Leading article

The future of pathologists in an age of cost containment and technological change

The future of clinical pathologists in the United Kingdom will be affected by rapidly developing scientific knowledge and the inevitable proliferation of laboratory tests; changes in instrumentation; an increase in the number of investigations done at the patient's bedside; clinical budgeting; and changes in health service management.

These important topics were discussed at a symposium organised by the Association of Clinical Pathologists at the Barbican Centre, London, in October last year. Speakers included the President of the World Association of Societies of Pathology, a former President of the College of American Pathologists, the President of the Royal College of Pathologists, the President and Chairman of Council of the Association of Clinical Pathologists, the chief medical officer of the DHSS, the assistant under secretary of state, Police Department, Home Office, senior pathologists from each of the major disciplines, and senior administrative and advisory staff from the National Health Service. Some of the points arising from the meeting are contained in this brief report.

Management

During the past decade both the role and status of medical heads of department in pathology laboratories have been challenged. In the early 1970s there were rapid developments in laboratory medicine with the generation of many new non-medical jobs and potential career opportunities. This expansion ceased in the late 1970s resulting in poor prospects for promotion for many of these workers.

The problem has been exacerbated more recently by the rising level of unemployment and the introduction of graduates into junior non-medical posts with little prospects of them making full use of their scientific training and background. To make matters worse there is growing uncertainty about the future of laboratories as cost containment becomes a major consideration. It is not surprising, therefore, that

management has become increasingly important and that conflict has appeared between the various competing professional groups within laboratories.

In 1974 the DHSS issued guidelines on the management of laboratories in England and Wales (HSC[IS]16) which defined the recommended managerial structure and interprofessional relationships quite clearly; that document is still the official DHSS guideline but problems have emerged—partly because some pathologists have failed to take on fully their managerial responsibilities and partly because the document has been ignored by some hospital administrators. Moreover, both groups have failed to appreciate its importance and relevance. Many instances when it has not been followed have been successfully challenged, but several managers have tried to keep the peace by introducing a compromise. In practice this has merely obscured lines of accountability and will eventually make it more difficult for pathologists to manage their own laboratories. There is an urgent need for a clear and unequivocal updated document from the DHSS and the Welsh Office reiterating the principles of HSC[IS]16, which will define the lines of management accountability in NHS laboratories. This has already happened in Scotland where the Home and Health Department issued NHS circular No (GEN) 4 in 1984.

At present there are two main challenges in pathology management. Firstly, to define the most appropriate level and type of staffing in laboratories and, secondly, to rationalise all laboratory services to make the most efficient use of staff, space, and equipment. Clinical pathologists must take up these challenges as managers of the laboratories. Management is not an occasional organisational chore of the chairman of the division but is an integral part of a pathologist's daily duties. Managerial skills should become a compulsory component of pathology training; management topics are already included in pathology postgraduate examinations but need more emphasis so that trainees are aware of its importance in their future careers.

The introduction of clinical budgeting will have a

profound effect on laboratories. It is difficult to be certain exactly what this will be but clinicians may reduce their demands for tests to save money which may then be used in other areas of medical need; laboratory income will fall, resulting in the closure of uneconomic services and a reduction in the number of staff.

In the United Kingdom the Körner committee was set up to provide a management information system and, *inter alia*, to advise on the collection of pathology statistics. The committee thought that a tighter definition of a "request" might enable a more accurate assessment to be made of laboratory workload and that "performance indicators" could be based on such a "request". The DHSS acknowledged that these may not be the most appropriate indicators, but it is hoped that they will encourage pathologists to look at their work more critically. Future developments should provide ways of costing laboratory practice, and computer programmes have now been developed that will delineate the various components of laboratory tests such as medical and technical manpower, consumables, equipment, maintenance and overheads, as well as the cost of other activities such as teaching, research, and development. One such programme has been commissioned by the DHSS and is being tested.

Technical change

The problems facing individual disciplines as a result of technological progress are similar but are likely to affect some more quickly than others. There are two problems: firstly, the possibility that an increasing proportion of the work will be carried out by clinicians nearer to the patient; and secondly, the need to make sure that finite laboratory resources are used more efficiently.

CHEMICAL PATHOLOGY

The scope for "on-site" clinical chemistry has dramatically increased in recent years and this trend will undoubtedly continue. Quantitative analysis of glucose, blood gases, sodium, potassium and paracetamol in blood can be done in the side ward as simple equipment has become available that can be operated by clinicians. Equipment is now also available to assay serum chorionic gonadotrophin, urea, urate, cholesterol, triglyceride, gamma glutamyl transferase, phenytoin, phenobarbitone and morphine in urine, and such assays can be completed within a few minutes. Soon to appear are assays for creatine, aspartate and alanine transaminase, creatine kinase and luteinising hormone. Many more will follow. Desk-top analysers controlled by micro-processors and designed for use by clinicians are now

available. Such machines are already in use in the offices of physicians in the United States, and general practitioners in the United Kingdom will be using them soon. If these developments are to take place properly, it is important that pathologists have a say in the choice of equipment, its operation and maintenance, otherwise developments may occur without proper attention to safety codes or quality control.

HAEMATOLOGY

Since the late 1960s more and more haematologists have taken on some of the clinical management of patients at the expense of their laboratory work. A great deal of their time is taken up in the management of haematological neoplastic disease. This will undoubtedly continue in the foreseeable future, and the experience gained by haematologists in autografting patients with their own marrow after radiotherapy may well be extended to the management of many tumour types.

The development of increasingly more elaborate machines for blood counts may almost eradicate the need for microscopy in haematology—apart from the analysis of bone marrow—and similarly advanced equipment will carry out other routine haematological tests including those for blood banking. The introduction of such machinery will inevitably result in greater centralisation of resources within districts.

As in chemical pathology the development of "desk-top" machines will enable a greater range of haematological investigations to be carried out closer to the patient, and even now intensive treatment units carry out several investigations including coagulation tests.

MICROBIOLOGY

The three main areas of scientific advance in microbiology are in the discovery and appearance of new pathogens, new methods of diagnosis, and in the introduction of new antimicrobials. There has been a considerable increase in the demand for clinical advice from microbiologists which has highlighted a relative weakness in experience of infectious diseases throughout the country. This demand for additional clinical advice relates largely to the growth of intensive care medicine and the increased prevalence of various types of immunosuppressed patients. As in haematology and chemical pathology various microbiological diagnostic kits are beginning to appear for use by clinicians and general practitioners, and additional kits will undoubtedly become available in the future. At present these are expensive and there are particular worries about their use without adequate quality control.

HISTOPATHOLOGY

Histopathology is likely to remain largely based on subjective opinion, but the availability of increasing numbers of antibodies for use in immuno-histochemical staining techniques will lead to more objective identification of cell types, cell products, and metabolic processes. This will be an expensive venture needing some centralisation of resources and proper training of staff, and considerable experience will be needed in the interpretation of many of the results. Cytology screening machines and techniques more accurate than the human eye will almost certainly become available before long. There will be a gradual replacement of subjective opinion by biochemical, microbiological, and DNA analysis of tissue. With the development of more advanced imaging techniques (including nuclear magnetic resonance), more diseases will be diagnosed without the need to remove tissue.

Conclusions

The nature of laboratory medicine is changing and will continue to do so. While medical pathologists will need to continue their traditional roles they will also need to develop more managerial skills to control and manipulate both the future demands made on laboratory services and by laboratory services while facilities expand and resources diminish. Laboratory services are at the heart of developing clinical practice. If clinical pathologists accept and meet the challenges of the future they could be of the utmost importance in the planning and provision of health care. If they fail to grasp this challenge the opposite may well apply.

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