An initiative to reform senior house officer training in histopathology

PJ Gallagher, MF Dixon, S Heard, JK Moore, KP West

Senior house officer schools in histopathology have been established in Leeds, Leicester and Southampton, each training six new recruits each year. Nine hours of protected teaching time is provided each week giving a ratio of apprenticeship learning to formal teaching of 3:1. Evaluations have been very positive. Much of this success is attributed to careful planning and adequate funding. This may be a useful model for other specialties to follow.

INTRODUCTION

There is a shortage of histopathologists in the UK. In many areas consultant posts are unfilled and this is impeding the development of cancer services. The Royal College of Pathologists reports that there are nearly 200 vacant consultant posts and that this may rise to 400 by 2006 (P Quirke, personal communication, 2002). Recently the public standing of pathology has declined, initially as a consequence of widely publicized errors by histopathologists but more dramatically as a result of the public reaction to unauthorized retention of organs after post-mortem. Paradoxically these events have lead to a greater general understanding of the contribution of histopathology to the diagnosis and management of patients.

Histopathology continues to attract young graduates of high calibre but hard-pressed consultants have little time to devote to training. They are especially reluctant to take on first year senior house officers (SHOs) who require the most careful training and supervision.

This article describes the development and evaluation of 'SHO schools' in histopathology. They aim to provide a structured, efficient and cost effective means of first year training in histopathology and incorporate many of the attributes of 'basic specialist training programmes' proposed as part of a programme of reforms for the SHO grade (Donaldson, 2002).

Dr PJ Gallagher is Consultant Cardiovascular Pathologist in the Department of Pathology, Southampton University Hospitals, Southampton SO16 6YD, **Professor MF Dixon** is Professor of Gastrointestinal Pathology, Academic Unit of Pathology, University of Leeds, Leeds, **Dr S Heard** is Dean of Postgraduate Medical Education, London Deanery, London, **Dr JK Moore** is Senior Medical Officer in the Department of Health, London, **Dr KP West** is Consultant Histopathologist in the Department of Histopathology, Leicester Royal Infirmary, Leicester for the SHO Schools Steering Group

Correspondence to: Dr PJ Gallagher

DEVELOPMENT OF SHO SCHOOLS

Many teaching hospital departments train more than one first year SHO at a time but few have previously had large numbers. Unusually, the Leeds NHS Trust Department of Pathology accumulated six SHOs in 2000–1 and concluded that it was possible to train a large number effectively. This was seen as an answer to the UK's need to train more histopathologists. With the support of the Workforce Development Unit in the Department of Health, the team responsible for the development of cancer services was approached for new funding. As a consequence £1.3 million was allocated for the development of three training schools, each of which would recruit six SHOs each year for 3 years. This sum was made up of a start-up capital allowance to each school and £100 000 per year to each centre to allow the appointment of a new whole time consultant, administrative support and additional recruitment and running costs. The salary costs of the SHOs were centrally funded. There was no allowance for out of hours duties.

The timescale was short but Leeds, Leicester and Southampton applied to develop schools. The support of the medical director and chief executive, availability of an experienced consultant to act as lead trainer and the physical capacity to support six additional trainees, together with their geographical distribution, were the most important factors in the early decision to develop a school. A central recruitment exercise for all three schools attracted 54 applications for August 2001, 93 for August 2002 and 128 for August 2003. Structured application forms were scored by selectors in each school and the highest scoring candidates selected for interview. Each candidate was interviewed by two panels in turn, with questions designed to elicit evidence that the candidate had the attributes described in the person specification. The application form scores and the interview were given equal weight in calculating the final rank order. Candidates' preferences were subsequently considered in allocating individuals to particular centres.

THE TRAINING PROGRAMME

In developing these SHO schools the aim was to strike a more realistic balance between formal 'schooling' and 'apprenticeship' in clinical work. The current components of these in one of the schools are shown in *Table 1*. The ratio of clinical apprenticeship work to formally timetabled teaching and learning was just less than 3:1. One third of the formalized learning was provided in four block weeks which replaced normal study leave. In these weeks all 18 SHOs met in the centres in rotation for a specific programme of instruction (*Table 2*). Outside these weeks an average of 5 hours group teaching was provided per week. In one centre, for example, this included four 30-minute sessions of basic histology and surgical pathology instruction over a multi-header microscope, a 45-minute confer-

TABLE 1.
Overall structure of training programme

Section	Activity	Hours allocated
Formal teaching and learning	Four weeks of block teaching	160
	Timetabled teaching	200
	Induction training	120
	Total	480
In-service apprenticeship learning	General surgical and post-mortem histopathology and cytology	980
	Neuropathology and paediatric pathology	280
	Audit, research and undergraduate teaching	140
	Total	1400
Annual leave		200

TABLE 2.
Format of the 4 weeks of block instruction

Week 1 (August)	Introduction to histopathology, health and safety in the laboratory, practical introduction to surgical pathology on a systematic basis (seven major organ systems), introduction to the autopsy, clinical governance and risk assessment, use of medical databases and search strategies
Week 2 (November)	Quality assurance, clinical governance and health service planning, introduction to molecular pathology, slide seminars on gastrointestinal, skin and autopsy pathology
Week 3 (January)	Symposium on 'Teaching Tomorrow's Doctors', research methodology, including biomedical imaging, 2-day practical workshops on information technology
Week 4 (May)	Practical sessions on diagnostic cytopathology, quality assurance in cytology, liquid-based cytology, laboratory organization, aptitude assessment

ence on problems in diagnostic histopathology, a 45-minute tutorial on current concepts in general pathology and a weekly regional MRCPath course.

The clinical training followed the pattern established informally in UK teaching hospitals and summarized in the Royal College of Pathologists' guidelines (2003). To promote consistency between centres it was specified that all SHOs should complete 20 post-mortems over the course of the year and spend 4 weeks in both paediatric pathology and neuropathology. All aspects of diagnostic clinical work were supervised directly by consultants but additional supervision was provided by specialist registrars, particularly in the dissection of surgical specimens and in post-mortem procedures. Each SHO was allocated an audit or small research project. During the course of the year they also gave 12 tutorials to first year medical students and occasional post-mortem demonstrations to third year students.

EVALUATION OF THE PROJECT

Methods

The imminent arrival of large numbers of new staff into already busy departments was a cause for some apprehension. This was tempered by the generous financial support which allowed the purchase of high quality microscopes and the appointment of a new consultant in each centre. The immediate subjective effect in all three centres was positive. Many members of staff felt that this was the first positive development for some time in a speciality that had suffered much adverse publicity. In order to evaluate the project four methods of assessment were developed:

1. Assessment of aptitude of trainees for further progression in histopathology
2. Questionnaire survey of attitudes of different groups of staff to the school
3. Detailed qualitative study of the opinions of members of one school
4. Comparison over a longer term of the progression and outcomes of SHO school trainees with those in SHO posts in other training centres.

Results

Progression: As is now required by the Royal College of Pathologists, all 18 SHOs undertook and passed an aptitude assessment after 9 months. This initially involved discussion with an assessor of unseen surgical slides over a double-headed microscope and discussion of a portfolio of surgical pathology and post-mortem reports. Subsequently, a more structured form

TABLE 3.
Format of the structured aptitude assessment

Clinical problem	Material presented	Questions posed
28-year-old female with Crohn's disease	Macroscopic and microscopic photographs of small intestinal resection	Description of changes
79-year-old male who died of pontine haemorrhage 12 hours after receiving thrombolysis for acute MI	Macroscopic and microscopic photographs of myocardium and mid brain	Macroscopic description of photographs, provisional diagnosis and clinico-pathological comment
16-year-old male with cystic fibrosis who died of *Pseudomonas* pneumonia	Macroscopic and microscopic photographs of lung	Description of changes, comment on approach to paediatric post-mortem examinations
Cervical cytology	Three cervical cytology reports	Discussion with consultant cytologist on appropriate further action in each case
Autopsies on patients with possible occupational lung disease	Summary of post-mortem findings in two cases	Discussion of principles of examination and report with a pulmonary pathologist
Cervical lymph node biopsy in a 72-year-old male with malaise and a previous history of prostatic carcinoma	Slide of lymph node biopsy showing typical nodular sclerosing Hodgkin's disease	Discussion of histological findings with consultant histopathologist over a double-headed microscope

MI = myocardial infarction

of assessment was piloted on six SHOs in one of the schools (*Table 3*). All passed without difficulty but reported that it was more demanding than the less structured initial assessment.

Sixteen of the 18 SHOs obtained specialist registrar posts, five in the same department where they spent their SHO year. The remaining two SHOs switched to train for general practice, citing a desire for more patient contact.

Staff attitudes: A questionnaire was circulated to staff in each centre. This asked six specific questions and asked respondents to comment on three positive and three negative aspects of the school programme. Each department was 'flooded' with questionnaires so the exact response rate is not known. Of the 86 respondents, 34 (39.5%) were consultants, 21 (24.4%) were specialist registrars, 20 (23.3%) were biomedical scientists and the remaining 11 (12.8%) were secretaries or anatomical pathology technicians. Their responses are summarized in *Figure 1* and *Table 4*.

In each centre two consultants shared the responsibility for organizing the training and it was clear that the work involved consumed the equivalent of a full consultant. The majority of other staff felt that their workload had increased. As the project beds down it is possible that the impression of increased work will change.

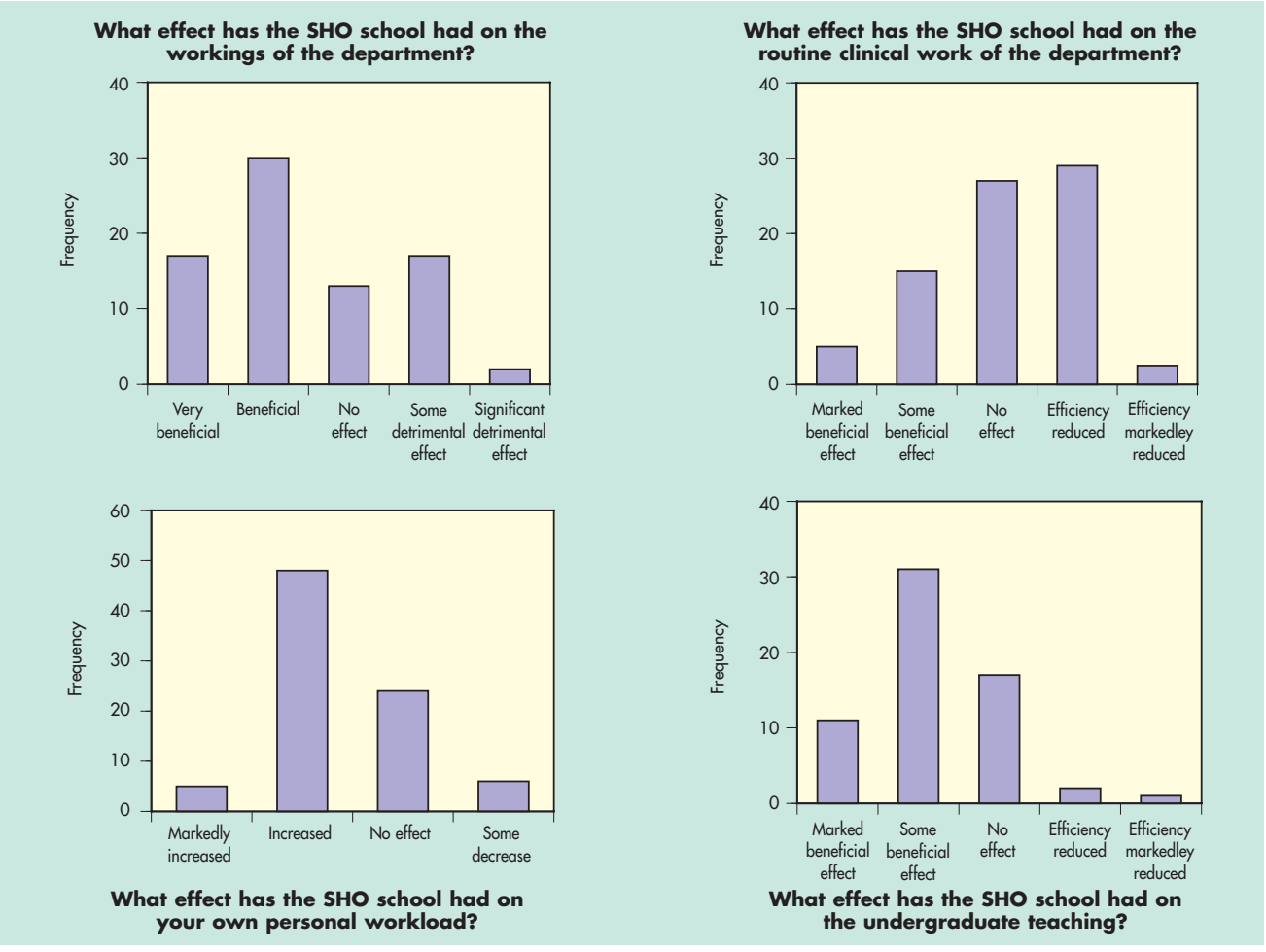
Qualitative study of SHO attitudes: An experienced specialist in medical education organized a feedback session with the members of one school shortly before the end of the year's training. The SHOs were positive about the training received. The major issues and possible resolutions, in order of priority were to:

- Review working hours in order to deliver the programme within a 40-hour week
- Construct clear aims and objectives for the programme and define the balance between new-style instructional and old-style apprenticeship training
- Expand the induction period to 1 month
- Improve coordination and communication between schools and move towards a common curriculum
- Review undergraduate teaching duties and spread the load more evenly through the year
- Make better use of the multiheader teaching microscope
- Review the end of year aptitude test.

FUTURE DEVELOPMENTS

As a consequence of these evaluations a number of developments were proposed and have been instituted. These will be directly relevant to training within schools but should also be applicable for

Figure 1. Results of questionnaire circulated to staff at the end of the first year of the project.



first year training in histopathology in other centres in the UK. These include:

- Development of a detailed curriculum for the SHO year in histopathology, covering surgical and post-mortem pathology, cytology and generic skills
- Establishment of a trainee's website (http://www.pathnet.org.uk)
- Development of an objective structured pathological examination for use in the end of year aptitude assessment.

A project to compare the progression of school SHOs with those in other centres is in progress but the results will not be available until the first cohort of school SHOs are more advanced in their specialist registrar positions.

CONCLUSIONS

The first year of the histopathology SHO schools has been a success. The transition from working as an increasingly competent clinician to starting again as a beginner pathologist, requiring continual supervision, can be demoralizing. The common education programme allowed SHOs from different centres to share these experiences and difficulties. It was also a driving force for the development of a core curriculum and a standardized form of aptitude assessment.

Besides specific instruction in histopathology and cytology, generic issues were discussed, including teaching and research methods, clinical governance, developments in management and audit. It is possible, and perhaps desirable, that some of these generic skills should be acquired before basic specialist training begins.

It is envisaged that in future entry to higher specialist training programmes will always be preceded by a year of standardized training in an SHO school. In the UK, at least 10 schools with eight trainees each would be appropriate to meet the needs of the service at present. The authors believe that other specialties could learn from the model presented here, but would emphasize that success was dependent on adequate funding to allow the programmes to be correctly planned, delivered and evaluated. HM

TABLE 4.
Summary of the most frequent positive and negative comments on the senior house officer (SHO) school

Positive comments	Enhanced status of department both internally and externally. Kudos for department, gives the department a buzz
	Great help with undergraduate teaching
	Everyone has helped with the SHOs in some way – teamwork. Biomedical scientists (in training) have been able to relate well to medical staff who are also in a training role
	Structured training from the start of pathology career
	Encouragement in audit work
	SHOs get a grounding in some basics that they might not otherwise have, such as statistics
	Their training provides a stimulus for senior trainees and consultants
	Financial input has enabled resources to be bought for the department, which is a benefit for all
Negative comments	The efficiency of reporting surgical histology has been reduced
	Hard work in the early phase, with so many inexperienced pathologists having to work under supervision
	Surgical cut-up is difficult at times since the SHOs are very slow at first
	The main difficulty is achieving the best balance between service work and formal teaching, especially within a 40-hour week
	SHOs find the teaching given by the consultants for the registrars too advanced
	It is more difficult for a group of SHOs to integrate into the department than it would be for one or two
	At the end of one year not all trainees were confident to cut up all specimens. Less space for individual trainees with subsequent overcrowding in the department
	Apparent prioritization of SHO training, funding and study leave over that of specialist registrars
	Training should be much more consultant led rather than registrar led

The authors would like to thank all members of staff in Departments of Pathology in Leeds, Leicester and Southampton for their support in establishing this scheme. Funding was provided by the Cancer team in the Department of Health and the project was coordinated by a steering group chaired by Dr Julia Moore. This report has been prepared on behalf of all members of the group. We acknowledge, in particular, the support of Dr Hugh Platt and Professor Phil Quirke. Information about individual schools can be obtained from the lead trainers: Leeds, Professor MF Dixon (miked@pathology.leeds.ac.uk), Leicester, Dr KP West (kpw2@le.ac.uk) or Southampton, Dr PJ Gallagher (pjg4@soton.ac.uk).
Conflict of interest: none.

Donaldson L (2002) *Unfinished business-proposals for reform of the senior house officer grade.* Department of Health, London (http://www.doh.gov.uk/shoconsult/)
Royal College of Pathologists (2003) *Core training programme in histopathology.* Royal College of Pathologists, London (http://www.rcpath.org)

KEY POINTS

- The development of senior house officer schools in histopathology was part of an overall strategy to address the shortage of consultants in the specialty.
- Schools in Leeds, Leicester and Southampton have been developed to provide a structured, efficient, cost-effective and coordinated means of first year training.
- The schools attracted large numbers of high quality applicants to their centralized recruitment.
- Attitudes of staff and trainees to the programme were positive, although there was an increase in workload for the departments concerned.
- All 18 entrants to the first year of the schools passed the 9-month assessment without difficulty and 16 of the 18 have continued training as specialist registrars in histopathology.
- Success was dependent on the resources made available.