.15 for all medical specialities) there is little scope for the would-be physician, for example, who would like to spend a period in pathology—a restriction that acts to the detriment of both specialties.

Within pathology, consultant posts are easiest to obtain in microbiology and competition is greatest in histopathology. Nevertheless, given the right training and qualifications no registrar need fear not obtaining a career-grade post. In 1975-7 11 posts were unfilled in histopathology out of 52 advertised; in microbiology the proportion was 16/42, in chemical pathology 5/24, and in haematology 6/38. The average number of applicants for each post was two in microbiology and five in histopathology—as compared with five for all branches of medicine and 12 for obstetrics. These statistics disguise an even worse recruitment problem. The royal college’s work-load studies have shown a need for more posts in all the disciplines, but with the current record of unfilled vacancies health authorities have little incentive to approve additional posts.

What is the cause of this shortage? Value judgments about whether or not the career is rewarding should not obscure other concrete disincentives. Medical students have little opportunity to work with pathologists, unlike the physicians or general practitioners with whom they have such close contacts. All graduates have at least a year’s postqualification clinical practice—with all its fascinations—before they can enter pathology. So, not surprisingly, in 1975 only 40% of senior registrars in pathology had made the discipline their original career choice (compared with 43% in anaesthetics and 70% in surgery) and 55% had changed from other careers (compared with 43% in anaesthetics and 33% in obstetrics). There was also the relatively high proportion of 59 women out of 174 (radiology 23,101 general medicine and related specialties 34,377, obstetrics 7,100), of whom 78% were married—a factor likely to limit the geographical range of consultant vacancies they might consider.

Other factors that have accelerated change in the pathologist’s working environment are the increasing number of consultant-equivalent (top-grade) non-medical scientists in laboratories, particularly in chemistry and microbiology, arguments about who should manage laboratories, the mechanisation of so much laboratory work, and legislation such as the Health and Safety at Work Act.

Finally, in this materialist age, earnings have to be taken into account. In pathology there are fewer payments for junior staff for work “out of hours,” less opportunity for private practice, and an unattractive ranking in the merit-award table. Pathologists were, indeed, among the more vociferous opponents of the new contract.

Pathology offers a stimulating challenge, founded as it is on rapidly advancing sciences, as well as good career opportunities; but the disincentives to new recruits make its future far from certain.

2 Baron, D N, Journal of Clinical Pathology, 1979, 32, 11.