Survey of users' attitudes to their local microbiology laboratory

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Introduction

Quality control in clinical microbiology laboratories has tended to focus mainly on the accuracy of results obtained from the processing of specimens.¹⁻³ Providing that external and internal quality control procedures are satisfactory, the laboratory may tend to assume that because the results produced are accurate, the service provided must be a good one.

Users of the service, on the other hand, may take the accuracy of results for granted. To them, the conception of the service may be very different and may rely on other factors such as the speed of reporting, general helpfulness of the laboratory, clarity of the printed reports, and so on.⁴ It is likely that only serious, repeated problems would lead to a formal complaint about the laboratory, and many smaller (and perhaps to the laboratory, less important) problems will otherwise go unnoticed. It is unlikely that direct person-to-person discussion would detect all such difficulties; many clinicians would be understandably reluctant to criticise laboratory performance. A less personal (and if desired, anonymous) questionnaire may be more appropriate. We decided, therefore, to send out such a questionnaire to all hospital "users" of the service provided by our laboratory to detect possible problems and difficulties, and to use this to try to improve the service.

The Royal Victoria Infirmary (RVI) is a teaching hospital of about 650 beds. It includes the regional centres for renal transplantation, bone marrow transplantation, and paediatric oncology. Administered within the same unit and served by the RVI microbiology laboratory is the Princess Mary Maternity Hospital (60 obstetric beds and 16 special care nursery cots) and Newcastle Dental Hospital. The microbiology laboratory processes some 70 000 specimens annually of which about 5% originate from local general practitioners.

Methods

A questionnaire of 16 questions was devised. More questions could have been included, but at the risk of reducing the response rate. Our questionnaire occupied two sides of A4 paper only to avoid becoming unwieldy. A "multiple choice" system of answers was used, giving the user between two and five possible answers to choose from for each question. Further comments from users were also strongly encouraged (figure).

The questionnaire was sent to all medical and dental staff in the RVI and associated hospitals served by our laboratory. Names were obtained from the current list of medical and dental staff produced by the hospital personnel department. Care was taken to avoid duplication as many staff (particularly very junior staff) were listed under more than one heading. Questionnaires were not sent to staff in specialities who do not send specimens to the laboratory, such as anaesthetics, biochemistry, and radiology. Respondents were given the option of remaining anonymous if they desired, but to encourage them to give their name and grade a small prize (a bottle of wine) was offered to the first name to be drawn from all those responding by the specified date.

QUALITY ASSURANCE IN THE MICROBIOLOGY LABORATORY

Diamond has pointed out that the terms "quality control" and "quality assurance" should not be used synonymously in clinical laboratories.⁵ Whereas quality control is generally taken to mean surveillance of the accuracy of results, quality assurance is not well defined. A useful definition is, "the comprehensive term applied to all of the measures taken to ensure a uniform acceptable product"⁵—in the case of hospital laboratories, a service satisfactory to its users in all aspects of its work. With this questionnaire we tried to assess aspects other than the accuracy of results by seeking the opinions of our users.

Results

In all, 215 questionnaires were distributed and 114 replies were received, a response rate of 53%. Medical staff of all grades responded: 40 (35%) respondents were consultants, and the other 74 were fairly evenly distributed among the other grades of medical staff. Only four respondents felt unable to give their name and grade.

QUALITY AND TIMELINESS OF THE PRINTED REPORT

The first four questions concerned the printed report issued by the laboratory. Most users (87%) found the reports easy or very easy to understand; only one person (1%) found them difficult to understand. Virtually all users (99%) felt that the reports contained the information they wanted either always (10%) or "most of the time" (89%). This implies that some of the time information was felt to

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Accepted for publication
16 August 1990

Microbiology department questionnaire

In the questions below, please circle the answer you think most appropriate from the list provided. Feel free to make any additional comments at the end of the questionnaire. Please return the completed questionnaire to the Department of Microbiology, RVI.

1. How easy are the specimen reports to read and understand?
Very easy/Easy/Reasonable/Difficult/Very difficult
2. In general, do the reports contain the information you wanted?
Always/Most of the time/Sometimes/Occasionally/Never
3. Are there any improvements required in the reports?
No/Yes—if yes please specify:
4. Although it clearly takes time to process a microbiology specimen, how timely do you think the reports are produced?
Fast/Quickly/Reasonably/Slow/Slothful
5. When you telephone the laboratory, how do you find the staff?
Friendly and helpful/Cooperative/Alright/Surly/Hostile
6. How easy is it to obtain information on results by telephone?
Very easy/Easy/Reasonable/Difficult/Very difficult
7. If computer terminals were available in wards and clinics for the immediate accessing of completed results, without having to telephone the laboratory, how useful would this be?
Extremely useful/Useful/Not very useful/Useless
8. How easy is it to obtain advice and consultation on the telephone?
Very easy/Easy/Reasonable/Difficult/Very difficult
9. How useful is the service provided by the medical microbiologists for advice and consultation?
Essential/Very useful/Reasonable/Not very useful/Unnecessary
10. Would you like to see more, the same, or fewer visits by medical microbiologists to your wards to discuss clinical problems?
More/The same/Fewer
11. How satisfactory, from your viewpoint, is the out-of-hours service?
Very good/Good/Fair/Poor/Awful
12. Does the laboratory provide the range of tests you require, or are there other tests you feel we should offer?
Satisfactory range/More tests needed—please specify:
13. If your clinical budget was cash-limited, could you reduce the number of specimens you send to microbiology?
Yes/No
14. If you answered "Yes" to the above question, by what degree could you reduce the following categories of specimen:

<i>Specimen</i>	<i>Reduce by:</i>
Urines	A lot/A few/None at all
Faeces	A lot/A few/None at all
Swabs	A lot/A few/None at all
CSF	A lot/A few/None at all
TB culture	A lot/A few/None at all
Blood cultures	A lot/A few/None at all
Serology	A lot/A few/None at all
Sputum	A lot/A few/None at all
Antibiotic assays	A lot/A few/None at all
15. If the RVI had no on-site microbiology service, how do you think this would affect the provision of health care for your patients?
Very detrimental/Detrimental/Would not affect it/Improvement/Major improvement
16. If one of many possible options put forward to save money for Newcastle District was to remove the on-site microbiology service from the RVI, how strongly would you reject or support this option, bearing in mind your answer to question 15?
Strongly reject/Reject/No strong feelings/Support/Strongly support

Many thanks for your time. If you would like to expand on any of your answers, or make any other comments or suggestions, please do so here.

You don't have to give your name if you don't want to, but if you don't you will not have a chance of winning a bottle of wine. We assure you that all replies will be treated in strict confidence. It would help us if you could give your grade and speciality.

Name:

Grade:

Speciality:

be missing, but the nature of this information was not specified. Almost one third (31%) of respondents felt that the reports could be improved in some way and suggestions fell into six broad groups. There were suggestions for improving the format of the report, such as printing the date or type of specimen in bold type, or in colour, to make it easier to find a report in the patient's case notes. Unfortunately this is not possible with our present computer system, but the need for laboratory reports to be presented in an acceptable format for the clinician has been emphasised elsewhere.⁶ Some users wanted the clinical details they had written on the request form to be reproduced on the report form, or the name of the requesting doctor to be added. There are difficulties in doing this, as a significant proportion of request forms are completed by nursing staff, and because in many instances the clinical data and name of the requester are illegible.

Three possible changes were suggested by several users. The first was a request to identify more fully those organisms currently reported as "normal flora" (without a precise identity). We were reluctant to do this for two reasons: firstly, it would mean greater expense and longer processing times for each specimen, and secondly, it might encourage inappropriate antibiotic treatment of harmless bacteria. The second request was for additional antibiotic sensitivities to be reported. In some cases it became apparent that this was not always being done even for those units where we had an existing agreement to report extended antibiotic sensitivities. We were able to rectify this problem. In other cases the restriction of antibiotic sensitivities is done deliberately to encourage the prescribing of the first-line drugs in the hospital formulary, which are usually the cheapest. We did not feel we could change this policy without there being a significant change in antibiotic prescribing in the hospital, possibly leading to an increase in the number of different drugs used, especially new and expensive agents. Finally, there was a clear request for more explanatory comments by a medical microbiologist to be present on the written report and we have since endeavoured to provide more such comments. The importance of such comments was shown by a previous consumer survey, which looked specifically at the interpretation by clinicians of microbiology reports. It was clear that reports were often misinterpreted, and several improvements were identified and introduced to lessen the risk of misinterpretation, of which one of the most important was the addition of explanatory notes.⁷

Several users commented unfavourably on the time taken for written reports to reach the requester (although many users recognised that important positive results were given as soon as possible by telephone or visit to the ward). Typical comments included: "out-patient forms take undue time to allocate to requesting clinician"; "... it takes *days* for the written report to reach the ward"; "...

the written reports take ages"; "the delay in receiving the report ... is a major problem with the service". Despite the above comments only 12% of respondents felt that reports were slow to reach the ward, while 51% felt that reports were received fast or quickly. We are unsure of the reason for the above comments. Although we investigated the manner in which the reports are distributed, we could find no particular faults in the distribution process. It is not possible from this study to determine if laboratory performance (or the specimen collection or result distribution service) was poor, or if clinicians' expectations were too high, given the need to await culture and sensitivity test results. Hilborne and colleagues compared clinicians' expectations of turnaround times for haematology and biochemistry specimens with actual turnaround times and found that the clinicians' expectations were often not met. They concluded that pathologists and clinicians might collaborate to decide on mutually acceptable times which could then be used to audit this aspect of laboratory performance.⁸

COMMUNICATION WITH THE LABORATORY

Questions 5 and 6 attempted to assess the telephone link between laboratory and clinician. Most users (88%) found the attitude of staff to be helpful or at least cooperative, but almost one third (32%) of respondents felt it was only reasonably easy to obtain results over the telephone. Unfortunately, no user explained why this was only felt to be reasonable. Only one (1%) person found it difficult to obtain results in this way. Because so much time is spent by laboratory staff in giving out results by telephone, we were interested to discover (question 7) if computer terminals linked to the main laboratory computer and installed in wards and outpatient clinics would be considered useful. We were surprised to see that almost 18% of users would see this as of very little or no use at all.

MEDICAL MICROBIOLOGY SERVICE

Questions 8 to 10 concerned the service provided by the medical microbiologists rather than the laboratory as a whole. Most users (77%) felt it was easy to obtain advice from a microbiologist, but 18% felt it was only reasonably easy. The reasons for this are unclear: they may be related to the apparent lack of ease in obtaining results via the telephone, and one possible solution is for the medical microbiologists to carry radio pagers ("bleeps") which at present is not done. We were encouraged to find that 83% of users felt that the service for advice and consultation was either essential (44%) or very useful (39%); only two (2%) respondents felt it was not very useful or unnecessary. Over one third (36%) of the clinicians would like to see more visits to the wards by a microbiologist, a figure which surprised us as we had felt that we already made frequent and extensive visits to the clinical areas. This is a good example of how the perceptions of a service can vary between

Response of users to question 14 of the questionnaire

Specimen	Reduce by			Total No (%)
	A lot No (%)	A few No (%)	None at all No (%)	
Urine	8 (19.0)	29 (69.0)	5 (11.9)	42 (100)
Faeces	7 (18.9)	13 (35.1)	17 (45.9)	37 (100)
Swabs	9 (21.9)	27 (65.9)	5 (12.2)	41 (100)
Cerebrospinal fluid	1 (2.8)	1 (2.8)	34 (94.4)	36 (100)
Tuberculosis	0 (0)	10 (27.0)	27 (73.0)	37 (100)
Blood cultures	1 (2.8)	9 (25.0)	26 (72.2)	36 (100)
Serology	2 (5.7)	13 (37.1)	20 (57.1)	35 (100)
Sputum	3 (7.9)	19 (50.0)	16 (42.1)	38 (100)
Antibiotic assay	0 (0)	7 (18.9)	30 (81.1)	37 (100)

providers and users. Two (2%) respondents wanted fewer visits to be made.

OUT-OF-HOURS SERVICE

The current out-of-hours microbiology service in this hospital requires the requesting doctor to discuss the case first with the on-call medical microbiologist before a specimen can be processed. This procedure, designed to reduce the costs of the out-of-hours service by reducing the number of specimens processed, may have accounted for the 23% of users who felt that the out-of-hours service was only fair (19%) or poor (4%). The need to make two telephone calls (to the medical microbiologist and then to the MLSO if the request is approved) attracted a number of adverse additional comments. Despite this, we continue to believe it is in the best interests of the hospital to continue this procedure.

RANGE OF TESTS OFFERED

Most (96%) users felt that the range of tests offered by the laboratory was satisfactory. Only two wanted additional tests to be made available.

POTENTIAL FOR A REDUCTION IN SPECIMEN NUMBERS

The introduction of resource management is likely to increase scrutiny by clinicians of the amount of money spent on laboratory services. We were interested to see if clinicians felt that the number of specimens sent to the microbiology laboratory could be reduced, and where the reduction was likely to be greatest. We found that 40% of respondents felt that specimen numbers could be reduced, even in the absence of direct financial pressure to do so at the present time. We might expect to see such a reduction, therefore, as individual clinicians or groups of clinicians are given responsibility for their budgets. The response to question 14 is given in detail in the table, and shows the degree by which those respondents who believed specimen numbers could be reduced thought they could reduce different types of specimens. Not surprisingly, the greatest scope for reduction is in urine specimens and general swab or pus specimens, while others, such as antibiotic assay, could hardly be reduced at all. This would indicate that there is scope for reducing the number of microbiology specimens, and that this would not meet with strong resistance on the part of

clinicians. It has been shown that financial incentives or disincentives for the clinician are the most effective way of maximising cost effective use of the laboratory, and we concur in the view that this need not result in a reduction in the quality of medical care.⁹

FUTURE PROVISION OF MICROBIOLOGY SERVICES

The final two questions arose from concern over recent developments in the provision of laboratory services, notably the Management and Advisory Services Report¹⁰ and discussion of privatisation and whole-scale centralisation of laboratory services.¹¹ From these questions, loss of an on-site microbiology laboratory seems to be viewed (at least in this hospital) with very considerable misgivings by the clinicians, with over 90% believing this would be detrimental (37%) or very detrimental (57%) to patient care. Over 90% of the users of the microbiology service would reject the removal of on-site facilities; two thirds of these would strongly reject such removal. None of the respondents would support such a move.

Conclusion

We believe that this was a useful exercise in enabling us to detect a number of ways in which the service provided by the laboratory could be improved—even if the means of doing so was in some cases not immediately apparent. We would recommend this technique to other laboratories in other disciplines. Although potentially adverse comments may be received, laboratories should not assume that they alone are the only capable judges of what makes a good laboratory. The users of the laboratory may have a great deal to contribute in improving the service.

We thank the medical staff of the Royal Victoria Infirmary and its associated hospitals for taking the time to complete the questionnaire. Particular thanks must also go to Miss J Lowes and Miss S Butler, who distributed the questionnaire to the medical staff.

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