Occasional articles

Good laboratory management: an Anglo-American perspective

J Stuart, J M Hicks

Introduction

Good laboratory management is an increasingly important component of good laboratory practice. In the United Kingdom, however, the application of management techniques to laboratory practice has “lagged behind the science”, according to a review of pathology services by the Audit Commission.¹ British laboratories would therefore seem to be at a disadvantage in responding to the April 1991 reorganisation of the National Health Service (NHS) which involves the creation of an internal market in which hospitals and their laboratories now compete with one another to sell their services to district health authorities, family practitioners, and other hospitals.

In the United States of America management upheaval is also affecting laboratory medicine. Laboratories are now viewed as cost centres rather than revenue-generating centres and are expected to make efficiency savings to stay within a fixed budget; some directors have effectively lost control of their budgets to hospital administrators. The United States Congress has also proposed federal standards (Clinical Laboratory Improvement Amendments of 1988)² for certification of all laboratories, including physicians’ office laboratories, that may result in the transfer of much near-patient testing to centralised laboratories. The budgetary and other managerial implications could be considerable.

British laboratories are now likely to acquire some of the problems of the market-oriented American system and will have to strengthen the management role of the laboratory director; this has already happened in the United States of America.

In this review we give a personal perspective on selected issues (table 1) that contribute to good laboratory management in both countries. We recognise that other management approaches to these issues can be equally valid.

The need for management skills

In the United States of America there is an established tradition of the multidisciplinary director as head of all laboratory medicine, although anatomical (histo) pathology is sometimes separated from clinical pathology (the other pathology disciplines). In general, directors are supported by one or more full-time laboratory administrators who are usually medical laboratory technologists with subsequent training in management. Both directors and administrators benefit from the training courses and publications³ of national organisations such as the American College of Health Care Executives, the American College of Physician Executives, and the Clinical Laboratory Management Association.

In contrast, clinical pathologists in the United Kingdom over the past 30 years have specialised in the single disciplines of laboratory medicine and there is no tradition of the multidisciplinary director of laboratories. Training in laboratory management for most doctors has been minimal; the British Association of Medical Directors, affiliated to the American College of Physician Executives, was not formed until 1991. The British government has recently encouraged doctors, including pathologists, to become more involved in management which has led to “the unhappy spectacle of doctors, who may have trained for 20 years to become skilled at jobs they enjoy, trying to turn themselves into managers overnight”.⁴

It is clearly essential that pathologists acquire managerial as well as professional skills for the direction of their departments and that technologists similarly acquire the skills required to become laboratory administrators/managers. This greater emphasis on management skills is becoming a feature of many branches of medicine. A review of the administrative activity of American physicians since 1977 has shown that an increasing proportion of senior physicians have adopted management as a primary activity and that more younger physicians have engaged in management as a secondary or tertiary activity.⁵

Strategic management

“If you don’t know where you’re going you’ll end up somewhere else” is a familiar aphorism. Strategic planning is concerned with the medium and long term direction of the laboratory and strategic management includes

---

1. Stuart J, Hicks J. J Clin Pathol: first published as 10.1136/jcp.44.10.793 on 1 October 1991. Downloaded from http://jcp.bmj.com on June 12, 2022 by guest. Protected by copyright.
the implementation as well as the formulation of strategy.

In the United States of America government initiatives such as Clinical Laboratory Improvement Amendments of 1988 and Diagnosis-Related Groups have made it essential for laboratory directors to plan strategically. Strategic planning does not occur spontaneously as day-to-day short term concerns tend to prevail and we have limited time to devote to any activity that is not directly concerned with processing the day’s workload. A strategic plan is essential because, without one, hospital administration will not take a director seriously and laboratory staff will not know what is expected of them and will tend to resist change. With an agreed plan, the director has a powerful lever both to implement change and to resist external pressures, financial and otherwise.

Texts on strategic management highlight four main stages of planning (table 2). These stages should be part of a three to five year strategic plan with specific goals and objectives that will focus the laboratory effort in a purposeful way. If the strategy were, for example, to provide a fast results service to general practitioners, an obvious objective would be to provide each user with a computer terminal and thus link them to the laboratory database.

<table>
<thead>
<tr>
<th>Table 2 Stages of strategic planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stages</td>
</tr>
<tr>
<td>1 Analyse the environment</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>2 Plan the direction</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>3 Plan the strategy</td>
</tr>
<tr>
<td>4 Implement the strategy</td>
</tr>
</tbody>
</table>

The strategy should be reviewed regularly to ensure that it adapts to changes in the environment. Governmental political change, in particular, often makes it necessary to modify a strategic plan.

Managing change

The management of change is a particularly difficult issue as "the innovator makes enemies of all those who prospered under the old order, and only lukewarm support is forthcoming from those who would prosper under the new". While there may be general acceptance of a laboratory strategic plan and even of the objectives required to implement the strategy, when people have to change their work habits or reduce their staff or budget then difficulties arise. By this stage, however, the groundwork should have been completed: more good strategies fail because of inadequate preparation for change than for any other reason.

Managing change requires a series of steps introduced in sequence (table 3) and is a challenge to good leadership. Communication is a particularly important component. Even though laboratory staff may have participated actively in earlier planning stages, the final plan still requires to be communicated with care as people often fail to appreciate all the implications of change until they see the full picture. Very seldom does change incorporate such an elegant solution to the previous problem that all stakeholders readily embrace the change; someone always feels that they have been placed at a disadvantage. They deserve to be told of the reasons for the decision.

Communication of major change to a large department is best achieved by the combination of a briefing document, so that everyone is given the same message, plus team briefing to provide the background and further detail that no document alone can convey. If the director does not initiate team briefing then those who oppose the change will do it via the grapevine and from their own perspective.

People often find it difficult to accept change. Part of the communication process is to explain that their concerns and input were taken into account when the decision was made. A department can go in one direction only at a time and the purpose of communication is to say what that direction is and why the choice was made.

<table>
<thead>
<tr>
<th>Table 3 Steps required for managing change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steps</td>
</tr>
<tr>
<td>1 Establish the need for change</td>
</tr>
<tr>
<td>2 Identify the stakeholders and involvement</td>
</tr>
<tr>
<td>3 Gain participation and involvement</td>
</tr>
<tr>
<td>4 Be flexible</td>
</tr>
<tr>
<td>5 Reinforce the change</td>
</tr>
<tr>
<td>6 Monitor performance</td>
</tr>
</tbody>
</table>

Negotiation skills

Good negotiation benefits both parties (a win:win situation). Poor negotiation often deteriorates into positional bargaining with one side trying to benefit at the expense of the other. Each side first commits itself to an extreme position which it then defends to minimise any concession. When one party pushes, the other hardens its position; it becomes a contest of will.

In good negotiation a strategy of mutual problem solving is often used. The legitimate
Concerns of both parties are addressed and a series of options are generated as a means of solving what should be seen as a joint problem. Each party should be concerned to some extent with the outcome for the other as well as for itself. The act of developing new options, from which one has to choose, often results in mutual gain. If the cake has to be divided unequally, then it benefits both sides if the cake is enlarged.

Mutual problem solving is a useful approach for a director of laboratories when in negotiation with hospital administration. For major issues it is preferable that hospital managers negotiate with a single director of laboratories rather than with several heads of subsections. A necessary proviso is that the director and subsection heads have agreed a strategic plan beforehand.

**Time management**

Doctors are not always good managers of time. Many allow themselves to become overcommitted and require an extended day and weekend to cope with work that cannot be accommodated within normal laboratory hours. More effective use of time with a focus on selected tasks of high priority will generally reduce stress and increase overall productivity. Doctors who take on a laboratory directorate should therefore look for things to stop doing, or do in a different way, to create capacity for the new task. There must be an acceptance that one cannot do everything well and that one’s own planned goals should have priority. In the words of Peter Drucker, “the first step toward effectiveness is to decide what are the right things to do. Efficiency, which is doing things right, is irrelevant until you work on the right things”. Directors should avoid taking on commitments that do not match their personal goals or the strategic plan of the department.

Team building and delegation are crucial to the effectiveness of the laboratory directorate. Delegation of authority should be given along with the delegated task but, if responsibility for the outcome has to be retained, then purposeful monitoring of agreed milestones, rather than occasional vague enquiries as to progress, is essential.

**Avoiding unproductive meetings**

Experience of unproductive committee meetings in medicine is widespread and they are often perceived as obstacles to action. Part of the problem is that committees become established, do not have specific objectives, and rely on a consensus for decision-making. Even when decisions are made, the chairman may not have the executive power to implement any agreed change and a higher authority has to be consulted.

Laboratory directorates require few statutory committees although in the United States of America, monthly departmental meetings for quality assurance and audit purposes are necessary for accreditation. Most other committees can be replaced by task forces comprising a leader, less than 10 members, and a life-span of up to three to four months in which a specific task has to be completed. The leader need not be the most senior member of the group but should have the time and determination to complete the task. The group can usefully comprise a mixture of different grades of staff. Almost any laboratory problem can be the subject of a task force but the task must be defined clearly—for example, a rapid results service for general practitioners—and be achievable by the group within the allotted time-scale. A great advantage is that, on completion of the task, the group is disbanded; its members are then able to contribute to other task forces.

If conventional committees are retained they should have as small a membership as possible, there should be a structured agenda that indicates the purpose of each item (for information, for discussion, for decision), and the time allocated. There should be clear identification of those members responsible for the preparatory work before the meeting and those responsible for action after it.

**Performance appraisal**

The level of commitment of those who work in health care and other non-profit organisations is high, and perhaps because of this we are less good at dealing with the occasional person who seems to be rowing in the opposite direction. There has been renewed interest in the value of performance appraisal, partly because of the number of legal suits in the United States of America charging wrongful dismissal; many of these suits have been won. If performance appraisals are done effectively they can also cause positive behaviour to be reinforced and negative behaviour to be modified.

For performance appraisal to be meaningful it is important to set detailed criteria related to the specific job requirements of the individual concerned (table 4). This means that the appraisal becomes objective rather than subjective. Every employee should know what they are supposed to do (job description), how well they are supposed to do it (standard of performance), and how they are performing (appraisal). It is important to maintain records, albeit informal, of both positive and negative performance. This provides two important elements: firstly, the employee, who may be evaluated annually, is not judged solely on recent behaviour; and, secondly, it provides documentation that can be referred to in any dispute over performance.

Feedback on good or poor performance should be provided on an ongoing basis. Appraisals should provide the employee with an evaluation of how well they are carrying out the requirements of their job description and a well handled performance appraisal interview can have lasting value in providing a focus on priorities to fulfil career goals and other ambitions.

Performance appraisal has been applied in the United States of America for over a decade and was not originally linked to salary. Now the “pay for performance” approach is being
Tried; employees are ranked numerically according to their performance against set criteria related to their job description. An outstanding ranking could, for example, result in a 6% increase in pay; a good or a satisfactory ranking would result in a 5% or 4% increase, respectively. This approach is seen to provide an incentive to the employee.

Where should laboratories be located?
A long-standing dilemma is the extent to which neighbouring hospitals should rationalise specialist tests between their laboratories or indeed centralise most tests, except for emergency work, into one core laboratory. The perceived benefit is to avoid costly duplication of laboratories, each of which provides a comprehensive service. Within individual hospitals there is a parallel debate over decentralisation of laboratories into satellites that provide near-patient testing in ward areas or outpatient clinics. In the United States of America the Joint Commission on Accreditation of Health Care Organizations clearly places the responsibility for management of all laboratory services, including satellite laboratories, with the Director of Clinical Laboratories.

Financial issues tend to dominate in the debate over centralisation of laboratory services as duplication of equipment and personnel can be avoided. It may, however, be cost effective to staff and equip satellite blood gas laboratories in intensive care areas, including those in neonatal units. Other issues that influence the management decision include governmental legislation, laboratory accreditation, and the availability of pneumatic tube and other systems for rapid delivery of specimens to a centralised laboratory.

In the United Kingdom the Audit Commission has stated that laboratories in neighbouring hospitals could work together as a consortium, pooling resources and effectively operating as one interhospital service. This is less likely to happen in the United States of America where most hospitals are private and run as competitive businesses. In the United Kingdom the 1991 introduction of an internal market of competing hospitals may have the same effect and, if so, the costly duplication of laboratories, each providing a comprehensive service, would prevail. Laboratories in the United Kingdom are underfunded, however, and quality will not be maintained unless there is rationalisation. Thus the benefits of bringing together a critical mass of skilled staff in a well equipped core laboratory, or at least of working together as a consortium, are seen to be overwhelming.

Table 4 Steps in a performance evaluation programme

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prepare performance requirements; be specific as to how well you expect the employee to do each aspect of the work in relation to desired and expected performance criteria for a technologist might include quality (accuracy with which assignments are completed), productivity, dependability, job knowledge, adherence to departmental policies and procedures, ability to work in a team, professional appearance, and ability to relate to patients and clinicians.</td>
</tr>
<tr>
<td>2</td>
<td>Discuss the performance requirements with the employee and then adjust them if necessary.</td>
</tr>
<tr>
<td>3</td>
<td>Evaluate the employee’s performance against the requirements on an on-going basis and give regular feedback. A rating scale (1 to 5) can provide a useful measure of performance.</td>
</tr>
<tr>
<td>4</td>
<td>Discuss the overall evaluation with the employee who should be given a copy of the performance record.</td>
</tr>
<tr>
<td>5</td>
<td>Take appropriate action to modify suboptimal performance and build on the employee’s strengths.</td>
</tr>
<tr>
<td>6</td>
<td>Assess your own performance; have you contributed negatively or positively to the employee’s performance?</td>
</tr>
</tbody>
</table>

Timeliness of reporting results
Hospital laboratories have led the control of analytical quality. Not all laboratories, however, have control over the pre- and post-analytical phases of testing, and laboratory management should now be addressing quality issues in these areas. A rapid assay time within the laboratory serves no useful purpose if the laboratory cannot ensure rapid collection and transit of blood specimens to the laboratory and rapid return of results to the clinician. The timeliness of laboratory testing in relation to the needs of the customer (both patient and clinician) is an increasingly important issue which is directly related to the debate over satellite laboratories nearer the patient.

Standards for timeliness should be established and notified to clinicians. For example, an emergency or urgent (stat) result for a routine test would be reported within 20 to 30 minutes of analysis; a result would be reported within three hours. Response times vary widely among hospitals, and laboratories are now addressing such differences as an important quality issue. Response times provide a good parameter for audit of laboratory performance. It is becoming less acceptable to batch incoming work to fit a laboratory’s preferred timetable, based on a fixed workforce working conventional hours. Flexible working or the use of part-time staff to match peak workload can be cost effective as the number of whole-time staff is not determined by peak workload.

Financial management
Attempts at controlling laboratory costs are hampered by the poor quality of financial support. What is available to most laboratories outside the United States of America? Only a large consortium of laboratories can justify a dedicated financial adviser, others have to rely on the financial services offered by the finance department of a hospital or health authority. Interhospital comparison of laboratory costs is also unreliable as it depends on how laboratory fixed costs and hospital indirect costs are allocated; this process is subjective.

Laboratories have relatively high fixed costs and conventional strategies to reduce their variable costs have yielded only minor savings, say around 5% of revenue. Such savings have been achieved by increasing automation, improving data processing, changing the skill mix of staff, or cross-training staff to work in more than one discipline. Savings in excess of 10% usually require the amalgamation of
Good laboratory management: an Anglo-American perspective

laboratories to achieve economies of scale and reduce the fixed costs of staff and equipment. Controlling clinician demand has rarely worked for long enough to allow sufficient reduction in staff to achieve major savings, but a recent attempt at clinician education has achieved a sustained reduction in workload.\(^1\) Computer based requesting protocols for ordering laboratory tests\(^2\) have considerable potential for managing demand.

Equipment replacement is another unsatisfactory aspect of laboratory budgeting. Usually, equipment is allocated from a hospital rather than a laboratory budget, and few laboratories include capital equipment replacement in their test costs. This can be done relatively easily as a function of workload units. An important point is to depreciate the equipment over a lifespan that is determined by the laboratory (supported by American Hospital Association guidelines in the United States of America) rather than by an accountant in the finance department. The economic cost of replacement, incorporating the annual incremental cost of new technology, must be calculated.

The trend to leasing rather than purchasing equipment is extending outside the United States of America. Although leasing is more expensive, it can be a justifiable alternative when there is uncertainty over instrument performance or when technology changes rapidly; computer technology is an example.

Income generation to increase volume and thereby use “spare” capacity is a dubious strategy if there is a parallel plan to lower fixed costs by decreasing the size of a laboratory. While a small amount of income is relatively easy to generate, larger targets may require a costly marketing effort. It is also relatively easy to overload fixed capacity so that an increase in fixed costs (staff and equipment) is required to deal with the increasing workload. Successful income generation therefore requires a carefully calculated business plan.

Conclusion

This review has taken an Anglo-American viewpoint of good laboratory management because many feel that the current NHS reforms, with the creation of a competitive market, will cause British medicine to acquire some of the problems of American practice. Changes in legislation within the European Economic Community will also have a profound effect on the management of British laboratories. Perhaps the most intriguing issue is the extent to which the individual disciplines within laboratory medicine will come together. In Britain these disciplines are managed separately; in several other European countries clinical biochemistry and haematology, or all of clinical pathology, may be combined. Many recognise the potential advantage in bringing the disciplines closer together not only for European harmonisation but also for the benefit of scientific collaboration within laboratory medicine.

Much good laboratory management is common sense and any head of department can identify with the issues raised in this review. Their implementation in sufficient depth to make a difference to the way in which a laboratory runs is the critical issue and this takes time, planning, and determination. This review has merely highlighted some current issues. Guidance in more depth is provided by the bibliography and by the activities of the following national bodies:

- American College of Health Care Executives
  PO Box 95639
  Chicago
  IL 60694
  USA

- American College of Physician Executives
  Suite 200
  4890 West Kennedy Boulevard
  Tampa
  FL 33609-2575
  USA

- British Association of Medical Managers
  Barnes Hospital
  Kingsway
  Chedale
  Cheshire SK8 2NY
  UK

- Clinical Laboratory Management Association
  195 West Lancaster Avenue
  Paoli
  PA 19301
  USA