

## Leading article

# Measurement of pathology workload in the United Kingdom

Attempts to measure the workload carried out in pathology laboratories in the National Health Service go back a long way. The exercise has generally been coupled with the notion that laboratories are expensive areas of hospital activity and that this expense can be contained. Laboratories are, however, driven by demand, and if control is to be exercised then this should take place at the clinical level. Even if some patients may be overinvestigated there is equally valid evidence that a large number are still underinvestigated. The failure of attempts to measure laboratory workload have largely been as a result of failures to define the purpose of the exercise and to couple it with any clear recognition of the laboratory's role and of the need to match resources to an only partially tapped demand. Equating measurement of workload with performance indicators is particularly common, and erroneous. If an acceptable method of quantitating the volume of work can be derived it may be used in the calculation of a performance indicator. This will, however, only reflect laboratory activity: the effectiveness of the clinical laboratory service is another matter.

Before considering how to measure the workload of pathology laboratories it is necessary to clarify what aspects of the service are to be quantitated. In those specialties entailing direct care of patients as well as a clinical laboratory service it is important to recognise the division and to treat each topic separately. The problems of quantitating clinical workload are the same for a clinical haematologist as for a psychiatrist—only the details will differ. As far as the laboratory service is concerned it is worth bearing in mind that the request for an investigation is simply the starting point in the association between the laboratory and the clinician. Where the results of that initial investigation and any clinical information or previous results indicate the need for further investigation, then this is assumed by both sides to be implicit in the initial request. Similarly, where unnecessary duplication may be avoided, the initial request may be modified appropriately. This is good medicine and ultimately highly cost effective. In the context of measuring

workload it has one important consequence. What goes out is different, usually greater, than what comes in. Workload measurements must therefore be based on work produced by the laboratory and not on the requests coming in.

The products of a laboratory's activity are of two kinds. One is simply a result of an investigation be it a number or a qualitative result. This represents the production line activity of the laboratory. The second may or may not be in writing or on a report form. This is the clinical report that represents the consultative aspect of the laboratory service. It covers not only the interpretation of laboratory findings but also places them in appropriate clinical context using information from the request form or from the patient. This activity will be time consuming and only partly related to the volume of work passing through the laboratory. It is, however, what distinguishes a clinical laboratory service from the simple factory production of bare results.

The earliest attempt to measure laboratory workload in the United Kingdom seems to have been made soon after the foundation of the National Health Service. This evolved from a count of the number of "examinations" in 1949 to a specimen count in 1952. By 1959 it was clear that some measure of work content of different investigations was required. Despite a lucid analysis of the topic and detailed timing studies of different investigations<sup>1</sup> the result was the notorious SBH6 form. This was created at a time when the laboratory services were emerging from their early generalised role into the present specialised and highly automated world. As a result they were saddled with a form created for a past era which had to be applied in entirely changed circumstances. The basis for counting in the old system was a notional entity—the request. It was assumed that there would always be an ample supply of clerks copper plating request details into day books. The system was not so easily operated when clinical demand shifted towards multiple, rapid, highly automated investigations. In particular, the request did not reflect the workload content of the laboratory's activity because any number of different investigations may be implied within the one written request. Even where there is a fairly constant propor-

Table Clinical haematology 1986—the recorded view

	Inpatients				Outpatients		
	Average daily available beds	Average daily occupied beds	Discharges and deaths	Day cases	Clinic sessions	New outpatients	Total attendances
Northern	15.8	15.7	852	757	1354	1220	27 999
Yorkshire	60.6	53.1	2302	753	1813	2701	41 008
Trent	97.3	86.4	4392	5516	3442	5468	94 696
East Anglia	27.5	23.7	1359	238	1530	1395	47 391
North West Thames	45.0	38.2	1968	2371	3063	3864	61 425
North East Thames	95.1	72.9	3101	1696	2925	3663	70 214
South East Thames	47.2	42.7	2174	1154	2224	3459	78 578
South West Thames	19.9	15.9	717	1196	1772	2409	51 454
Wessex	12.5	10.4	608	1269	2790	3026	37 805
Oxford	12.0	9.8	522	496	1858	1521	32 006
South West	47.8	39.3	2046	1180	1609	2357	33 163
West Midlands	49.3	48.2	1896	38	2103	2544	50 016
Mersey	48.6	45.7	2327	695	1077	1700	31 319
North West	60.1	51.4	2597	2985	3002	4404	80 825
Directly administered hospitals	42.3	40.2	1138	969	699	432	13 229
Wales	58.7	48.1	3022	6221	1853	2757	62 724

Source: SH3 Annual Returns DHSS and Welsh Office.

tion of investigations for each request the different investigations entail disparate amounts of activity. Because of this, the request has been gradually but finally rejected as a basis for measurement of workload by all professions involved in the provision of laboratory services. It was particularly unfortunate that when this realisation was spreading throughout pathology the Department of Health and Social Security in England proposed to make the request the fundamental unit of laboratory workload.

In parallel with these NHS activities, the Canadian health service set about providing a rational system of assessing the work content of laboratory activities. In essence this was extremely simple. The work unit was defined as equivalent to one minute of direct operative time but it was recognised that the time spent at the bench manipulating samples was not the total time required to produce a result.<sup>2</sup> There would be an element of clerical activity, of preparative activity, of calculation and of consideration of the report, together with all those other activities which are required to maintain the organisation and functioning of the department. Nevertheless, the time taken to complete the purely bench activities of an investigation was suggested as a rational means of assessing the work content of laboratory activities. There were a number of sporadic official "assessments" of this system although the initiatives themselves did not take off. Undismayed, the laboratory services in Wales decided to establish their own system of workload measurement. This was actively supported by the Welsh Office and guided by Dr JAV Pritchard, scientific adviser, but was essentially professionally led. The schedule of work units available in the Canadian system offered a ready template on which to

base this approach, and modifications led to a draft Welsh schedule of work units. After extensive discussion involving all laboratories in Wales, which at one point necessitated convening some 200 people at Llandrindod Wells, it was agreed that this system should be implemented on a trial basis in 1987/1988. It was emphatically agreed that individual departments should be the basis for data collection and that the heads of those departments should be clearly responsible for the collection of data to confer any acceptable validity. Similar developments, which had also begun in laboratories in England and Scotland, led to collaboration at a professional level across the United Kingdom.

The Korner requirement that laboratory data should be subdivided into a number of categories, such as inpatient, outpatient, other hospitals, and general practice, has caused great anguish. As request data categorised by source had never been meaningfully used before there was and remains considerable scepticism as to their relevance in any future workload system. They clearly do not provide a basis on which to proceed to speciality costing or resource management: they point in exactly the opposite direction. Perhaps it is not realised in administrative circles that laboratories carry out investigations because there is a clinical need for data. Whether requests come from inpatients, outpatients, or any other source does not affect their work content. Moreover, the laboratory is not in any position to clarify the exact source of any particular request, and it has become clear that the Korner classification missed out one very important category which accounts for between 5–10% of requests—that is, "unknown". In practice it is this categorisation of data which has proved to be the most

time consuming and troublesome.

Whether workload data can be gathered continuously in all laboratories is unresolved. There can be little doubt that the only completely valid measure of laboratory workload is a full and continuous count, but the effort required makes a selective sampling approach seem more attractive. In some laboratories it may be possible to find a week or fortnight which would adequately reflect workload throughout the rest of the year, but there is often considerable variation in workload and the nature of the workload within the week, between weeks, and between seasons. This is true not only for districts which enjoy a large summer influx but is also seen in hospitals in districts that have other attractions. Continuous collection of workload data seems to be possible in all laboratories—but at a price. If funding depended on workload it is a price that would have to be borne, and every laboratory would have to have an adequate computerised data processing system.

The measurement of *clinical* workload within pathology relates chiefly to haematology and is similar to any other clinical specialty. Its importance is evident when it is used to determine consultant and junior medical staffing. The key to achieving this is simple: haematology must be distinguished and separated from general medicine on the quarterly returns for each hospital. Because haematology is not specified on the official form QS1, it is essential that each consultant makes sure that it is added as a separate entity. This usually means making direct contact with the medical records officer. Once this has been done it is equally important that all attendances and admissions are recorded and attributed to the haematologist even where the patients may be in borrowed beds. The official data purports to show (table) that there are huge differences in the level of clinical haematological service provided in different regions in the United Kingdom. This probably reflects the incompleteness of the record rather than the real level of service.

It is held to be axiomatic that the effective management of the clinical laboratory service requires a reliable indicator of the volume of work. It is equally true that any such data can be misunderstood and misused, particularly by those only remotely involved with patient care and whose business it is to make unqualified comparisons. There is, however, no zero statistical option and a professionally led approach is the least bad alternative. Experience in Wales and several English regions suggests that it is quite possible to derive an agreed and workable schedule of units to cover all investigations. The value ascribed to each investigation may not be exactly right but this can be corrected by experience, and as the problems usually affect the less common investigations it will have only a marginal effect on the total workload figure for the laboratory. Data processing systems which automatically count and gather the workload units are probably essential if the total picture is to be portrayed. These data may be used to the benefit of the clinical laboratory service both within and outside the laboratories. The degree to which this may be achieved will depend on the skill of pathologists in handling such a two edged sword.

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#### References

- 1 Hospital O & M Service Report No. 6: *Pathology—measurement of work in units*. 1963. London: HMSO.
- 2 Lindsay L. National Hospital Productivity Improvement Program. *Can J Med Tech* 1986;48:140–2.

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