

# REVIEWING PRACTICE IN MEDICAL CARE

## Steps to Quality Assurance

ESSAYS BY SIR ANTHONY ALMENT; COLIN DOLLERY; IAN McCOLL  
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J. N. LUNN & W. W. MUSHIN; D. N. BARON; K. T. EVANS  
K. RAWNSLEY; JOHN HORDER; BRIAN WILLIAMS

EDITED BY GORDON McLACHLAN



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# Preface

## Sir Douglas Black

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'Health is like a stock of capital with which we are initially endowed, and which naturally, depreciates through time, and at an increasing rate in later life'. This economic analogy enables Alan Williams (1) to distinguish between the role of a sensible life-style in slowing down depreciation, and the role of 'health care' both in improving immediate well-being (current consumption) and in improving future well-being (capital appreciation). But he rightly warns that 'if we are wise, we will not rely on health care to do the whole job for us'.

In a letter to The Times, J.N.Morris (2) puts the matter in admirable perspective, showing that there are now a host of medical interventions which are highly effective, something which seems to be overlooked by one-sided advocates of preventive measures, of which it could also be said that 'they will not do the whole job for us'. The effectiveness of health care in no way justifies complacency about its present provision; rather it is an argument for energetic study of how it may further be improved. This requires joint effort from the whole range of skilled people, among whom I have the temerity to include doctors. Good medical practice requires a high level of professional knowledge, personal dedication, the ability to communicate, and—most of all—the ability to make time. It also demands a difficult balance between self-confidence and self-questioning. Too much of the former leads to arrogance, too much of the latter to indecision. I see the attitude of doctors to 'quality assurance' as something of a touch-stone, but not—I hope—a shibboleth.

Medicine is an attractive and interesting profession, quite apart from the financial rewards which it brings; and of the many doctors whom I have met, the great majority are anxious to maintain and develop the skills which are required to help their patients. Moreover, in hospital, and to an increasing extent in family practice, there are many opportunities to share problems with colleagues. The question is, should these informal mechanisms of self-criticism and of criticism by colleagues be supplemented by more formal measures of quality assessment. At one extreme, there are doctors who set their faces against any form of medical audit; at the other extreme, there are those who might be prepared to make a full-time job of criticising their colleagues. The vast majority of doctors should be adamant on one point, that any form of medical audit must be carried out by medically qualified people. These divergencies in medical opinion are no doubt matched by differences in lay opinion. Surveys done by Ann Cartwright and others indicate that the majority of patients appreciate the difficult nature of the doctors' task, and are responsible in the demands which they make on his time. Given that patients, like doctors, are human, there are of course exceptions; and it sometimes appears as if they may be clustered among our legislators. This leads to pressures to place on the Ombudsman, for example, a task for which he is clearly unfitted, as the present incumbent of the post so reassuringly recognises.

My own belief is that while the major factors in ensuring good quality of that important moiety of health care which is given by doctors, are good medical education in all stages and the provision of conditions of work which allow doctors actually to do their job; there is yet a need to encourage the life-long education of practising doctors, and to create mechanisms for informal review of their work by colleagues. This is not so much a matter of detecting doctors who have become physically or mentally incapacitated for doing their work adequately, as of raising the standards of practice generally by disseminating the knowledge of good procedures, and



by extracting lessons from the mistakes which all of us make. Of some of these we are conscious; of others we need to be made aware, by the constructive criticism of colleagues. Where groups of doctors have taken the initiative of reviewing their work together, performance has been shown to improve, in quite tangible matters such as the quality of record-keeping.

The Nuffield Provincial Hospitals Trust has been active over the years in stimulating interest in quality assurance, and I welcome this opportunity to commend their patient initiative. A Foreword is not a book-review, but I can say that I was much heartened by the day's discussion, of which the papers which follow constitute a record. They also indicate a breadth of interest in many branches of my profession, which may encourage others to collaborate in this and similar attempts to improve the quality of medical care, for example the Medical Services Study Group of the Royal College of Physicians.

- (1) Williams, A. Efficiency and welfare. Chapter 3 in Providing for the Health Services, ed. D. Black and G. P. Thomas. Croom Helm, London, 1978.
- (2) Morris, J. N. Medicine's order of priorities. Letter to The Times, 19 September, 1980.

**Prologue**  
*Looking Back on*  
Competence to Practise

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PRCOG

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and Gynaecologists*

# Prologue

## *Looking Back on* Competence to Practise

I was asked to look back on the Report of the profession's Committee of Enquiry into Competence to Practise, published in 1976.

One thing that perhaps passed unnoticed when the Report was published was that the colour chosen for the cover was rather optimistically sage green, and that the device of the caduceus set in a graticule—otherwise described as a gun sight—was rather more threatening than most people supposed. It was interesting to see how variously people reflected their optimism about it when it came out, and significant that the BMA itself seems to have moved strongly towards acceptance of medical audit.

What are the second thoughts that I have had about the Report? Four years ago I was pessimistic that we had stopped short of some quite important personal objectives. Those were born out of the modest success of our national maternal mortality enquiry although I do not think that the lessons of that are altogether widely understood. Today I am pessimistic because a fairly small number of doctors who nobody could possibly call the peers of the majority of their colleagues tend to show their natural impatience with the apparent slow progress in the field, in the form of invasive attitudes, expert judgements, conjuring up public powers who threaten to do for us what we seem to be unable to do for ourselves, and making extra-professional alliances to enforce what are represented as the rights of communities. When a confidential survey reports, for example, that 'everyone co-operated except Watford', I start counting my spoons.

We had a representative Committee of about twenty,

including an 'observer' from the Medical Sub-Committee of the Committee of Vice-Chancellors and Principals. It was perhaps a significant omission that we were unable to get membership status from that important educational direction.

The consensus that was reached in the Report was as far as we could go together; and I think that aspect may have been overlooked in its rather tepid reception. In trying to progress beyond our limited end-points, we could have caused polarisation in the Committee, and antagonism in the wider profession. We would have defeated the object of being heard at all. Of course, it may simply have meant a lack of satisfactory leadership—I cannot tell about that.

It might be useful to quote a few key passages, and reflect upon them in the light of the past four years. I want to start with the assessment of teachers because that is one of the areas in which very little seems to have been done. In Section 2.32, which incidentally was a most difficult passage about which to obtain agreement, we said that:

Some form of individual assessment is an unavoidable corollary to identifying standards; the more the standard-setting bodies are involved with, and influence, the quality of training, the less need will there be for them to depend upon traditional formal examinations to determine the standards attained by individuals. As in undergraduate medical education, we believe that assessment should be an appraisal only of the acquisition of knowledge by those in training but also of the quality of teaching of which it should provide an indication of any deficiencies.

I feel that we have not yet got a particularly searching enquiry into the teaching qualities of those we appoint to teach, or perhaps answers to the old question of what is a professor? Is it a person or is it a five-year function which may be renewable?

Turning to the subject of the seminar more closely, what did we say about the legitimacy of deffer-

ing professional views of priorities in medical care? When we looked at doctors in clinical practice we were quite firm. In Section 5.13 we said:

Where resources are limited a doctor is constantly aware that resources (including his time) used for one patient may be denied to another. This conflict of interest, and the need for a doctor to determine priorities in the use of the resources under his exclusive responsibility, usually involves the doctor in consciously rationing his time and often amending an ideal course of treatment for one of his patients so that others may benefit; but he must have freedom to determine in his own way, by his own judgement, how much weight he will give to the needs of an individual patient even to the exclusion of all others.

In the relationship between community medicine and clinical medicine, this hard line is one which needs to be reiterated. If one of the objectives of community medicine is to blur it, the very real power of the community physician to inform and educate his clinical colleagues will get lost. We defined this particular relationship in the following terms, in Section 5.15:

We stress .... that it is his (the community medicine specialist's) task to refer .... information to the doctors themselves, and not to infer that the course of action of one is preferable to that of another. That is for the individual clinician to conclude for himself in the light of the information provided and of his own experience and knowledge of the individual patients or groups concerned.

This is a key issue because in many people's view we have gone far away from this, and we can no longer define the role of the community medicine specialist as an educator of his colleagues.

In Donabedian's First Ward Darley Lecture in 1979, to which Dr Horder refers in his paper, he

makes the same point but in a different country—the USA—and a different type of arrangement for the provision of medical care. No doubt everyone has read it, but Donabedian said:

When the patient's health and welfare are judged by professional criteria, and the cost of care is not considered, one has an 'absolutist' definition of quality. By contrast, an 'individualised' definition accepts the informed patient's valuation of the consequences of care, and includes the cost to the patient as an unwanted consequence. The 'social' definition may place a different valuation on patients and their interest, and pays attention to the social distribution of the cost and net benefits of care.

And he ends:

Thus, the physician who wishes to do the best for each patient may be in conflict with what society dictates to be the best for all. The health care professions must resolve this moral dilemma.

Donabedian undoubtedly writes with tremendous insight, but of course he needs to be read in the different circumstances in which we in this country provide health care.

If I could just briefly look at medical audit itself, we said about medical audit—and we were quite clear about this—in Section 6.9 that:

We believe that the use of audit as a means of standardising medical practice may lead to the imposition of conformity, which is alien to the essence of good practice whereby a patient is treated as an individual by a doctor who seeks to do his best for that patient.

We defined our view of 'audit' and 'peer group' in the footnote to page 37 in a way which everyone will know. I think that we went as far as we could into

the great jungle of records. The Working Party came out with what I think is an absolutely key sentence on the issue of records, when it said in Section 6.5.4 that:

It is unlikely, however, that doctors will give widespread support to.... changes unless they are assured that the improved facility for record analysis will not result in attempts to impose upon them rigid patterns of care. Evaluation of records must be clearly seen to lead to improved knowledge and not towards punitive action against individual doctors for errors of commission or omission.

Looking back, I think that we should have been much firmer in the advice we gave about the role of the community medicine specialist. But four years ago it was a branch of medicine that was still relatively in its infancy. One sees today that it needs only one or two what one might call 'rogue elephants' to make people put up the shutters. There is no doubt that it is a fairly short step away from a very brave new dawn of medicine to what some people still fear as the hangover of a collectivist nightmare.

Finally, one of the criticisms of my Committee was that what it should have done was simply to have looked at the whole subject from the other end and set out to define the mad, the bad and the obsolete doctor. For the first, I do not think so far that the GMC Health Committee is anywhere near the answer. We tried to find a solution, but could not get the whole Committee to agree that it should be set out.

For the second, one of today's papers says, for example, that we all know the poor performer. Quite simply, I do not know, and I would want to have it proved to his peers. I do not find it as easy as do many people to identify poor performers. In my own professional life, and in my own branch of medicine, many mistakes have been made, but not necessarily consistently by a few individuals.

What about obsolescence? Do we, in fact, like



well-designed modern cars, all fall in a single, great useless heap at the age of 65? I suggest that for obstetricians, for example, there may be rust under the bonnet at 50. This subject of planned obsolescence is something at which we need to look more closely. In fact, one of the comments made about the Committee was in the Dictionary of Diseased English. It picked up the word 'limitation' and defined it as 'a polite soothing word used in professional circles to describe a state of affairs which may be dangerous and frightening'. It said too, that a committee appointed to investigate the possibility that all doctors might not be as competent as they should be, spoke of 'a need to recognise the limitation of skill as some doctors age'. That was perhaps one of the most illuminating notices that we received in the press about our Report.

Surely, however, we ought to acknowledge that there is a natural wastage of knowledge and skills, and that continuing education is a process that can only partly replace it.

As a final heresy for this group which is hardly, you will agree, a 'peer' group, I suggest that it is not really what kind of consensus islands we have and what they can show of their produce that matters; it is the traffic that exists between them and the gaps. The real relationship between the different kinds of doctors and the way in which they handle information is probably the key to the wider dissemination of good habits of quality assurance.

## **Lessons from a quality study**

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## Lessons from a quality study

Gordon McLachlan in his essay 'An Introduction and Perspective', in the Nuffield Provincial Hospitals Trust publication A Question of Quality, classified quality studies under four headings: Structure, Process, Outcome, and Social Acceptability. He pointed out that during times of shortage the emphasis inevitably has been upon maintaining and improving the physical plant of the National Health Service. Yet physical plant and good equipment, for which the demand can never be wholly satisfied, is not a guarantee of a high standard of medical care. Some developments overseas in countries which have very large financial resources, but limited resources of trained manpower, are an object lesson.

Achieving and maintaining a high standard of quality involves many separate mechanisms, including the educational hurdles of postgraduate training, personal prestige and financial reward. However, attainment of an adequate standard during postgraduate training is not a guarantee that the same standard will continue to be applied throughout the practitioner's lifetime. Furthermore, the quality of care delivered to an individual patient in an organisation as complex as a modern hospital may be deficient even though each of the individual practitioners has achieved an acceptable standard. The public is less willing than it once was to accept that all is well because a professional group says that it is. Disasters that come to the surface in the press, or in court during evidence in claims for negligence, are sufficient to arouse some concern. The response of a learned profession ought to be to

evaluate its own strengths and weaknesses, rather than automatically to man the barricades against all criticism.

It was in this spirit that I and my colleague Dr Christopher Bulpitt decided to undertake a study of the quality of care delivered to patients who died with a diagnosis of malignant hypertension in London during a two-year period. Although this is the first study of this kind undertaken in the field of hypertension, it is not by any means an original method. The confidential enquiry into maternal mortality carried on by the Royal College of Obstetricians and Gynaecologists uses similar methods and has a much longer history.

### Problem and methods

The choice of problem and method were dictated by a number of factors concerned with practicality, special interest and local access. Malignant hypertension seemed in many respects a good choice. It is a condition which, without treatment, has a very high mortality (90 per cent dead in one year). The mortality is greatly reduced by effective treatment and that treatment to be effective must lower the blood pressure substantially. Thus a ready made index of the effectiveness of treatment, in the shape of the blood pressure readings, ought to be at hand in the case records of the patients. The condition is one in which most practitioners would judge the investigators as being expert, and therefore would be more likely to be motivated to help them than they would a casual enquirer who was not known to have any special interest or expertise. Furthermore, as malignant hypertension is a distinct diagnosis on the death certificate, there was the possibility of identifying the cases to be investigated relatively easily.

The Office of Population, Censuses and Surveys provided a copy of the death certificate of anyone dying in Greater London whose death certificate mentioned malignant hypertension either as a main or associated cause. One hundred certificates were

received over the period April 1974 to May 1976. The doctor who signed the certificate, usually a junior hospital doctor, was contacted by telephone to ask the name of the consultant in charge. The consultant received a detailed letter explaining the aims of the project and promising complete confidentiality. The letter requested the loan of the case notes. The name of the general practitioner was obtained from the case papers, or directly if he had signed the death certificate, and a similar letter was sent.

When the notes were obtained a number of particulars were extracted including: the criteria used to diagnose malignant hypertension; all blood pressure readings; plasma urea measurements; visits to hospital including admissions; general practice visits; drugs used with their doses; other particulars such as smoking history.

Blood pressure control was determined by averaging the blood pressure readings in three month periods. The average for a year was calculated from the average of the three months blocks recorded in that year and the overall average from the mean of the yearly averages from the date of diagnosis of hypertension until death.

## Results

Hospital case notes were made available for 96 of the 100 patients, and in 82 the general practitioner record was also received. In 91 patients the retinal appearances could be classified from the case notes. 55 of these had papilloedema and 13 cotton wool spots or retinal haemorrhages without papilloedema. Thus 55 patients had malignant hypertension and 13 had accelerated hypertension, by the usually accepted criteria. This represents a diagnostic accuracy of at least 75 per cent if one lumps the two categories together.

These patients died an average of 25 months after a confirmed diagnosis of malignant hypertension, although 49 per cent lived for less than three months and 15 per cent for more than five years. 60

per cent of the patients died with renal failure mentioned on the death certificate, 32 per cent with cerebral haemorrhage mentioned, and 20 per cent with myocardial infarction.

In many cases the patients had significant renal failure at the time of presentation, the presenting plasma urea was a mean of 16.5 moles per litre and this increased on average by 8.2 moles per litre per annum, a very high rate of increase. One of the most striking features was the poor blood pressure control, the over-all average being 189/117 mmHg. Despite the high level of blood pressure, this measurement was only recorded on 38 percent of visits to general practitioners. Twenty-eight per cent of patients did not have any recording of blood pressure in the general practitioner notes. It appears that the reason for the frequent visits without recorded blood pressure reading was probably renewal of prescriptions. In view of the poor blood pressure control which was often recorded in the general practitioner notes it is disappointing that the opportunity was not taken to measure the blood pressure and to intervene more actively. Twenty-six per cent of the patients who were followed for more than a few months received obviously inadequate treatment in terms of low drug dosage and use of only one or two hypertensive drugs (including a diuretic) despite poor blood pressure control. In nineteen per cent of the patients followed for more than a few months, the drugs were discontinued for more than three months but it was not usually possible to identify the reason. One patient admitted to stopping tablets on the advice of a friend, another was a schizophrenic, another had them stopped in hospital when he was admitted for a minor operation and they were not restarted upon discharge.

In contrast with the rather disappointing picture of care during a period when the condition might have been recoverable, terminal care was energetic, five to seven different anti hypertensive drugs being given per patient, often in high doses.

Comment

The vast majority of these patients with confirmed malignant hypertension, died a cardiovascular death. Most of these deaths were due to renal failure, or cerebral haemorrhage which is both a measure of the severity of their hypertension and of the poor control of blood pressure. Twenty-two per cent had very bad control of blood pressure throughout with the mean of all readings of diastolic pressure exceeding 125mm of mercury. Control was poor in a further 51 per cent with diastolic readings that lay between 110 and 125mm of mercury.

A substantial part of the care given to these patients was provided by their general practitioners. Even when the patients were attending a hospital clinic they usually saw their GP more often than they attended the hospital. The infrequency of recorded blood pressure readings in some of the general practitioner notes is disappointing, as was their unwillingness to intervene with more effective treatment despite poor pressure control. How far this reflected lack of awareness of the importance of pressure control and how far it derived from a feeling that the hospital was controlling treatment and the general practitioner's role was just to provide prescriptions, it is impossible to say.

Doctors and patients appear to share the responsibility for the adverse outcome in those instances where the patients live long enough after the discovery of severe or malignant hypertension for effective action to be taken. Obvious and deliberate non compliance with therapeutic advice was the most important patient failure. It may have occurred in more patients than in those in which it was recorded in the case notes. Mental illness, mental retardation or alcoholism were important contributory factors. If patients cannot, or will not, take care of themselves, treatment that requires adherence to a complex therapy regimen is unlikely to succeed. Doctors appeared to be responsible in instances where poor pressure control was allowed to continue with only one or two hypertensive agents being



prescribed in low doses, or where blood pressure was taken infrequently or not at all. Over-all the efforts made to control blood pressure appeared to be insufficiently determined except in the terminal illness.

### Lessons

We draw three main lessons from this study. The first is that sharply defined studies of this kind are quite feasible and provide interesting information, although at the cost of a good deal of effort. The second is that this one has shown some scope for improvement in practice. The third lesson is that the profession is not particularly interested in the results. The paper reporting this data was rejected by both of the weekly Journals and I will end by quoting from one of them:

This paper has now been read by five assessors (this was after we had appealed against an earlier rejection), four of whom advise against publication, all those concerned about the reliability of a retrospective observation analysis and the many questions that must remain unanswered about the process of care provided by the attending doctors and in particular on the impossibility of knowing how closely the notes reflected the care actually given. Necessarily too, there are many gaps in the information provided.

In our objection to the earlier rejection letter, from this particular Journal, we had pointed out that the very fact that the blood pressure readings were not recorded, or no apparent action was taken, were themselves evidence of a poor quality of care. We pointed out that observational data of this sort can never have the completeness of data collected to a protocol in a properly controlled experiment.

Although the data seem destined to languish unseen far from the eye of the medical profession at large, I still think the study was worth while. Perhaps we shall have to start a Journal of Medical Audit as the BMJ and Lancet do not intend to publish articles of this sort!

**Measurements of clinical outcome  
for hernia and patients controlled  
for patient risks**

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This essay appears in *Medical Care*, 19, 3, March 1981  
(J.B. Lippincott Company: Philadelphia Pa).

# Measurements of clinical outcome for hernia and patients controlled for patient risks

## Abstract

This paper describes objective measurements of outcome for patients with unilateral inguinal or myocardial infarction which are part of a larger project to evaluate hospital care from patient notes. The scoring was based upon the percentage of acute conditions resolved at discharge and at the first out-patient visit in accordance with clinical expectation. The method was applied to patients of general surgical and general medical firms at two London teaching hospitals in 1972 and 1975. Scores for samples of each diagnosis correlated significantly with subjective evaluations of outcome by clinicians.

Multiple regression was used to identify and weight the patient risk factors (physiological and demographic) significantly associated with lower scores in each disease. Scores of patients with these risks were adjusted upward to compensate for the difficulty of achieving good clinical outcomes when these risks were present. Comparison of firms were based upon the adjusted scores.

Being older and being single, widowed or divorced were significant in both diseases. High blood pressure and anaemia were also significantly associated with lower scores for hernia patients, as were the number of cigarettes smoked for infarction patients. The range of scores was wide in surgical firms both in years. While relatively narrow in the medical firms, scores suggest that there is still scope for improvement in some firms. The authors discuss a plan for using these data to arrive at score standards for each disease which could be used to screen clinical care routinely.

## Background

This is a continuation of earlier work concerned with measuring changes in clinical management in general medical and surgical firms at teaching

hospitals(1). The data were taken from medical records by trained clerical staff. Although the same data were collected on all patients studied, each disease was analysed separately. A multiple regression model was used to control for possible differences in the kinds of patients treated by individual firms. We have carried that concept forward in the development of a method to measure outcome, agreeing that the 'identification of factors outside the control of medical care may prove to be an important contribution to quality assurance systems based on the outcome method'(2).

The problems of devising a method to measure outcome have been described elsewhere(3-7). The design must take into account the purposes to which a measurement will be put, the sources and economics of data collection, and reproducibility. Where a method is intended to improve poor physician performance the measurement must be readily understood by the profession and the direction of improvement must be made clear(8). McAuliffe has written a thoughtful critique of several well-known process and outcome studies(9). Among his criticisms of the outcome studies are the use of measurements with questionable validity and the failure to study the resolution of initial symptoms, particularly the acute symptoms which are 'the most logical outcome measure for acute care'. He also comments on the failure to differentiate between recurrence of the initial study condition and a new episode of that condition, and the failure to control for background or patient characteristics that pre-dated treatment.

A fundamental decision in developing a method which will evaluate clinical performance is selecting an appropriate definition of outcome. The terms 'health status' and 'clinical outcome' are not interchangeable(10). While the ultimate purpose of evaluation is to improve patient health, attempts to evaluate the health status of a patient as a measure of clinical performance rest on the incorrect assumption that the providers are solely responsible for that status. As Donabedian has observed, 'what needs to be measured is that increment of health that can reasonably be attributed to intervention

by the health service organization'(11). Stated another way, 'the goal of quality assessment is not to produce health, at least not directly, it is to determine whether acceptable care was rendered'(12). In developing our method we have kept this goal in mind, asking the question, was the clinical task accomplished in accordance with the expectations that are generally accepted within the profession?

The germ of our concept for measuring outcomes was taken from the Performance Evaluation Procedure (PEP) devised by the Joint Commission on Accreditation of Hospitals in the USA. The PEP principle of expectations met is described as 'predicting what the results of intervention should be for a patient with a particular problem, if the health care team is doing the job it can and should do'(13). Clinicians establish audit topics and clerical staff examine the notes to see whether the clinical objectives have been met. For example, an audit topic for myocardial infarction might ask clerks to identify cases where a patient at discharge was not ambulatory; had not been free of coronary pain for 48 hours; and did not show a stable ECG. Cases where these objectives had not been met would be examined more closely. While we employ the principle of standards met or not met, we have gone further to create a score and to include in it not only disease-related criteria but also any acute conditions with which the patient presents.

We see this method as being used to screen for cases requiring further review. The obvious reason for this is the recognition of the imprecision of the measurement in individual cases(14). An equally compelling reason is that clinicians must be actively involved in the quality assessment movement. As has been pointed out by others,(15) improvement in the quality of care depends as much if not more upon changes in clinical behaviour than on deficits in clinical knowledge.

### Method

Our intention was to develop a method of scoring outcome which in principle would be the same for

medical and surgical diseases. We began therefore, with patients operated on for unilateral inguinal hernia without obstruction (ICD 550) and patients with myocardial infarction (ICD 410) who were discharged alive.(a)

The unadjusted or 'raw' score for each disease was obtained from two kinds of variables: (i) basic variables on which all cases with that disease were scored; (ii) any other acute conditions that were present on admission or occurred during the hospital stay. The basic variables for hernias were: was the wound healed at the first out-patient visit; was the patient educated about exertion (smoking and obesity if pertinent)(b) was the hernia treated within the year following discharge from out-patients? The list of basic variables for myocardial infarction was much more intensive. Patients were assessed for each of the signs and symptoms that comprise the infarction syndrome—shortness of breath, pain in neck, arm, chest or shoulder, sweating, nausea or vomiting, cold extremities(c)—as well as pulse rate at discharge, risk education about smoking and obesity, and activity level at the first out-patient visit. Readmission before this visit was classified as poor activity.

Each variable was assessed on the first occasion when it was medically reasonable to expect that the problem would be resolved. For most variables this was at discharge from hospital. If a condition, expected to be clear at discharge, did not meet the criterion on that occasion, it was counted as a

(a) Patients with malignancy, patients under fifteen, and patients with operations which were being attempted for the second time were excluded, as were patients who did not return for an out-patient visit following discharge as in-patients.

(b) If the notes showed evidence of education on any risk we assumed that education on all pertinent risks had been given.

(c) If a patient did not have one of the signs usually present in the myocardial infarction syndrome, no score was given for that sign.

failure, and that variable was re-evaluated at the first out-patient visit. Put simply, the unadjusted outcome score was the percentage of occasions when clinical expectations were met.

With the single exception of a penalty for hernia recurrence(d) within a year of discharge, evaluation of the disease episode did not extend beyond the first out-patient visit. This decision was taken to minimise the effect of environmental factors over which the clinician has no control. For the same reason conditions such as infection which occurred for the first time after the patient left hospital were not scored. We made no distinction between the seriousness of one variable and another. Each expectation not met was viewed as an equally avoidable clinical failure.

The reality of patient care, however, is that even conditions which are amenable to clinical intervention are more difficult to overcome with some patients than with others. We used multiple regression to identify the patient characteristics which were systematically associated with poor outcomes. Our purpose was to control for the effects that differences in patients might be having on firms scores. All patient variables(e) negatively associated with outcome and significant at  $p/0.10$  (one tailed) or better, were used to adjust the raw score upward by the amount of their coefficients given in the regression containing the maximum number of significant variables.

(d) Because recurrence is a relatively rare event, it was only scored as an expectation not met. Recurrence is defined as treatment in casualty, in hospital, or at the out-patient department for any condition associated with the hernia repair within twelve months of discharge from out-patients.

(e) The following variables were entered into the regressions for each disease: age, sex, marital status, number of admissions, in the previous year, the size of the smoking habit, the presence or absence of obesity, hypertension, anaemia, diabetes, liver complications or renal complications. Hernia regressions also included cardiac involvement. Abnormal white blood count was also added to the regression for myocardial infarction. Details of the construction of these variables are available from the authors.



Before proceeding with the regressions we had to be assured on two important points: that our outcome measurement was valid; that the scoring method was reproducible. Our test of validity was whether or not an independent clinician with no knowledge of our method would make subjective evaluations of outcome from the notes which were similar to those arrived at by our objective method. The clinician evaluating the outcome of each disease was asked to answer the question, 'How nearly did the outcome for this patient match the outcome that you would have expected him to achieve with good medical care'? Each was asked to use a five point scale, to develop a check list as a reminder of areas to examine, and, except for hernia recurrence, not to consider information after the first out-patient visit. For practical reasons validation was only undertaken at one hospital.

A surgeon evaluated all of the study cases of hernias (N = 218) at that hospital in 1972 and 1975. The results of correlating these objective ratings with the unadjusted scores were:

$$r = 0.39, 99\% \text{ confidence limits: } 0.23, 0.53$$

$$t = 6.23 \text{ p}/0.001$$

From these results we concluded that our objective method was valid. The reason for most of the discrepancies between the subjective and objective scores was that the latter included risk education whereas the surgeon had not considered this. Although education is not an outcome, it is reasonable to assume that it contributes to a better outcome. When we calculated the objective scores without the education variable there was a high correlation with the subjective scores. (0.66  $t = 12.95$ )

The clinician who assessed the myocardial infarction outcomes included education among his criteria, thus avoiding a possible source of discrepancy between the subjective and objective measures. The validation procedure was different in yet another way. Without the knowledge of the subjective assessor, he was given a sample of notes from the 1972 year and a sample from 1975, stratified according to the range of scores obtained using the objective

method. Our reason for doing this was again a practical one. We gave him 25 per cent of the total 122 cases, half from each year. The correlation of the ratings of these cases with their objective scores was:

$$r = 0.77, 99\% \text{ confidence limits: } 0.48, 0.99$$

$$t = 6.31 \text{ p/0.001}$$

We were satisfied therefore that the objective method for myocardial infarction corresponded with the subjective assessment of outcome that a clinician would make from the same notes.

Following a training period and using specific coding instructions, clerks scored a stratified sample of records to test for reproducibility. The correlations between two sets of scores were 0.97 for the hernia cases and 0.95 for the cases of myocardial infarction.

#### Study limitations

The extent of a patient's compliance once he has left the hospital cannot often be obtained from the records. We were not unduly concerned about this because most of the expected outcomes were first scored at discharge from the hospital when compliance was not a matter of patient choice. We assumed that non-compliance was not a matter of patient choice. We assumed that non-compliance following discharge was randomly distributed among all firms. The problem of outcome information missing from the records was dealt with as follows: if there was no information about the status of a condition when the patient was discharged from hospital, we assumed that it had been resolved provided that no mention was made of it at the first out-patient visit. As others have observed, 'pertinent negatives', such as 'no chest pain' are frequently omitted from the notes(16). If, however, the abnormality persisted at the first out-patient visit, it was assumed that it had been present at discharge. Normality was also assumed if there was no information about a patient risk factor.

Multiple regression was used on the premise that

the data of the group would not only identify the significant patient factors but also provide coefficients which would be used as weights to adjust scores where these risk factors were present. As one would expect from the hospitals studied a high proportion of the raw outcome scores were perfect, i.e. the distribution of scores was not normal. We were unable to find a better alternative for identifying and weighting patient risk factors systematically. As the factors and their coefficients seemed sensible, we used them.

The final question is whether outcome can be evaluated at all from the notes? To our knowledge this question has not been addressed in any systematic way. Much depends on the definition of 'outcome' and the level of accuracy required for the purpose to which the measurement is put. Defining it as the resolution of acute symptoms, we believe that there is sufficient information about such variables in medical records to use the measurement to screen for firms requiring further evaluation. We cannot claim the same for the education variable where a failure in expectation may be either an omission from the record or failure to educate the patient about the risks of his conditions. Although we are unable to differentiate between these two possibilities, both represent deficiencies in clinical performance in our estimate.

### Results

The regression on the raw outcome scores for hernia patients (N=406)(f) and that for myocardial infarction patients (N=271) were run using the scores for 1972 and 1975 combined. The variables that were significant for hernias were;(g)

(f) Two scores of '0' were omitted as outliers which would have had a disproportionate influence on the results.

(g) The only patient risk variable to approach a significant positive association in this regression was the number of cigarettes smoked. This variable was negatively correlated with age and dropped out when age was introduced into the regression.

Patient variables	Coefficients	T ratios	Significance (one tailed)
Single, widowed, divorced	-5.67	-2.1	0.025
Diastolic BP 100 or more secondary diagnosis hypertension	-4.46	-1.4	0.10
Abnormal Haemoglobin OR secondary diagnosis anaemia	-6.90	-1.3	0.10
Age	-0.24/year	-2.8	0.005

The outcome score for each patient who was other than married or was hypertensive or had a haemoglobin level below the normal limits for age and sex at his hospital was increased by the amount shown in the coefficient column. The scores of all patients above the mean age of 51.7 were increased by 0.24 for each year that the patient's age exceeded the average.

The presence of anaemia or hypertension obviously complicates surgery and the risk of increased age in surgery is well accepted(17). The frequency of lower outcomes is best for married people(18-19).

After adjusting for the significant patient variables the mean outcome for all hernia patients in 1972 was 83.6 (Coefficient of variation = 29%). The range of mean scores for the fourteen general surgical firms was from 72.8-96.4. One firm had a mean score above 90, ten firms had mean scores between 80 and 89.9 and three firms had mean scores in the 70's. The average for all patients in 1975 was slightly lower (81.9)(Coefficient of variation = 29%) but the range of mean firm scores was considerably wider-63.9 to 101.0. Two firms had mean scores above 90, six between 80 and 89.9, five in the 70's and one firm had a mean score in the 60's.

Failure to educate the patient was the most frequent reason for lower scores. This was particularly conspicuous in the firm with the lowest mean score of all the surgical firms in 1975, where we may be seeing the failure to record what was said to the patient. In some of the other firms, however, there

Patient variables	Coefficients	T ratios	Significance (one tailed)
Single, widowed, divorced	-2.38	-1.7	0.05
Age	-0.09/year above mean	-1.4	0.10
Number cigarettes smoked daily	-0.78/each 10 smoked	-2.0	0.025

were failures in expectation which could not be reasonably attributed to documentation. In the eight firms with mean scores of 80 or more only two of the 71 were seen for recurrence.(2.88) Ten of the 69 patients in the five firms with mean outcome scores in the 70's required readmission within a year of discharge from out-patients, an over-all recurrence rate of 14.5 per cent. In both years recurrence was often associated with the presence of a haematoma, both meeting and not meeting expectation, as well as the presence of infection during the hospital stay, confirming Marsden's findings of an association between these complications and recurrence(21). Pain at the wound site at discharge from hospital and wounds that had not healed at the first out-patient visit were also responsible for lower outcome scores.

The significant variables in the regression on the myocardial infarction scores were(h):

Once again we observed the effect of marital status. The association between increased age and poorer prognosis in myocardial infarction survivors is generally agreed(22-24). Our finding of a negative association between outcome and cigarette smoking is also consistent with the research conclusion that the prognosis for patients with ischaemic heart disease is poorer as the size of the smoking habit increases(25-26).

(h) Diabetes was the only patient risk positively associated with outcome, an unexpected finding which may reflect greater clinical caution with infarction patients having this complication.

The average adjusted outcome score for the 1972 patients was (95.2, coefficient of variation = 11%). The means for the eight general medical firms ranged from 94.5 to 96.0. The average for all patients in 1975 was somewhat higher (97.3, coefficient of variation = 10%) but the range of the firm means was wider—93.3 to 101.2.

As we expected, the myocardial infarction outcome scores were generally high(1). In both years the factor which contributed most frequently to lower scores was again the failure to educate the patient—or perhaps the failure to note in the record that the pertinent education has been given. Among the other factors which lowered scores were patients who were discharged with abnormal pulse rates and patients who were readmitted or had not achieved the expected activity levels at the first out-patient visit. A few patients were experiencing pain at discharge and there were single instances where, at discharge, a patient had hypertension, fever, pulmonary congestion, nausea, other arrhythmias, or shortness of breath.

### Discussion

This paper describes the plan and preliminary results of a method for measuring outcome which is intended for broader application. The thrust of this outcome measurement, like that of any quantifying technique, is to allow comparisons. The purpose is to be able to compare clinical performance at different hospitals. Hospitals of different kinds in different areas serve different populations. We therefore attempted to develop measurements for a variety of patient factors as well which could improve the accuracy of these comparisons. The expectations upon which this measurement is based are not, in our opinion, excessive. The conditions are amenable to treatment in any hospital.

(1) Comparisons cannot be made between these and the hernia scores since a single failure in the hernia group represents a higher proportion of expectations.

An essential part of the long-range plan is to arrive at a standard which could be used to screen any hospital for the level of clinical care provided. In discovering what this standard should be it was logical to begin with teaching hospitals where, in principle, the best medicine is practised(27-9); yet the differences in scores between firms suggests that even in these hospitals some performance could realistically be improved. In a recent study two independent groups of clinicians rated patient education as a high priority item for quality assurance(30). With the increasing importance of the medical notes in co-ordinating the care given to a patient by several people, not recording this kind of information is unsatisfactory. Failure to educate the patient may also be indicative of a poor doctor/patient relationship. On closer examination other failures in expectation might be attributed to the facilities of the hospital, faulty procedures or lack of knowledge on the part of an individual(31). For example, the high rate of hernia recurrence in some firms might be due to the use of a particular surgical procedure or might be associated with a high infection rate in a ward or operating theatre.

A key question is how one arrives at a standard for quality measurement. When clinicians are asked to set standards they are often unrealistically high(32-3). One group which has established a set of criteria for different diseases has suggested that 80 to 90 per cent compliance remained in the scores at this level(34). At the opposite extreme are the mathematical determinations such as identifying performance below two standard deviations of the group norm. If one uses the status quo as the standard, some poor performance may be overlooked.

We propose to feed back these results to all the firms concerned, asking them to comment on the method and the levels of performance that they would find acceptable. We will subsequently measure the outcome in the same firms. Our hypothesis is that relatively low scores will improve both as a result of firm participation in the discussion of standards

and awareness of the outcome criteria. We should then have a better notion of what is a reasonable standard of outcome expectation.

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**The contribution of the  
Medical Services Study Group  
of the Royal College of Physicians  
to improvement in care**

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# The contribution of the Medical Services Study Group of the Royal College of Physicians to improvement in care

## INTRODUCTION

For some years the Royal College of Physicians of London and the King's Fund have been interested in medical audit and the College anxious to promote collaborative research among its Fellows and Members. In this way their collective experience and expertise might be harnessed to improve medical services and advance knowledge in any way possible.

The generous support and co-operation of the King's Fund made it possible for the College to set up the Medical Services Study Group in May 1977. The nucleus of the team consisted of Sir Cyril Clarke and Professor A. G. W. Whitfield and later Professor E. D. Acheson.

From the outset it was clear that phrases such as 'medical audit' and 'peer review' had to be used with caution when approaching some colleagues. Nevertheless, the great majority were willing and anxious to participate in the various projects we set up. These inevitably involved a large element of self-assessment and internal hospital audit and the publications resulting from the studies, by exposing deficiencies in practice or facilities, make a considerable contribution to the objectives of both the King's Fund and the College. The work of the Medical Services Study Group has already led to a number of hospitals setting up monthly conferences at which their consultants and junior staff examine all factors relating to the death of patients, particularly young patients dying unexpectedly, so that any errors or omissions which come to light, may, if possible, be avoided in the future.

ACTIVITIES TO DATEA. 'Deaths under 50'

The initial project was an investigation (via the actual case notes) of medical deaths in hospital under the age of 50 in the Merseyside, Grampian and West Midlands Regions from September 1977 to September 1979. There have so far been two publications relating to this—a preliminary report on the first 250 deaths (*Br. med. J.*, 1978, 2, 1061) and an investigation into the accuracy of death certification (*Br. med. J.*, 1978, 2, 1063). There was considerable correspondence about both of these, not only in the medical but in the lay press and the most interesting press and the most interesting comments were criticisms, particularly of our finding that 40 per cent of deaths were 'self-inflicted', i.e. wholly or partially due to alcohol, cigarette smoking, obesity or failure to seek or follow medical advice. This was seen by some as 'whitewashing' the profession. As regards death certificates, the criticism was that we lacked knowledge of the object of the certificates which were not intended for epidemiological research.

Publications dealing with the total survey—about 1150 cases from the three Regions—are in preparation.

We feel that the 'Deaths under 50' study has led to some additional self-criticism in the profession.

B. Deaths from meningococcal infection

An investigation into all deaths from meningococcal infection occurring in England and Wales (about 100) during the year 1978 is nearing completion. It has been conducted by Dr Joan Slack, with the help of the British Paediatric Association and the British Society for the Study of Infection. This disease was selected because of the considerable mortality in spite of the availability of curative treatment which has been known for 40 years. It is hoped to have a control series of those suffering from the disease who did not die.

During the years 1971-4 there were 82 patients with meningococcal infection in Bolton, of whom fourteen died. Nearly all of the survivors have been traced and their present physical and intellectual state is being investigated by Dr Moss, a recently retired local consultant paediatrician. It is important to know how complete recovery usually is and the recovery usually is and the burden imposed on the hospital and social services by those with residual disabilities.

C. Deaths under 50 from diabetes mellitus

A survey of all diabetic deaths in the British Isles under the age of 50 during 1979 has been conducted in co-operation with the British Diabetic Association. The facts are currently being analysed and it is probable that deaths from ketoacidosis and from renal failure will figure prominently. The latter present a major problem to the hospital service and in particular an increasing responsibility to renal transplant units.

D. Confidential enquiry into the outcome of diabetic pregnancy

A further co-operative study with the British Diabetic Association and the British Paediatric Association, in which the Royal College of Obstetricians and Gynaecologists is also participating, relates to congenital malformations and physical and mental development in the children conceived by 688 diabetic mothers in 1979 (England and Wales). It is believed that congenital abnormalities are increased at least threefold in the children of diabetic mothers and this imposes burdens on hospital, family planning and social services. It is hoped that some special aspect of maternal diabetes may be shown to be causative.

E. Deaths from Rhesus haemolytic disease

An analysis of deaths (54) and stillbirths (101) from Rhesus haemolytic disease in England and Wales

during 1977 has been published (Br. med. J., 1979, 1, 1665). The ascertainment was from death certificates and then the relevant case notes, all of which were scrutinised. The failure rate of anti-D was about two per cent but the prophylaxis had not been given in about twenty per cent of cases where it had been indicated. Furthermore, about 25 per cent of the death certificates were inaccurate. The study was greatly helped by the co-operation of the Royal College of Obstetricians and Gynaecologists and is being repeated for the 1978 deaths.

#### F. Poisoning

An investigation of deaths from acute poisoning during 1979 in the South-East Thames, Merseyside, Northern and West Midlands Regions and in Wales is in progress. It stems from the work of Goulding and Vales (Vale 1977, *Acta Pharmacol et Toxicol* 41, 433-458) who had earlier looked at the South-East Thames data and now wished to repeat their study and compare it with regions outside London. Poisoning is one of the most important 'accident and emergency' problems in hospital practice.

#### G. Bronchial asthma

The Group is co-operating with the British Thoracic Association in an investigation of deaths from asthma during 1979. Many such patients die suddenly and unexpectedly at home but when they arrive at hospital alive their care is an important and a highly specialised part of the work of intensive care units. It is hoped that this study will be completed within the next few months.

#### H. Hospice bed requirements

A study of the work of a hospice in North Staffordshire has been completed and provides some guidance of the scale on which such facilities are required.

I. 'At risk' populations

A paper from the Group (Whitehead T. P., Clarke C. A., and Whitfield A. G. W., Lancet, 1978, 1 00) showed how those who may be at risk from alcohol abuse can be identified by biochemical and haematological tests. A further study on the same population of carcinoembryonic antigen levels in the blood indicates that these are higher in smokers than non-smokers (though the relationship is not linear) and the meaning of this is being investigated.

As has been pointed out, a feature of some of the studies which have been undertaken is the extent of inaccurate death certification. The factors chiefly responsible for the errors have been identified and it is hoped that as a result standards will be improved and the difficulties of the Office of Population Censuses and Surveys lessened. A large programme of costly epidemiological research is in progress in many medical centres in the United Kingdom and much of this is necessarily based on death certificates—a foundation which would be more secure if death certification were more accurate. For instance, how reliable is the information that deaths from ischaemic heart disease in Scotland are greatly in excess of those in England and Wales?

Since the second world war a large number of specialist societies and associations have been established and are fulfilling a most valuable and important role in postgraduate medical education. It is hoped that the Medical Services Study Group will be able to collaborate with them on an increasing scale in research projects.



**Self-assessment techniques  
in quality control**

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## Self-assessment techniques in quality control

Self assessment programmes (SAP's) in numerous branches of Medicine and Surgery have become established in the United States of America and are now something of a minor paramedical industry. MKSAP (Medical Knowledge Self Assessment Programme) of the American College of Physicians is perhaps the best known, and was subscribed to by 12,000 physicians in 1968, 19,000 in 1971 and 29,000 in 1974. In 1976 a detailed announcement of the programme was circulated to 35,000 members of the College and 110,000 other physicians (Annals of Internal Medicine, 1976). The approximate cost to non-members of the College was about £70 and for this a total of about 1000 pages is provided including reading matter about modern aspects of various sub-specialties of Medicine, multiple choice question/answer papers, Patient Management Problems (PMPs), MCQ critique books, MCQ reference data and norm tables. For each of the three groups of sub-specialties in Medicine an MCQ of more than 200 items is provided. While there are continuing deliberations here about embarking on SAP's the MKSAP is so successful that the American College of Physicians is doubtful as to whether it can afford to give it up (Gamble, J., personal communication).

This gives some glimpse of the extent of involvement of one College at least, and it is of interest that the Continuing Education and Training Centre of the Royal Australian College of Physicians provides the MKSAP on an agency basis for the American College.

Self assessment may be looked upon as a type of audit and it was in the hope that such programmes

could contribute to quality of care that the Nuffield Provincial Hospitals Trust decided to allocate funds to the Royal Colleges of Physicians to support a study of these techniques. A Committee with representatives from the three Colleges was convened under the Chairmanship initially of Dr John Stokes, and latterly of myself. The members of the Committee\* were drawn largely from among those responsible for the written part of the part II MRCP Examination. The Committee considered the following forms of self-assessment:

- A. Unsupervised Written Material to be circulated on demand:
  - 1. Case histories with questions and answers similar to the MRCP Part II written section
  - 2. MCQs to be answered at home on computer cards to be returned for analysis
  - 3. Duplicated X-rays, clinical photographs, and other visual material, with answer sheets to be returned for marking
  - 4. Tape-slide material with questions, and with answer sheets to be returned for marking
  - 5. Open circuit TV as already in use in the Open University. In some Open University programmes there is the possibility of a 'dialogue' between the participant and a suitably programmed computer

Some such similar material is already widely available through other channels, for example, in the Journal 'Medicine' and from the Department of Medical Education in Dundee. Open-circuit television could well be the best method to use; provided that there was a feedback mechanism, but would be a major undertaking in manpower and money. For all these

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reasons, combined with their inevitable lack of validity, it was thought inappropriate to give further consideration to such unsupervised systems at this stage.

B. Supervised Methods, accompanied or followed by discussion:

1. MCQs with yes/no answers immediately available by the use of 'student response' cards. (These are cards about 5"x3" coloured on one side. White = yes, Red = no. Placed against the chest by the participant, the presenter quickly sees the response, though the participants themselves cannot easily see the responses of others).

2. MCQs with subsequent computer analysis of answers.

3. Case histories presented progressively, with appropriate data including X-rays, biopsies, etc. with answer books for subsequent analysis.

A trial self-assessment programme was tested in the three Colleges in late 1977, using an MCQ test of 50 items in cardiology, presented as a combination of B1 and B2 above and a progressive case with a problem in malabsorption as in B3. In the case problem the history, examination and investigation were presented on slides, interspersed with questions to be answered in a booklet arranged in such a way that the page had to be turned before the next question came in order to prevent, as far as possible, alternations to earlier questions being made in the light of subsequent information. There was a 'shepherding effect' so that participants unfamiliar with the topic did not become completely lost as the case unfolded. The 50-item MCQ took about twenty minutes to complete and there was a subsequent discussion with audience response.

The SAP was done by volunteers, mostly consultants, and about 25 from each College. The results were conveyed so that they knew where their mark lay in relation to the unattributable mark of others. Anonymity was ensured. When opinions expressed in a

subsequent questionnaires were analysed the progressive case proved to be the more popular; on the whole the participants indicated that they had enjoyed the experience. It was decided after this trial that such specialist cases should be shown at Postgraduate Centres, as when the answers to the questionnaire were analysed such cases proved to be the more popular. The patient's history would then begin with primary care, and family doctors should be invited to help with the construction and encouraged also to take part in such tests.

Little progress has been made since then because the Presidents of the Colleges decided after consultation that self-assessment programmes were perhaps not a priority investment for continuing education and only one further experiment has been conducted; this was at the Edinburgh College in December 1979. Though the number who took part was small (25) the subsequent questionnaire once again showed that it had been popular.

When self-assessment programmes are so popular in the USA it is interesting to speculate as to why they should be less popular here—though the Department of Medical Education in Dundee has excellent returns from its widely disseminated material.

I would propose three hypotheses. One—that the popularity of medical audit is inversely related to reverence for authority and that it is characteristic of the USA, where their clinico-pathological conferences have been so popular for so long that reverence for authority is less than in many other countries. A second hypothesis is that the language associated with audit acts is a deterrent; for example the Oxford English Dictionary describes 'assess' as follows: 'Fix amount of (taxes, fine): fix amount of and impose (upon person or community; fine, tax (person, community, property, in, at, so much); estimate value of (property) for taxation...'

The last hypothesis is that the acceptability of medical audit and even SAPs may be directly related to the prevalence of litigation in that having taken part in an SAP may be used as evidence of continuing education. Also it may be that subscription to these programmes in the USA is tax deductible.

It is perhaps relevant to note that the American Board of Internal Medicine has used selected material for testing for relicensure or recertification from the MKSAP and the American Board of Medicine Certifying Examination to provide self-assessment at 86 centres to 3,356 Diplomates of the Board. Of those taking part 4.3 per cent were considered to be below an acceptable standard (Rosenow, 1976). This would appear to be a relatively easy route to such relicensure or recertification.

As Pyke (1974) pointed out, when one is deciding on a colleague to look after a relative one asks substantial questions, such as—does he care?; does he try?; does he visit his patients?; does he listen to the history?; does he make an appropriate examination?; does he communicate well with patients and relatives?; does he provide meddling treatment, and also does he know? This conclusion as to the relatively minor place of knowledge is in agreement with the findings of Ashbaugh and McKean (1976) who, in 55 audits of 37 topics totalling 5,400 patient records; found that 94 per cent of deficiencies were in the area of performance and only six per cent in the area of knowledge. Testing knowledge is an appropriate method at entry examinations—at least as part of the test. In quality control as part of the supervision of continuing education there is no way of providing answers to the sort of questions that Dr Pyke asked and one is tempted to think that the wrong people, i.e. volunteers least likely to need testing, are being tested in the wrong way and on the wrong subjects, namely knowledge rather than on habits of practice. However, there is the advantage that sleep and the completion of self-assessment programmes are not compatible, which is not true of postgraduate lectures and, from our experience, many participants seem to find them enjoyable. We must however not make plans which could lead to any patient saying 'My doctor must be all right, he's self-assessed!'.

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## **Quality of care in anaesthetics**

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# Quality of care in anaesthetics

There are a number of criteria by which the quality of anaesthesia might be assessed. Mortality, morbidity, facilitation of surgery, subjective experience by the patient and many others, would all be valid. We have chosen mortality because death is easy to identify, occurs at a precise time, and is perhaps related to other clinical and environmental factors at the time of administration of the anaesthetic. We realise that a study of mortality in association with anaesthesia is complicated by the interactions of anaesthesia with surgery. This aspect is not easy to overcome but we hope that our study has to a greater extent than heretofore avoided this particular problem. Previous studies, both in the United Kingdom and in other countries of the world have taken the relatively easy way out and have considered deaths either during a surgical operation or deaths within an arbitrary period of twenty-four hours. This data is well-known, but makes only a limited, albeit valuable, contribution to the establishment of standards of care in anaesthesia, and because it is largely qualitative does not help in the determination of the quantitative part played by the various factors involved in anaesthetic practice. (Previous reports have identified gross defects, such as failure of adequate resuscitation prior to surgery, apparatus failure, technical failure, overdose, and inattention as responsible factors in early mortality during or after surgery).

Our own study is concerned solely with mortality in association with anaesthesia and it was decided to study post-operative deaths during the first six

days after surgery rather than to limit it to an arbitrary period of hours or to continue for a prolonged period after the surgical operation. The reason for this is as follows. From our studies in Cardiff over a period of 30 years, we know that 50 per cent of hospital surgical deaths occur within the first six days, and that the decline in mortality over the years has occurred during that period due to such things as the improvement in surgical treatment and in anaesthetic care. After the sixth day, hospital mortality has remained unchanged and is presumed to be due to the nature of the diseases treated.

### Method

Our Study is based on voluntary reporting of opinion by both anaesthetists and surgeons. The occurrence of a post-operative death within the specified period is identified by a nominated local correspondent—an anaesthetist—who sends a small proforma to both the anaesthetist and surgeon involved requesting their opinion about the role of anaesthesia in the death. If one or both are of the opinion that anaesthesia may have had a part to play, the anaesthetist concerned is invited to submit further information on a very detailed questionnaire. Requests for further information are made via the local correspondent who is kept unaware of the details of the answers, whilst the regional assessor is unaware of the identity of the patient, the anaesthetist, or the surgeon because their replies are sent to him under a code number.

The regional assessors are senior anaesthetists in the same region as the originator of the report; each performs his own assessment. An assessor for a different region then examines the same record and reaches his decision. An attempt is made by mutual discussion to reach an agreed opinion, but if this proves impossible, the central arbitrator, Professor Mushin, supports one or other of the two opinions.

Confidentiality

This proved to be much less of a problem than we had anticipated. The Colleges and the BMA were naturally suspicious, but after discussion all were satisfied and gave their approval to our scheme. Initially also, there was a considerable reluctance on the part of the surgical Colleges to co-operate, due perhaps to the misapprehension that we were including surgical factors in mortality. This is not the case and as soon as reassurance was given to all concerned this no longer proved to be a problem. We also met resistance from anaesthetists who mistakenly thought that there was a judicial element in the study. Most hospitals in the regions under study agreed and are enthusiastically participating. Nevertheless, two places—Wolverhampton and one district in Glasgow have persistently refused to co-operate in any way. The main source of disquiet about the study—confidentiality—was dispelled by the anonymous nature of the reporting system and the plans received the approval of the Defence Societies in England and Scotland. It has been found particularly important to emphasise repeatedly to medical colleagues that there was no element of judgement or allocation of blame contained within this study, but in spite of our protestations about this matter there are some who still feel threatened. Finally, it is to be noted that the DHSS, although represented on the main committee running the project, co-operated by asking its Area and Regional Medical Officers to give us every help. They have no direct access to any of the data.

Measures of success

It was realised early on that an independent source of data about the numbers of deaths within the specified post-operative period was required. Inaccuracy and omission from the death certificates to the Registrar General have been highlighted before by others, and these sources of data were clearly unreliable for our purposes although we have had considerable advice from the OPCS. The Chief

Medical Officer of the DHSS has allowed us to use data from the Hospital Activity Analysis as a secondary check that our reporting system is efficient. Not all regions are as up-to-date or as conscientious as one might wish, and we are therefore not yet certain of the extent to which the HAA system will be useful. Nevertheless, in one region, Wales, the HAA is so well organised that by comparison of its figures with our own data, we are fairly confident that we do receive from our correspondents reports of between 60 and 80 per cent of deaths within six days of a surgical operation.

### Pilot study

The original intention was that our study should be nation-wide. Natural selection on the basis of enthusiasm and interest resulted in our agreement to the wise proposal by an epidemiologist on the main committee that we should confine our attention to a restricted area in the first instance. Five regions (the North West, Trent, Midlands, Wales and Scotland) are being studied. A considerable amount of effort has been expended by the regional assessors and their local correspondents. The extension of this study to other regions, although previously envisaged, seems at the moment unlikely.

### Aim of the study

The regional assessors set themselves some questions to answer in relation to this study. They can be summarised as an attempt to quantify the extent of early anaesthetic-related deaths, to identify any common factors in their causation, whether clinical, administrative, or environmental, and to detect the existence of any regional differences. The ultimate aim of the study must be that the quality of anaesthetic care will be improved, and it is interesting that already there are isolated instances (anecdotal) in which it is claimed that clinical practice has been influenced because clinicians have been made more aware of the effect of their practice.

Results

A preliminary analysis of the assessors' opinions about the first 300 deaths shows that in more than half of them, the assessors have concluded that anaesthesia contributed in some way to the deaths, although, in fewer than a fifth was this contribution substantial. A separate classification suggests that about seventy-five per cent of these deaths were unavoidable and in the remainder the avoidable factors were related to the judgement, experience and expertise of the anaesthetist concerned.

There are very many details included in the main questionnaire. These may be important in individual cases and their identification, together with correlations, is to be performed with the help of a computer program. However, it will be some time, probably a year or two, before we have a complete analysis of the data so far collected. The computer program has already been written and the early data is in the process of transfer for analysis.

**The improvement of  
performance in pathology**



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# The improvement of performance in pathology

## THE GENERAL PROBLEM

The attitude of a small number of established consultants to the general problem of improvement of performance, both in personal conversation and as group policy, seems to be 'I was appointed at the age of 35, and this in itself guarantees perfect performance from me for the next thirty years. No doubt I will keep up-to-date, but if I do not it is my own business: and the same applies to putting in my full hours, teaching my junior staff, and generally practising the best medicine. Anyone who wants to test my performance, or advises me that I am going wrong, and especially tries to do something about it, is interfering with my professional freedom'. My general theme is that without the ultimate threat of some sort of sanction, initially for education, we cannot reach the bottom 1-2 per cent who might be a real danger to patients. This applies just the same to all other professions, but they are not our direct responsibility except that we are all citizens.

There is in Britain a considerable anti professional and anti elitist movement in certain sections of the public. The medical and allied professions as a whole have always been extremely reluctant to set up any system of self-auditing, but we in pathology agreed some six or seven years ago that unless we tried to put our own house in order someone else would try to do it for us—whether this was government, or a political group, or a consumer organisation, or the Ombudsman. We have to think about what

is a poor laboratory: does it matter, why does it happen, and what shall we do about it.

My two tasks are to describe the present state of assessment in pathology, and to plead the case that the Alment Report Competence to Practise did not go far enough. Most existing proposals do not allow for, or refuse to recognise the existence of, those who do not discipline themselves. The views expressed are personal, and are not official policy of the Royal College of Pathologists.

## PERFORMANCE OF PATHOLOGY DEPARTMENTS

### Quality control and quality assessment

Most people think first of quality control when considering assessment of performance in pathology. There are several different and well-developed quality control schemes in chemical pathology, haematology, and microbiology: government-supported on a national scale; locally (usually regionally) organised; and commercial.

Quality control schemes have developed a long way from the initial system of having internally prepared samples, such as dividing up a batch of serum and testing it ourselves every day: and then making such adjustments as we wished on our own initiative, namely internal advice. Such internal schemes must continue to be used in conjunction with external schemes. The next stage was when a central laboratory, or perhaps a laboratory in a region, prepared samples which it sent round to a number of laboratories; but any action on improvement was still left to our own initiative: there is a move to call such external schemes Quality Assessment. The third stage was when the laboratory that sent round the samples would also send round advice if it noticed on analysing your results that you were doing very badly: again no action was taken if no improvement was found. The fourth stage was when an independent professional organisation was brought into being to monitor the performance of the laboratory. The last stage, which we are just beginning to come to, is

when educational or corrective measures are contemplated for laboratories that do not improve. Each of these stages has led to an improvement in performance of laboratories, but has left behind a number whose standard is unsatisfactory. We are beginning to think of quality control of simple interpretation, as well as of the analytical results, on the lines either of 'what action do you take in advising the clinician with the result that you have found' or 'what do the abnormal cells in this blood film signify'.

### Functions of pathology departments

Some people talk as if good quality control is all that is necessary to mean a good department. But there are many functions of a pathology department, and in theory all of them might be assessed. First, we have precision and accuracy of results. Now this really is all that our present quality control schemes can assess, and indeed in chemical pathology and usually in haematology, they more often assess precision than they do accuracy. But to the clinicians speed of reporting is very important, and this is a matter which is dealt with by local nagging, not by quality control schemes. Another responsibility of the department is advice to clinicians, otherwise we might as well not have clinical pathologists and could just manage with black boxes and expensive machines. Pathologists have to advise the clinicians on what test to use, and have to advise them on how to interpret the result. If this advice is poor then again local pressure should soon begin to make itself felt. We have to educate our own junior staff (technical, scientific, and medical), and we have to take part in mutual education with the clinicians by, for example, attendance at grand rounds and giving seminars: again the lack of education within the department will soon show itself by complaints and bad examination results. Bad education outwith the department will show itself by the increase in number of unnecessary requests. If we do not do good development then we will fall behind in the methods that we offer to the wards. If we do not

do good research within our financial capabilities then we will not be able to get good staff. Now none of the last five headings can we test by quality control: so far we really are testing, in Britain at any rate, mainly the first: correct results. A recent professional survey, Nuffield sponsored, has shown that chemical pathology laboratories whose head is a fully trained (medical or non-medical) clinical biochemist have better results than laboratories without such on-the-spot supervision. In addition larger laboratories generally produce more precise results than do small laboratories.

All this excludes the blunder rate, which comprises all sources of error from taking blood from the wrong patient through mislabelling the sample to putting the report in the wrong notes—leaving out poor laboratory analysis and interpretation.

#### Responsibility to the public

It has become increasingly evident that quality control schemes serve little purpose if laboratories that are poor performers do not improve when they find that their own results are poor, and it is fair to say that the great majority do improve. We are not working in a vacuum for our own benefit: we are paid, directly or indirectly, by the public. Therefore the public have a duty and a right, which they are increasingly willing to use through political or other organisations, to see that they get their money's worth. If a laboratory has continually bad results in quality control then this laboratory is not doing its duty to the public which is supporting it, and is not providing its contribution to health care. We also have to think of the large damages being awarded in negligence cases. The responsibility rests with the pathologist in-charge of the department, whether medical or scientific. The buck stops here.

#### The National Quality Control Schemes in pathology

The Department of Health pays for the National Quality Control Schemes, which are run by medical

and scientific Organisers, with advice from professional groups. The Organisers send the samples to the laboratories, and they return their results to the Organisers. The relevant professional societies set up a supervisory working party (of which I was Chairholder until recently) to cover all pathology and to decide on policy, and this sponsors three specialist advisory panels for the disciplines in which there are large national quality control schemes; namely chemical pathology/clinical chemistry, haematology, and microbiology. These panels work in collaboration with the Organisers, but we felt that the Organisers who run the Schemes should not be those who give the main advice. The advisory panel for chemical pathology, for example, has representatives of the Royal College of Pathologists, the Association of Clinical Pathologists, the Association of Clinical Biochemists, and the Institute of Medical Laboratory Sciences (namely the technicians/medical laboratory scientific officers).

In brief, the Organiser of the Scheme informs the panel if performance falls below an accepted standard—anonymity is broken by agreement. There may have been suggestions from the Organisers earlier to the laboratory, and the laboratory may also be taking part in a local scheme from which advice can be received. The panel will first propose help by letter, and will then make a visit.

#### CAUSES OF POOR PERFORMANCE

The common cause of poor results in pathology once we have passed the stage of the use of poor methods (including reagents and equipment) is an increase of work beyond the capabilities of the laboratory in terms of staff, space, and equipment (or money to pay for them). The panel may be able to assist in getting help for these deficiencies. I assume that the quality control advisory panel are satisfied that the cause of the problem is not deficiency of these capabilities, or that if these are deficient that the pathologist has made no effort to have these improved through the usual channels, or that if this has been rejected he has not asked for

support from his clinical colleagues in getting the deficiencies remedied, or that he has made no attempt to restrict the work-load. We now begin to think of a poor head of department.

So we have a laboratory with poor performance that does not improve after advice from the panel. Or it could be that the pathologist removes the laboratory from the quality control scheme as soon as bad results are received or a visit from the panel is proposed. Or it could be that the laboratory does not take part in the National Scheme so that it is not possible for there to be any national professional check. Now it may be that this laboratory has excellent external quality control with other schemes, but we have no way of knowing; and all the relevant professions agreed to setting up the present system because we felt that someone ought to have a way of knowing. So far, we trust our laboratories not to send on their samples to a larger good laboratory, and then to send these results back as their own: nor to treat them as special and non-routine (which in fact tends to give worse results). I have been told that in the United States the following scenario is sometimes necessary. An Inspector calls on the suspect pathologist and takes a tube of blood from his pocket. 'Analyse this, now'. A short while later 'white count 20,000 [non-SI of course], film diagnosis mononucleosis'. 'Wrong, count 50,000, diagnosis acute leukemia: the laboratory is therefore closed for receipt of outside specimens'. We have not yet agreed that participation should be compulsory, though we are moving this way.

Is the inadequacy of the pathologist due to illness, or golf, or alcohol, or failure to keep up-to-date, or excessive private practice or coroner's PMs in NHS time, or failure to supervise junior staff? Diagnosis of inadequacy just because a laboratory performs poorly on quality control is, as already stated, a very limited approach. The inadequacy may well have been recognised by the rest of the staff, but in Britain local colleagues have few powers except to advise and warn unless the problem is due to chronic illness.

IMPROVEMENT OF THE POOR PERFORMER

We have to think what can be done to safeguard the patient for whom this laboratory sends out poor results. Sometimes local pressure from the rest of the staff indeed does serve to improve the situation if a firm enough warning is given. Sometimes participation in local quality control groups is sufficient, but the type of poor performer that we are thinking of is one who has not yet taken part in such exercises. We mentioned earlier that at some stage the Organisers will have given suggestions on how to do better, but the panels were set up because this in itself did not seem sufficient. So we have our panels who first of all give suggestions by letter that things are not going well, and then pay a visit and give advice on what they find at the visit. Perhaps we should ensure first that the pathologist attends appropriate educational courses. This is nothing new. '... in 1335 the [Venetian Republic] was paying a full-time salary to twelve doctor-surgeons who, together with all other licensed practitioners, were obliged by law to attend an annual course in anatomy, which included the dissection of corpses. After the establishment of the state-run School of Medicine in 1368, they were also required to attend monthly meetings to exchange notes on new cases and treatments'. [my underlining] (John Julius Norwich, Venice: The Rise to Empire', (1977, p.298).

If the quality control still does not improve, or if the errant pathologist refuses to go on courses, then I think our responsibility to our profession, to the patients, and to the public will require us to accept that the matter will have to be taken further.

Chemical pathologists, haematologists, and microbiologists (as a Good Union Man I agree) are very unhappy that just because one aspect of their work is being tested, therefore they could be open to corrective action--whilst no acceptable scheme of testing has yet been found for histopathology, nor for the completely clinical subjects. Attempts at



sending round histological slides with agreed diagnoses for assessment have not yet been satisfactorily developed. This unhappiness is one reason why no real progress has been made in dealing with our few persistently poor performers. Assessment of performance in the clinical disciplines is more difficult, but various schemes have been described today which are promising and which could be applied universally. What has not been described is possible action in respect of those with poor clinical performance.

#### Further remedial action

We are thinking that we might have to make participation in a national quality control scheme that is monitored by a panel to be compulsory. Some people will accept advice and guidance by heads of laboratories that are near by, whilst others will only take it from apparently disinterested national figures. One could say that education courses should be compulsory, but the question of compulsion is at the root of the problem. The Royal College of Pathologists will not approve laboratories for training of junior pathologists without satisfactory performance in quality control: but the poor laboratories tend not to have trainees. Perhaps the pathologists should suggest to the clinical Royal Colleges that, when a post is approved say for MRCP training, satisfactorily performing local laboratories should be one of the criteria. More controversial remedies can be imagined. Should the pathologist be seconded to a large laboratory for a period? There is no money these days to supplement the staff with an active colleague of the same seniority, so should one be thinking of early retirement?—this implies informing the Area or Regional Medical Officer. He is responsible for 'his' patients having a proper service, but how can he know? Because the way that the NHS is financed, we cannot use the sanction that is applied in West Germany, namely depriving the poor laboratories of their social insurance fees: their laboratories also receive certificates of satisfactory performance by analyte, so one might be

approved for electrolytes and not for enzymes. Dare we even suggest downgrading a Distinction Award if such a poor performer may ever have been given a Distinction Award—this brings up reaccreditation, and reassessment of continuing ability, which are separate topics of dispute. London University does allow for early retirement at 55, on a reasonable pension, if in the managerial interest—a splendidly vague concept. I have had it said to me, of one laboratory, that only death will improve the performance.

#### ASSESSMENT OF ABILITY OF PATHOLOGISTS

Pathologists, and I believe other specialists, are making a beginning in providing means for assessment of knowledge, as well as of performance. The Royal College of Pathologists has made a trial of the self-assessment schemes in various disciplines that have been developed over many years by the American Society of Clinical Pathologists. These are excellent, but would need a little modification to make them really suitable for use in this country. It has been agreed that suggestions from Britain be made available to the organisers in the USA for the next edition. The sets of questions (including slides etc.) will be available to British pathologists at a cost of about £20.00. But I am sure that the 'poor' pathologists will not take these tests, or if they do and get low marks then the ones that we worry about will not take measures to improve themselves. Such assessment of knowledge can be no more difficult for clinicians, including general practitioners, than it is for pathologists: pathologists would not agree to such a scheme being used for audit unless similar audit were also applied to clinicians. Again it is the will for remedial action that is all-important. Availability of such test material could bring up the vexing topic of reaccreditation, when in this country we have not even a firm policy on accreditation.

We can see yet another advantage of the much-argued double career-grade system—consultant/senior

consultant, or by any other name. When all senior registrars take their first appointment as consultant, then it is those who run poor laboratories, and do not continue their education etc., who are likely to belong to the one-third or more who do not become senior consultants in the course of time, and stay in the consultant/senior-lecturer-equivalent grade.

#### GENERAL RESPONSIBILITY OF THE PROFESSION

So we are back at the basic question. At what stage can one demand of members of the medical and allied professions that they give up a little of their justified professional independence in order to allow their few weaker colleagues to be less of a risk to patients? We all know the occasional doctor who is a poor performer for one of the reasons given above. It is a small minority who are at fault: I think we are at fault if we do nothing about them. We have, individually and collectively, in the past been extremely reluctant to take positive action. There is an excellent organisation called the London Medical Group, which runs meetings on ethical problems, mainly for students. A couple of years ago they announced a meeting on 'What shall we do with bad doctors'—so I went along. The eminent panel would only talk about what we should do with chronically ill doctors, and refused to be drawn on the real problems of the testing, and helping, and even disciplining, of the bad doctor. In the old days the General Medical Council could strike you off for Advertising or Adultery. It has never shown any eagerness to do the same, unless obvious negligence were involved, for Idleness and Incompetence. The latter are potentially more dangerous to patients, but harder to measure: that does not mean that we should not try.

**Utilisation and effectiveness  
of procedures commonly used  
in diagnostic radiology**

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## Utilisation and effectiveness of procedures commonly used in diagnostic radiology

There is general concern among radiologists about the increasing demand on the diagnostic facilities provided by departments of diagnostic radiology. While the costs of diagnostic radiology soar there is considerable doubt regarding the benefit to the patient from much of this work. A reduction in the work load would not only reduce the cost of the service but lower the radiation exposure to patients and improve the quality of radiological practice.

The Royal College of Radiologists set up a working party in 1974 to consider how radiological facilities might be more effectively used. It was considered that there was an urgent need for a series of guidelines which would assist clinicians in making rational decisions regarding utilisation of diagnostic radiology. The working party recommended setting up a series of national multi-centre studies of some diagnostic radiological procedures. It was proposed that the following examinations should be assessed—pre-operative chest radiology; diagnostic radiology in accident and emergency centres; abdominal radiography in pregnancy; excretion urography in hypertension; micturating cystography in children and the role of radiology in the differential diagnosis of dyspepsia.

The purpose of these studies was to collect information on the extent and nature of current utilisation of the radiological examinations listed and to draw inferences regarding the contribution that these examinations made to the subsequent management of the patient. It was appreciated that only a research strategy which permitted randomisation of

patients into radiographed and non-radiographed groups would allow a completely objective assessment of the effect of radiology on subsequent management. It was considered however that the clinical climate of opinion for a variety of reasons was likely to be unsympathetic to this approach and that it would be unethical to undertake unless the prior assumption was made that no difference would be found.

In January 1977 the Royal College of Radiologists received a grant from the DHSS to initiate some of these studies. The first study examined the value of pre-operative chest radiology in non-acute non cardio-pulmonary surgery.

### Pre-operative Chest Radiology (PCR)

As the intention of the audit was to reflect national practice, eight participating centres were chosen four of which were teaching centres; three were in high density urban areas; two in medium density urban areas; two in low density urban/rural areas and one in a low density rural area.

The audit was restricted to non-acute, non-cardio-pulmonary surgery to avoid the possibility that any difference in practice observed might be the result of differences in the nature of the clinical work undertaken at the various centres. The study population comprised all consecutive admissions over a set period who satisfied the above criteria.

Detailed information on each subject was collected and this included patient identification, the reason for the chest radiograph and the radiological report. Finally the management and the post-operative complications if any were noted as well as the interval between admission and operation and operation and discharge.

A total of 10,608 operations was achieved and of these 29.7 per cent had PCR. Table 1 shows a five-fold variation in utilisation. 11.5 per cent of patients underwent this procedure in Centre (2) (a long established Teaching Hospital) compared with 54.2 per cent in Centre (8) (a new Teaching Hospital). The greater part of this variance could not be

explained by difference in the ages of the patients at each centre, by the proportion undergoing major surgery or by an apparent difference in the mix of specialties at each centre. The centre itself appeared to be an important determinant of utilisation.

Table 1. Utilisation of PCR by centre

Centre	Operations	%
(1)	2727	16.4
(2)	966	11.5
(3)	746	23.72
(4)	1555	24.6
(5)	447	23.71
(6)	974	32.5
(7)	619	34.2
(8)	2585	54.2
Overall	10619	29.7

There was a three and a half fold difference in the use of PCR across six specialties—46.8 per cent in general surgery compared with 13.1 per cent in gynaecology. There were no obvious clinical reasons for this.

The PCR report did not appear to have much influence on the decision to operate as 96.2 per cent of patients whose report was normal and 92 per cent who were reported as having a significant radiological abnormality proceeded to operation. Furthermore 25.7 per cent of all those given PCR (801 out of 3152) proceeded to operation without a radiological report, despite the fact that in 25 per cent of these the report that was subsequently available showed a significant radiological abnormality.



Analysis of the length of the pre-operative stay showed that 75 per cent of those not given PCR and only 42 per cent of those receiving PCR had a stay of one day or less. The study provided no evidence that the results of PCR had any influence on the choice of anaesthetic for the operation and the likelihood of an inhalation anaesthetic being given following PCR was the same whether the radiologists report was available or not. As a minimum estimate 26 per cent of 3152 radiological reports of PCR were not available at the time of operation and in two centres the number not available exceeded the number available.

It has been argued that PCR provides an important base-line for subsequent management of patients with cardio-respiratory disease who may develop a post-operative pulmonary complication. However, only half of the patients who had serious medical conditions involving the heart and/or lungs recorded in the notes before operation had a PCR. Of those who had a post-operative pulmonary complication or a post-operative chest radiograph 43 per cent had not had a PCR so that there was only an even chance that a PCR would be available as a base-line.

The main issues raised by this study are: the need for rationalisation, resource implications, and possible guidelines for future use.

From these studies it is clear that there is considerable inconsistency in utilisation of PCR between centres and between specialties without any obvious clinical reason for the variation. There is no evidence that the use of PCR as a base-line for post operative management is justified. It would seem that there would be a good case for omitting this investigation for patients undergoing non-cardio-pulmonary surgery unless there was a strong clinical indication. The economic benefits could be substantial as there would be a considerable reduction in the present PCR utilisation.

This report is based on work organised by a Working Party of the Royal College of Radiologists.

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**Assessing the quality  
of psychiatric care**

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# Assessing the quality of psychiatric care

## Special problems of audit in psychiatry

Although it is possible to conduct a structural audit in psychiatry, much as in other fields of medicine, difficulties are encountered in process and in outcome audit. The first problem resides in the precise definition of ailments within the broad areas of mental illness and mental handicap. In carrying out a process audit of the management of bronchial asthma or the operative treatment of carcinoma breast it is a relatively simple matter to construct working definitions of diagnostic criteria which would be widely accepted. In psychiatry although a great deal of work has been done in diagnostic classification and in refining categories there would still be difficulty in ensuring uniformity of diagnostic practise in a process audit of, say, schizophrenia involving many centres.

A further problem would arise in endeavouring to reach agreement on the optimum array of factors constituting good management of a defined condition. Using schizophrenia again as an example, many psychiatrists would regard good therapeutic practise as necessarily including elements of physical methods e.g. major tranquillisers; psychological techniques, e.g. behaviour modification and attention to the social milieu, e.g. the constitution of the living group to which the patient returns after a spell in hospital. Each of these factors has been shown individually to influence outcome. The appropriate 'mix' however, is a matter of lively debate and the possibility of achieving consensus in order to set up an acceptable process audit seems remote. Another

complicating factor related to what has just been said is the modern fashion in psychiatry for treatment to be in the hands of a multi-disciplinary team comprising nurses, clinical psychologists, social workers, occupational therapists, as well as psychiatrists. A comprehensive process audit must particularise the part to be played by each member of this team and must devise ways of describing these functions in quantifiable terms.

A good deal of the endeavour in medical audit has been directed towards the treatment of acute disorders or the evaluation of 'acute' interventions. An important fraction of psychiatric practice is concerned with chronic maladies which may pursue a fluctuating course and where the 'outcome' at any given point may be ephemeral. Once again to take schizophrenia as a paradigm—in the chronic or relapsing variety, 'outcome' must be conceptualised not only in terms of the profile of psychotic features such as hallucinations and delusions but also in social and occupational adjustment and, not least in the condition of the household coping with a mentally disabled member. Many of the treatment 'successes' of the past twenty years—so regarded because, at last, patients have been able to leave hospital—have later caused havoc among their households. Outcome audit, therefore, seemingly the most difficult to achieve in medicine generally, is especially elusive in psychiatry. Take, for instance, the vast area of neurotic ailments: there are those who would lay main emphasis on the monitoring of symptoms and would measure the symptomatic manifestations of morbid anxiety or depression. Others would scorn such superficial exercises and would insist that the only relevant and valid outcome criteria must be in terms of a change in interpersonal relationships or of an enhanced integration of the personality.

### Progress and prospect in psychiatric audit

Perhaps in the light of what is about to be said the somewhat reserved comments in the preceding section may seem over-pedantic, recondite and divorced from

reality. In 1969 the Report of the Committee of Inquiry into Allegations of Ill-treatment of Patients and other irregularities at the Ely Hospital, Cardiff was published. It was the first of many 'disaster' enquiries into abuses and shortcomings in psychiatric and subnormality hospitals in the UK. The reports tell a sorry tale of inadequate resources, administrative confusion, lack of leadership, callous and cruel attitudes and in one or two instances, of over-zealous but misguided treatment programmes overstepping the bounds of what most practitioners would regard as ethical propriety. These retrospective and often extremely searching audits have been a mixed blessing. While leading in some cases to injection of resources and upgrading of institutions they have unwittingly in other instances generated a drop in morale which has taken years to restore.

It was the Ely Hospital enquiry which prompted the government to establish the Hospital Advisory Service, now called the Health Advisory Service. This organisation, described in A Question of Quality?, by its first Director, Dr A. A. Baker, has direct access to the Secretary of State for Health and Social Security. Its concern is with the psychiatric and geriatric services. In Scotland there is a Mental Welfare Commission with a duty of enquiring into allegations about patient care which may come from patients or staff. One or two of the Commissioners visit psychiatric hospitals twice a year and ask that any detained patient be informed of the visit. They make general comments about patient management and present an Annual Report. The Chairman is a judge.

Prior to the Mental Health Act 1959 there existed a body which many psychiatrists would like to see restored in a revised form, namely the Board of Control. Close regulation of all matters relating to the detention of patients was vested in the Board which also, in the course of regular visits, kept an eye on standards of care generally. At present, detained patients (or their families) who dispute their detention have access to Mental Health Review Tribunals which include medical and lay members.

The Royal College of Psychiatrists ever since its inception in 1971, has been indirectly involved in the audit of psychiatric practise throughout the whole of the British Isles through the inspection of hospitals and associated training programmes preparing candidates for the MRC Psych. Unlike the Health Advisory Service, this Approval Exercise has reasonably sharp teeth and the threatened withdrawal of recognition has often produced a satisfactory response which may include the provision of new facilities and additional manpower as well as better educational arrangements. The teams involved in this work inevitably find themselves looking at the clinical resources available and, by indirect means, at the standards of clinical practice which have been obtained. At the senior registrar level, the Joint Committee on Higher Psychiatric Training fulfils a similar function.

Certain forms of psychiatric treatment, notably electroplexy have recently become the focus of controversy. In some parts of the world electroplexy has been banned despite the view held by many psychiatrists that it constitutes a safe and valuable method of treatment in severe depression. The Royal College of Psychiatrists has established a research enquiry to collect detailed information on the use and practise of electroplexy in the UK. This auditing exercise should provide detailed information on the extent to which electroplexy is used and on all aspects of the practise of this form of treatment.

Another facet of College activity which has indirect links with audit is the work of the College Committee on Sick Doctors. This was set up in the wake of the first Merrison Report when it was hoped that the new Health Committee of the GMC would stimulate earlier declaration of incompetence to practise through illness. The College Committee explored ways in which the considerable resources of the College could be mobilised to support and help failing colleagues who might be willing, perhaps under some pressure, to seek expert help outside their own home territory. A pilot scheme launched in concert with the Association of Anaesthetists appears to be



working satisfactorily. A detailed audit is not possible however, because of the in-built secrecy which pervades the scheme.

More recently the College has addressed itself directly to the matter of audit by setting up a Special Committee on Medical Audit and also a Committee on Continuing Medical Education. The very act of establishing an audit committee raises the question of the extent to which a Royal College should allow itself to become executive in the matter of detailed monitoring of practise within its discipline. The College exists in order to promote and foster high standards of practise but should this laudable aim find expression in using the College as an auditing agent? Certainly the inspection of posts and training programmes and the presence of a College Assessor on Advisory Appointments Committees may be construed an auditing activity of sorts. Should a College go further than this?

The concrete proposal generated by the Committee on Medical Audit is a study of suicides occurring in psychiatric units or hospitals. A very rough estimate indicates that a figure of the order of 200 suicides might occur in hospitals each year. This, of course, is not referring to attempted suicides but rather to 'successful' suicides in patients who are currently receiving care and treatment as in-patients. Most experienced psychiatrists have lost patients in this way but the implication always arises that some failure of clinical judgement may have occurred; or a breakdown of communication or a lack of vigilance on the part of nursing staff. Occasionally, a crop of suicides occur in the same institution (there was a recent enquiry into such a circumstance) and again the question must be put as to whether this reflects some widespread malaise within the body politic of the hospital which warrants scrutiny. In short, a clearly defined and dramatic 'outcome' might serve as a point of departure for an auditing exercise which would hopefully be informed by a very constructive spirit and not in any sense a punitive or blame-laying activity. The Research Committee of the College is looking at this idea from the point of view of feasibility and

method and it might well result in proposals for, at least, a pilot study into hospital suicides.

In conclusion then it may be said that although there are many difficulties attending the more precise medical auditing procedures when applied to process and outcome in psychiatry, a fair amount of auditing in the broader sense is well established. The Royal College is eager to play its part in examining ways and means of promoting audit and may well find itself involved in implementing policy.

## **Quality in primary care**

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# Quality in primary care

This paper describes aims, activities and plans about Quality Assurance through Medical Audit in Primary Health Care. In accepting Professor Duncan's preferred wording, I want to acknowledge my debt to his paper(1), and my increasing admiration each time I have read it.

I understand 'quality assurance' to refer to standards of professional performance in practice—their definition, promotion and, possibly, enforcement; 'medical audit' to imply a critical review of performance, whether by the doctor himself or by other medical colleagues. If 'quality assurance' also refers to the quality of training, this is as one means to the aim of better performance in practice. 'Medical' audit implies that a review of performance is carried out by medical people.

I shall, of course, return to the question whether 'quality assurance' does or does not include the element of control and enforcement.

There are necessary distinctions to be made between primary health care, general practice and the Royal College which I represent. Primary health care involves other professionals than general practitioners. General practice involves doctors who owe no allegiance to the Royal College. Both points will prove relevant in this paper. It can, however, be claimed that the broad aims of all three are the same: the promotion of health; the prevention, detection, identification and management of diseases; the care of the sick. Medical audit is a way of examining how far these aims are achieved in detail. When coupled with agreement about standards it leads to quality assurance.

The special concern of my College has, of course, always been the quality of general practice and, more recently, of primary health care. Its first statute starts: 'To encourage, foster and maintain the highest possible standards in general medical practice ...' It has tried to do this hitherto mainly by concentrating enthusiasts, organising education at all stages, creating an examination, and stimulating research. Its main effort has been directed to creating a special early postgraduate training for general practitioners and that has been very much a co-operative effort with many other bodies. It is largely achieved, although it is thirty years since Henry Cohen's Committee first seriously proposed it(2). What we have not achieved is to demonstrate that this training produces better general practitioners. (It is of course difficult in any field to prove the relationship between education and performance). The main reason is that we do not know how to judge the quality of performance, whether clinical or organisational.

This same failure is apparent to us in our College in context after context. For example, there is a twenty-fold difference between general practitioners with a high in-patient referral rate and those with a low rate(3). Which group provide a higher standard of care? Similar differences exist for out-patient referrals, radiological and laboratory tests; the same question becomes even more difficult to answer. Do doctors who have passed our College examination give a better service to their patients than those who do not take it or fail it? What is the evidence for the common criticism that standards of practice vary very widely between different doctors and in different localities? We meet in each instance the crucial questions—how is performance to be judged? In what does quality consist and on what evidence can judgments be made?

By what criteria is performance to be judged? What are the features or elements in primary care which are most worth examining? Are measurements possible and how do they contribute to the process of judgment?

I believe that Cochrane and Donabedian have been

so far among the most helpful guides to reaching answers. We have found no more helpful or fundamental words to give quality meaning in primary care than Effectiveness and Efficiency(4), nor any better way of analysing the most worthwhile features or elements than Donabedian's Structure, Process and Outcome(5). Effectiveness and efficiency, therefore, when related to the broad aims of primary health care above, are the over-all concern of medical audit, while Donabedian's analysis provides a structure for thinking about what should be audited(6,7).

It is unfortunate that the word 'audit' implies a critical outsider as the agent. General practitioners are fiercely independent in their attitude, however much they depend for their livelihood and organisation on the state. Many of them, though not all, can accept that 'audit' is a necessary part of the general practitioner's responsibility, but only in terms of critical review by themselves or their colleagues (perhaps also by clinicians in other branches, epidemiologists, sociologists or medical economists). The problem we are discussing does, therefore, imply for my College not just the development of methods of assessment, but also that of interesting an increasing number of practitioners in their own aims, effectiveness and efficiency. It also implies questioning to what extent it is possible or right to set up detailed standards or objectives for clinical or organisational performance. We have to be clear about the range of purposes and tasks that are confused under the convenient heading 'audit'. According to the Oxford Dictionary it means 'making a systematic examination'. In urging doctors to do this, is my College encouraging the habit of minor research in order to motivate and to educate. Or is it trying to set up precise standards or objectives to which practitioners should at first aspire, then could be expected to conform and perhaps in the end be sanctioned if they fail? I must leave this as an open question which will not be for the College alone to settle(8).

### Activities

What has actually been done 'to explore methods of critical review of performance which can be of practical value, and to make them acceptable to the profession'?(1)

The essence of the matter finds an example in the following clinical audit by a single general practitioner in Norfolk(9). Mourin studied 35 patients with present, previous or potential thyroid dysfunction. The stated criterion was that patients should be maintained in a euthyroid state, as judged by the free thyroxin index, derived from the serum T3, the uptake test and the serum T4 level. By this criterion, five out of six patients with primary myxoedema, and seven out of twelve with myxoedema secondary to operation or radioactive iodine therapy were not receiving enough thyroxine, while one patient (with Hashimoto's disease) was being overdosed. The follow-up within three months of adjustment of dosage showed that most of the abnormal had reached the normal range of free thyroxin index.

This exemplifies systematic review of performance in one very small area of clinical general practice. It revealed inadequate management. Management was modified and retested. The audit was assessing process and outcome. In addition to changing the doctor's behaviour in the direction of more effective care, it served as an educational tool, for example, concerning the relative value of clinical versus biochemical assessment in these disorders.

A comparable example in Sheldon's two-man practice in Banbury, based on prescribing, is reported in an issue of the Journal of the Royal College of General Practitioners, which describes five other examples of audit. This study(10) also assesses process and outcome.

Marsh (11) reports a more ambitious audit of obstetric care in a large group practice over fifteen years. Here the comparison is not with the performance of the same practice before and after a systematic review, but with local and national performance. It shows that in this particular practice



results were notably better in perinatal mortality and certain other ratings than the local and the national figures. This is a study of team organisation as well as clinical obstetric care; of both process and outcome.

The same principle of comparison with a large group of other performers is used in Practice Activity Analysis, as developed by my College's Birmingham Research Unit(12), working with individuals and groups of practitioners in many parts of the country. Specific areas of personal, clinical and administrative performance can be chosen for systematic study, for example, prescribing, referrals to outpatients, inpatients or for diagnostic procedures; the efficiency of appointment systems. By the use of standard data-sheets on such subjects a summary of results can be supplied from at least 100 users of each programme to form a common base-line for comparison. Differences between these figures and those of an individual doctor give cause for thought, or, if a group is involved, for discussion. Intra-group differences are equally important. Benefit is more likely to come first from deleting inappropriate performance than from adding new ideas. Redundant, useless and harmful activities are identified and quietly dropped. In a group of doctors accustomed to working together this can move on to a more creative activity—the production of minimal or ideal protocols for diagnosis and treatment (i.e. standards).

The question whether external audit should be carried out by workers who are not clinicians—for example, epidemiologists, medical economists or sociologists—was raised earlier. They must, in my opinion, be included in this discussion, because some of their reviews of primary care are extremely valuable. One notable example is the work of Dr Ann Cartwright(13,14), using the method of interviewing 'consumers' and of postal questionnaires to the general practitioner on whose list the consumers were registered. Essentially Cartwright was concerned with the accessibility and acceptability of the doctors' service to patients; and with the working conditions of doctors and their own reactions to

them. The fact that this example was repeated after an interval of thirteen years makes it particularly valuable as a form of audit. Another example is in a detailed study of two group practices in North London, completed (but not yet published) by a team from Bedford College, under Professor M. Jefferys.

The examples given are of methods of critical review or of assessment. Are they of practical value? Certainly they are to the individuals and groups engaged, but those are relatively few compared to the total number of practitioners. Publication of results from this type of work influences vocational training schemes and the MRCPG examiners fairly quickly. It is not unreasonable to hope for their gradual influence on practice, but isolation, poor motivation, resistance to self-examination and to change are still very powerful counter-forces. Some progress in reaching 'unreachable' practitioners has recently been made by Morrell in London(15).

#### Audit and continuing medical education

There has been growing dissatisfaction with the traditional methods of continuing medical education, especially among younger doctors. There is increasing desire for small group learning, where the participants can all contribute actively, rather than for large groups where practitioners listen passively to experts in particular fields (or to other general practitioners). The small group lends itself well to the process of performance review, including such methods as practice activity analysis. But the more familiar discussion of cases or topics on a more random basis within groups can also contribute valuably to the same process. One of the earliest versions of such groups was that started by Balint at the Tavistock Clinic(16). It certainly encouraged higher standards in an area of medicine where definitions are particularly difficult. In geographically isolated places many of the tapes provided by the Medical Recording Service have been designed to stimulate discussion(17).

In all such groups performance review is essentially an educational method, aimed at maintaining

motivation, interest and intellectual curiosity. Some groups develop to create minimal or ideal protocols—standards for management of particular disorders which have been agreed and to which the members then aspire in their clinical work. This is a much more laborious activity and carries risks of rigidity.

Ante-natal care and contraceptive practice are examples of important areas of medicine where certain standards have already become very widely accepted by general practitioners.

### Special problems in primary care and general practice

It will be obvious from the examples given that areas for systematic performance review, and especially those where measurement is possible, inevitably confine audit to limited aspects of the general practitioner's role. In so far as accessibility and continuity are important contributors to the elusive quality 'personal care', so eloquently described by Fox(18), some approach to the pastoral effectiveness of the general practitioner seems not wholly out of reach, but clearly this is the most difficult extreme of a difficult, yet necessary, activity.

The problem of finding outcomes which will serve as indicators of effectiveness or efficiency in primary care is particularly difficult. One of the more hopeful research areas is in 'health indices', but there are some intermediate outcomes which are already usable. 'Outcome' is a crucial area for research.

### Priorities

My College gives a very high priority to the matters discussed in this paper, without any illusion however about their difficulty or the risks of failure.

An immediate need is for clarity of definition, particularly about the several purposes liable to be confused under the word 'audit'.

A high priority is the encouragement of increasing numbers of local small groups, without any regard to whether those present are or are not members of the College; indeed the more non-members that are involved the better. A surprisingly large number of such groups already exist in many parts of the UK. One of their characteristics is their independence and desire to do things their own way. Encouragement or interference from the centre of the College or from one of its faculties can easily prove counter-productive.

Better record-keeping is a pre-requisite for much of the work here discussed. This is now seen as a high priority for training schemes.

Several of the Committees of the College Council are involved in the questions discussed in this paper—the Board of Censors, the Education Committee, the Practice Organisation Committee and the Research Committee. Their particular contributions are being co-ordinated in an effort which is already involving co-operation with the General Medical Services Committee. We must see to it that this effort does not take thirty years to achieve.

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**For the public good?**  
*Assuring the community*

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# For the public good?

## *Assuring the community*

### Introduction

There are numerous examples of methods of promoting high quality in clinical practice. Most of these have the implicit aim of reassuring the individual patient who puts himself in the clinician's hands. There is another level at which quality assurance is relevant. Health services are organised for communities. The way in which they function ought therefore to accord with the public interest. Arguably therefore communities are as entitled as individual patients to assurances that the health services are indeed operating in the best interests of their health and wellbeing.

The purpose of this paper is to illustrate ways in which the quality of performance of a service has been measured against some of the standards set for it. Two of the studies were mounted because significant changes were known to have occurred in the way some aspect of health care was delivered, the third because it was suspected from routine statistics that the way in which a service was operating might have social disadvantages for some patients. This leads on to a discussion of the role of the community physician in measuring the effects of health services on the public health.

### A boost to public health protection?

Sometimes a quite deliberate modification of health service administration is introduced on the grounds that expenditure will be saved or some aspect of service management will be facilitated. An example



of this occurred in the early 1960's when computer-assistance was applied to child immunisation schemes(1). The administrative objective of using a computer was to reduce the clerical effort involved in scheduling appointments and in updating records. The health-care objective of immunisation is to lower the incidence of infectious disease. Would computerisation further this objective by increasing the uptake of immunisation or would administrative convenience be achieved at a cost to this objective?

An earlier study showed that in one of the first areas to computerise, the uptake of immunisation increased and that the exercise was cost-efficient(2). By 1976 all but 26 of the 98 Area Health Authorities in England and Wales were using computer systems for immunisation. A study conducted by community physicians based in the first area to do so compared the incidence of notified measles from 1968 to 1976 in the populations of Area Health Authorities whose immunisation programmes were computer-assisted by 1971 with that in the populations of Authorities where computers were not used(3). The authors reported that: 'The measles experience of both populations was similar from 1968 to 1970. Thereafter all the incidence rates fell, the decline being most marked in the computer population. For the period 1971-76, the difference between the rates for the two populations was statistically significant, and the difference persisted and remained significant when the urban and rural components of the populations were examined separately'. They concluded that computers contributed to the lower incidence of measles in the computer population between 1971 and 1976 and suggested that far from promoting the spread of measles by deterring people from accepting immunisation, the severity of measles epidemics might be further reduced by the nationwide use of computers. Their findings are summarised in Table 1.

A point to be made about this exercise in quality assurance is that little in the way of new information had to be created. Infectious disease notification rates are routinely available from published statistics.

Table 1. Mean notification rate per thousand population aged under 15 for computer and non-computer populations and England and Wales for the periods end of 1968 to 1970 and 1971-6

Period	Population	Mean notification rate per 1000 population	
		Computer	Non-computer
1968*-70	Total computer/ non-computer	4.60	4.59
	England and Wales	4.71	
1971-6	Total computer/ non-computer	2.17	2.97+
	Conurbations	2.87	3.36+
	Inner and outer London boroughs	1.95	2.53+
	Inner London boroughs	2.09	2.61+
	Shires	1.94	3.06+
	England and Wales	2.69	

\* Fourth quarter 1968 only

+ Difference between rates statistically significant (P 0.001).

Source: Bussey and Harris

### A threat to personal doctoring?

Some changes in the method of purveying patient care are the results of careful planning, with evaluation built in from an early stage. For example, a comparative trial of the effects upon patients and their families of community—or institutional—based psychiatric services (the Worthing Experiment) was mounted after the harmful effects of prolonged institutional care had been described(4). More recently, mobile coronary care has been introduced with concurrent assessment of the effects upon mortality experience(5-7).

Sometimes however quite critical and fundamental developments can occur, not as deliberate health service policy but as initiatives on the part of the professions. In such instances relatively few may be

aware of what is happening. Consequently nobody is looking for any impact on the public health. One such example is the development of general practitioner deputising services.

A foundation principle of the National Health Service was that an individual should enjoy continuity of care from a personal primary physician of his own choosing(8). The relationship forged would help the practitioner to interpret the patient's current problem in the light of past experience and to select specialist services appropriately. Obviously the personal doctor would be unavailable at times through illness or the need to be off-duty. Organising primary care around group practice would cater for this however, with known doctor relieving doctor and with the possibility of easy passage of information and records between them.

By 1977 63 per cent of general practitioners worked in partnerships of three or more(9). Over the same period a system of agency doctoring grew, promoted by general practitioners themselves. At present up to 80 per cent of GP's in conurbations subcontract their out-of-hours calls to doctors from the deputising services(10) and roughly two out of three doctors in group practice use them(11). This, on the face of it, is a prescription for inappropriate clinical decision making and injudicious referral for hospital care.

Deputising services keep detailed records of the calls they answer. Using the records of one of these services and Hospital Activity Analysis for hospitals in the area concerned it was shown that patients referred for hospital admission by the agency doctors were equally likely to be accepted for admission as those referred during the same time periods by general practitioners who were not using the agency service (Table 2)(12). Moreover, the hospital experiences of the groups referred by agency doctors or other doctors was similar; almost identical proportions died in hospital, were operated on, or were discharged within three days (Table 3). It was concluded that the agency doctors' unfamiliarity with the patients and their lack of access to the patients' records did not adversely

**Table 2. Numbers and proportions admitted to hospital by source: Nottingham 1970**

	Deputising service		Other sources	
	No.	%	No.	%
Admitted	459	96.8	1,244	96.7
Not admitted	15	3.2	42	3.3
All referrals	474	100.0	1,268	100.0

Source: Williams, Dixon and Knoweldon(12).

**Table 3. Hospital experience by source of referral**

	Deputising service	Other sources
	(n=459) %	(n=1,244) %
Surgical operation	29.9	30.2
Died	11.8	11.8
Home	75.8	74.8
Home within 3 days	26.8	25.1
Transfer	12.2	12.9
Other	0.2	0.6
All outcomes	100.0	100.0

Source: Williams, Dixon and Knoweldon(12).

affect the way in which they selected patients for hospital referral.

The agencies' records provide details of the nature of the message received from the caller, the speed of reaction to the call, and the clinical transaction that took place. It is possible there-

fore to display the distribution of time elapsing between receipt of a call and attendance by the agency doctor. In one area nearly two out of three calls resulted in a doctor visiting within the hour, and nine out of ten within two hours. Moreover messages which presaged serious medical conditions brought an even faster rate of response, with the curious exception of appendicitis (Table 4)(13).

**Table 4. Interval between receipt of call and patient receiving attention, BMA Deputising Services, Sheffield-Rotherham, 1975-6.(n=29,340)**

Deputy's diagnosis	Time in hours. (cumulative per cent attended)				
	under ½	under 1	under 2	under 3	under 4
Asthma	36	77	91	94	95
Acute myocardial infarction	59	85	96	97	97
Appendicitis	26	57	85	86	90
Haemorrhage of pregnancy	37	78	89	89	89
Other	27	62	88	93	94
All diagnosis	28	63	88	93	94

It has also been shown in one area with a well-established deputising service that the 75 per cent of general practitioners who use it sub-contract on average only about two per cent of their total consultations and five per cent of their home visits(10).

The picture emerges therefore of a system which appears to respond to demand in an appropriate manner and which does not infringe the ideal of personal doctoring to any marked extent. One point to be made in passing is that the activities of conventional general practice, with which the public is on the whole satisfied(14), are not amenable to the degree of analysis which the records of the substitute system permits.

The most recent 'unplanned' development in the field of primary care is the emergence in London of another type of commercial agency doctoring, one which offers direct home care to the public without any prior reference to the general practitioner(15). This situation offers another opportunity for exploring the quality of care which can be offered in such circumstances.

### A threat to personal liberty?

Reference to routine general purpose statistical systems often shows that the public uses health services in contrasting ways in different places. Not only that, clinicians supply services in dissimilar ways, which betoken differing viewpoints about their applicability. Not all these variations are either relevant or important. Some, which suggest scope for economies, are; some others which imply distress or inconvenience to the public, even more so. There is perhaps no question of greater concern in relation to health and welfare services than the infringement of personal liberty.

There are at least two ways in which doctors can be party to restricting patients' freedom, namely through the provisions of the National Assistance Act 1947 and its Amending Act of 1951, and the 1959 Mental Health Act.

The amended National Assistance Act allows a local authority through its proper officer, usually a community physician of a related local health authority, to remove a person needing care and attention from his home without delay. Authorities resort to this legislation only rarely. In the Northern Regional Health Authority's area a survey showed that the annual rate of such removal in the period 1975-8 was only 2.6 per million, although the annual rate of requests for such action were nearly seven times this figure(16). There is no routine reporting system which allows geographical comparisons of the rate of requesting and the proportions acted on. The authors of the Northern RHA study argue that since the incidence of use of this legislation is now so low a confidential enquiry is merited in each

case in order to elucidate the critical factors leading to the need for removal powers. In this way the functions of community services in preventing, or failing to prevent compulsory removal would become apparent.

Comparative information about the operation of the Mental Health Act is more readily available from the Mental Health Enquiry. The number of instances in which persons are consigned to hospital compulsorily under the procedure for emergency admission for observation (Section 29) or for treatment (Section 25) is decreasing. There are however regional contrasts in the use of these procedures (Table 5)(17) and even greater contrasts within a region, even between similar types of area (Table 6)(18). This suggests that factors other than the patients' psychiatric conditions may be responsible. In a study nearing completion in Newcastle upon Tyne the use of Section 29 has been shown to increase relative to the use of informal procedures with increasing distance from the relevant hospital(19). This increase is thought to be related to the decreased use of domiciliary consultation for patients living at a distance from the hospital.

### Discussion

It is an intriguing thought that health services may at times, like the environment or a change in social policy, pose threats to public health and welfare. No matter how skilfully and excellently individual clinical transactions are carried out or how efficiently administrative actions are performed, the general direction in which a particular aspect of the service is moving may make it more difficult for it to achieve the health-care objective for which it was designed.

It may be too cumbersome a solution to suggest that any new health care delivery 'movement' which arises, and deputising services are an example, should be arrested in its spread until its effect on patient care has been evaluated in one or two places, rather like the approach taken in the field of organ transplantation. If this is not to happen,

Table 5. Admission to mental illness hospitals and units: Rate per 100,000 population and per cent. Section 25 or 29, England, 1976

Regional Health Authority	Admissions per 100,000	% sec.25	% sec.29	Sec.25/29 combined
Northern	409	2.4	5.5	7.9
Yorkshire	434	2.1	6.7	8.8
Trent	336	3.7	8.8	12.5
East Anglia	353	3.0	8.4	11.4
Combined Thames	416	3.5	6.1	9.6
Wessex	385	2.9	5.1	8.0
Oxford	287	4.6	4.4	9.0
South Western	377	4.7	6.4	11.1
West Midlands	341	5.9	6.4	12.3
Mersey	429	5.0	4.2	9.2
North Western	380	3.8	5.2	9.0
England	385	3.7	6.1	9.8

Source: Mental Health Enquiry

what can be the alternative? What local sensory mechanisms do we need to spot situations which are developing in unexpected directions? And how can we have the answers ready when questions are asked at higher levels?

The answer surely is to call into play the function of the community physician as the individual whose professional concern is with maintaining and promoting the local population's health. The studies referred to in this paper represent the reactions of various community physicians to situations which they noticed were developing on their patches. This solution introduces a practical problem however. Many reviews of performance within a clinical service are



Table 6. Admission rates per 100,000 population and percentage admitted Section 29, residents of County Boroughs in Sheffield RHB area, 1972

Area of residence	Admission per 100	Per cent 000
Derby CB	235	21
Nottingham CB	562	5
Leicester CB	367	11
Sheffield CB	336	13
Doncaster CB	717	5
Rotherham CB	287	2
Region	323	10

Source: Mental Health Enquiry(18).

conducted exclusively by the specialists concerned. If however the community physician acts to try to measure the impact a clinical service is making he risks being cast in the role of an uninvited inspector. He may fail as a result to gain the confidence of those whose co-operation he needs in obtaining access to the relevant records systems. It has been suggested that the community physician who has especially well-developed epidemiological and statistical skills can be an asset to the individual clinician wanting to move towards more systematic self-evaluation of the quality of care he purveys (20). There is little doubt that a community physician who can offer such a service is more likely to be accorded the help he needs from his clinical colleagues when he tries to discover what their services are doing to or for the community's health.

The next step on from trying to help the clinician forward in his own exercise of self-assessment is for the community physician to identify with him their common purpose with regard to the health of the population. What the more recently trained

community physician has to offer in this respect is skill in constructing and exploiting information systems and in weighing up the costs and benefits of different clinical or organisational policies. It may nevertheless take quite a long time for the two parties to become sufficiently familiar with each other for each to understand the other's problems and to place confidence in the individual who is helping him. Each stands to gain a broader and more precise view of what the clinical service is doing for the needs of the population. This approach is consistent with the concept of the community as including both the recipients of health care and the providers, each having distinct needs and interests.

Hitherto there has undoubtedly been uncertainty about the specific professional role of community physicians. Some have appeared to work in alliance with the recipients of health services, others, particularly those concerned with medical personnel work, with the providers. When studies by community physicians, like those described in this chapter, designed to measure the effect of health services on the public good, become commonplace, Community Medicine will have succeeded in presenting itself as an enabling discipline, to providers and recipients alike.

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**Postscript**  
*Note and comment on proceedings*

# Postscript

## *Note and comment on proceedings*

### 1. A MISUNDERSTANDING

It was generally agreed that there was widespread misunderstanding both about the nature of the means for quality control and its constituent elements. Much of the public debate about audit assumes wrongly that there is some expert body that has high public status to do so. The fact is that there is no mechanism for the profession officially to deliver advice say to an Ombudsman or somebody with similar objectives, about standards of clinical care and management. This misunderstanding raises too many difficulties to be ignored by the profession.

### 2. PRESENTATION OF ACTIVITY

It is evident there is a gap in presentation of what effective controls are actually in existence. Interested observers do not know enough about what has been going on. Looking back on the Trust exercise which led to the publication of 'A Question of Quality', the experience is that it is possible to assert there is now a much greater appreciation of the issues than when the study began in 1972. Real progress in the field has been made over the years but not enough is known about it. Presentation and documentation of the kind of things discussed at the meeting in terms of improvements, would be important from the point of view of public education and assurance. From a purely pragmatic point of view it would be wise if the profession collectively were willing to publicise what is being done now, by whatever means is proper. While the

Trust has played a distinguished role in the past, its publications have only a limited, if influential circulation, and they do not reach the profession at large. There are, however, problems about one of the suggestions scouted, namely starting a journal of medical audit, although there is possibly a good case for having one, in order to bring the subject out in the open.

There is too, a danger in publication, particularly of essays which are critical of the way individual doctors have provided care, as perhaps certain papers on the subject inevitably tend to be. Yet, it has to be accepted that being willing to supply a certain amount of ammunition to determined adversaries is a lesser evil, because it is likely to convince more reasonable people that the profession is doing what it ought to be doing--that is, to try to improve the quality of care by learning from mistakes. At the present moment monitoring procedures such as accreditation which are to a large extent conducted largely unseen, influence only those who are already converted. A rather more public treatment of what is in train might begin to have an influence on the profession at large.

A Question of Quality was well reviewed in the professional journals. Most of the reviewers were complimentary about it (including those in the non-medical press) although it is significant there were one or two who hinted it could be considered a cover-up job, since the policy of the Trust's group was baldly stated to be one of incrementalism, which made for a measure of happiness if anything at all was happening. On the whole, however, there was widespread approval of the general line and also hope for what might come as a result of it. Against that, it was remarked that the trustees of the Trust when they had received an up-to-date review of the present position based on recent events, had expressed disappointment that very little seems to have happened of note on the broad front since the publication of the book.

Yet, the various initiatives of the Trust, Professor Duncan's survey, the meeting with the

Presidents of the Colleges and this particular meeting, could not have achieved as much success as they had, if they had happened two or three years ago, and certainly not with the same general expressions of approval.

### 3. THE CASE OF LABORATORIES AND QUALITY CONTROL

The major problem of publication is of course that the articles do not always get to the right people to be influenced. A subsidiary problem is how to present the information being collected and assessed, how to put the lessons over, and how to get them acted upon.

The quality control scheme for laboratories is a good illustration of the place of publication being secondary to a general scheme. Thus, a whole series of papers could possibly be published if a particular substance was chosen and all laboratories surveyed. It is possible to forecast that a certain proportion will be bad. What has to be done is to prove that by the publication of a worthwhile paper, the situation may be improved, which is the main objective.

When the survey of laboratories was starting there was some professional concern that the news from the USA about the quality of laboratory performance in America would raise questions here, and Parliament might well ask what evidence there was that the British laboratories perform well.

The objective of the external quality assessment (with other complementary measures) was to improve performance. The experience since is that in effect there is only one laboratory (out of 480) which is a 'rogue elephant' completely resistant to the pressures mounted. Yet that is not the whole effect of the measures taken in the last ten years. What has been done in that period is to educate people to a better knowledge of methods of quality control, and as a direct result, improved patient care.

This is a good example of where the concentration of effort should lead. There has to be a net that picks up the 'rogue elephant' because otherwise



the practice standards are politically a little vulnerable. Yet the real emphasis should be on improving practice generally not just picking out the indifferent performers. There is good evidence that most doctors like to perform well, and if they are encouraged to do so, and are given the right kind of information about how they are performing they will do good work.

Yet there is also now the matter of increasing publicity through the national media. Formerly, if a hospital had one or two disasters with its blood groupings, the general public would only remotely hear of it, and it was ascribed locally usually only to that hospital. But nowadays, if the Royal College of Pathologists or the Quality Control Scheme knows that a particular hospital is not efficient in its blood groups, the public may well ask why something has not been done about it. This is one of the disadvantages of any sort of assessment scheme, in that while its management probably knows how bad certain people are, they may also be aware there may be little that can be done about it. This raises the question of enforcement, and about the proportion of doctors who are constant transgressors and against whom sanctions may be desirable. One estimate suggests one or two per cent of the whole.

#### 4. IDENTIFYING THE 'BAD' PERFORMERS

The question then is, given the enormous difficulties involved with uncertainty of complete success in the implementation of sanctions, whether it is worth while having an enormous up-heaval in the profession because of the implications just to deal with that one or two per cent. It does not seem that there is any evidence that if one goes for the wayward one actually catches them. In fact, in the United States there seems to be good evidence that sanctions cannot be relied on. If there is too punitive a type of audit, the situation may actually be created where doctors become expert at dodging complaints. In the USA there are about twice the number of operating procedures per head of population carried out than in England. Again, there is objective evidence in

New England, which has a reputation for good practice in medicine, that 25 per cent of surgical operations are unnecessary. In orthopaedics, the figure is about 40 per cent.

The major question, however, is the identification of 'rogue elephants' (or their opposites).

There are several pointers which can probably be developed as prime criteria eg. the quality of letters to and from consultants. In certain specialties the 'rogue elephants' can possibly be identified by other means, in that they are either isolated, obsolete or have an immoderate wish to make money. Those practitioners who operate unnecessarily, or take undue advantage of the system, tend to be in that category but it must be admitted such prima facie evidence is not proof of bad practice.

Again, junior staff in hospitals have fairly good ideas about who is bad and who is not; so have of course the consultants' peers in practice. The fact that junior staff tend to assess the quality of consultants probably underlines the point of obsolescence. If there is to be a mechanism that finally comes down on the one or two per cent, probably the effective corrective would be by a massive injection of resources for a special educational process. Little can be done with people in independent private practice. But people who work in the National Health Service are potential users of a system of continuing education. This is probably the right way rather than punitive sanctions and particularly in the case of those who practise in some kind of isolation. Indeed collective action is probably necessary. Thus in obstetrics and certain other specialties if sanctions were applied to hospitals on the basis of single specialty accreditation, (say if recognition was withdrawn from a hospital because it had not got a good laboratory service), the other specialties would suffer.

##### 5. A NEED FOR SPECIAL MACHINERY?

The machinery for dealing with isolated or obsolete cases might be modelled on the JCC flying squad

which is called into being to assess resource deficiencies, which in effect include both isolation and obsolescence. It then could be decided what kind of support could be given. Where management identifies a deficient executive, the correcting principle is invariably discharge, retirement or support. In the case of the NHS all these procedures could take a long time. There is inevitably a kind of immobility in professional medical establishments that militates against a policy of support. Establishment policy is usually based on the principles that consultants are appointed for 20 or 30 years, and that the total numbers employed in the institution are practically immutable. It would be desirable to have some kind of flexibility and supportive arrangements in these cases where people get 'obsolete' early. At present it is generally recognised that an age-graduated Department tends to keep senior consultants up to scratch. In a Department where everybody is over 50 years of age, the whole operation tends to slow up and an inefficient department is the result, to the despair not infrequently of junior staff. In an age-graduated department the movement of young people in and out, tends to have a supportive effect on their seniors. In certain specialties they also protect such seniors from being thrust into practice activities which the service requires, but in which as practitioners they do not really wish to be engaged. It is regrettably a fact of life which in certain specialties is ludicrous, that people are expected to go on to retirement age giving the same level of service as they gave at the height of their powers.

Indeed it is evident that the most profitable positive way to combat the problems posed by the deficient doctor is likely to be through a strategy of support and education, involving a system approved by the profession to identify and pick up those most in need. Most existing schemes of continuing education appeal mainly to those who probably need them least. Quality is as much a matter of conscientiousness as of knowledge. Knowledge is an advantage certainly, but schemes of self-education such as self-assessment programmes can probably be regarded

as part of a defensive mechanism rather than as something that would in any way meet the whole of the problem. It is however true that it is distinctly easier to do with objective issues, like test results than with most clinical problems. Again, in general practice the arrangements for training the trainers are directed to an elite group, since only 20 per cent of general practitioners will ever be needed to be trainers. 80 per cent of G.P.s will, therefore, never have this kind of accreditation.

The basic problem of moving towards such a strategy is one of ingrained attitudes, whether the profession ought to try to lead informally, and by pinpointing examples eventually the general problem will be solved, or whether the objective should be to develop a more formal system. The question of temperament is involved as well as the innate conservatism of the profession generally.

#### 6. SOME SPECULATIONS

An analysis of the pathologists' scheme, which is generally regarded as a good example, is interesting. It is based on the incontrovertibility of hard data with which nobody, in a sense, can quarrel. To that extent, all participants even the 'rogue elephants' in the situation, are consenting to the process. In the clinical disciplines that stage has not been reached, since there is infinitely greater difficulty and consequently no agreement on the basis whereby the 'rogue elephants' may be identified. It might be possible to do this surreptitiously, but to be credible and effective there would have to be an agreed procedure of identification within the profession.

A prior requirement would be for audit to be accepted as a normal part of the ebb and flow of medical practice. When Dollery suggested that in 'Challenges for Change' (1971), it was not exactly a new idea. But if regular audit ever became regarded as normal practice within say a regional system, in which doctors would from time to time both serve on groups that would audit particular kinds of medical care and, in the course of time, would themselves

also be audited, many of what sometimes appear insuperable problems could be solved.

Indeed, it is difficult to see how the problem of instituting regular assessments can easily be solved unless some such system does obtain. But we are a long way from that point at the present moment. It will not be possible to jump to it immediately. The best plan would be to continue focussing upon the most obvious problems eg. what seem to be unnecessary deaths, or potentially unnecessary deaths—like the confidential enquiry into maternal mortality, or the other matters reported in the papers presented to the meeting, in the hope that these will disclose, almost incidentally perhaps, situations from which lessons can be learnt and practically applied.

Clearly, a much greater step would be taken if the suggestion made by Professor McColl some time ago, that the Colleges might collectively approve the principle of including in their criteria for accreditation not only that there should be laboratories and libraries and so on, but that there should be some identified quality control process in the training. It would clearly be important to claim that all trainees have to go through a process which involves them in learning about outcome and the desirability of quality control discussions. When that point is reached the profession will be in a position to claim an important development. Indeed, this is actually a recommendation in the Royal Commission's Report, although that document probably overstates what the Colleges have actually done. The Royal College of Pathologists is alone in that it positively includes measures of quality control in its prescriptions for recognition of training posts.

The general question of quality is not of course exclusive to medical practice. Medical care is multi-disciplinary. The difficulties resulting from this are well illustrated if the experience of the Hospital Advisory Service, which is concerned with monitoring the work in the psychiatric and geriatric fields, is studied. Some doubts as to the effectiveness of its work has been raised among the hospitals where it has carried out its monitoring process,

even among those who actually requested its services. It has been criticised on the professional plane for having allegedly taken a rather doctrin-  
atry, and is an example of the difficulty of an external broad-based group moving in to deal with a complex local situation. To have any chance of real success any monitoring body has got to be one which is wholly credible professionally or can command a good measure of consensus in the profession. The fact that the Hospital Advisory service is made up not only of doctors, but of administrators, nurses and psychologists, people all concerned in multi-disciplinary care of the mentally sick may militate against this. Although it has direct access to the Secretary of State for Health, it cannot in the last analysis force anybody to do anything. It therefore suffers from two things: first, its line of action has not been verified by a consensus among those professions involved; and second, it does not have any ultimate sanction. This experience has to be borne in mind when thought is being given to the possibility of having external agencies carrying out a monitoring process.

This is also an important issue related to laboratory external quality assessment. The experience in America gives rise to the fear that the bureaucracy is trying to control the profession. There it is believed that there is a group of analytical chemists employed by the Government with responsibility for controlling clinical laboratories. In general there is an overwhelming belief that those who conduct assessment surveys should be professionals, and they themselves should take part in the actual audit. It is undoubtedly the British experience that this is a very important part of the psychology of confidence which has to be established between the participants and the auditors.

There are indeed good grounds for believing that an external, predominantly lay monitoring body might result inevitably in positive confrontation which would be disastrous to the general objective. This possibility was discussed in the context of the possible extension of the powers of the Ombudsman at the Conference of Colleges and Faculties some two

years ago. There was absolute unanimity that if an Ombudsman were imposed on the profession, it would be wrong for the Colleges to support the principle in any way, in relation to clinical practice.

On the other hand, the JCC 'flying squad' scheme was upheld as a good model. This scheme comes into being when a consultant finds himself in dispute with his Health Authority because he feels conditions are such that it would be dangerous for him to do his job, whether in surgical operating or in some other form of medical activity. It is a mechanism whereby a consultant can call someone in from his peer group on a professional issue. Because it is solely professional, it has a great measure of acceptance.

There was some discussion on assessment by 'process', mortality etc. Another aspect talked about was self-assessment by slides, multi-choice questions, case reports and so on. It was thought both of these approaches can be made useful as part of the educative process, and as items for accreditation schemes.

## 7. SUMMARY

There was broad agreement that the meeting had been a hopeful one. It had certainly marked an advance over the possibilities apparent five years ago. It is still a moot point what mechanisms exist to ensure further progress. The Trust exercise can only take matters so far. But beyond that, those influential in the medical profession who feel there has to be further progress ought to be thinking about how they can make sure further progress is in train. The BMA has recently shown some sympathetic interest in a possible change in policy to help forward the idea. The generality of the profession have to be made more aware that this is an important activity and in the 'long-term interests'; but possibly some catalyst is now required to focus attention on the real issues. At the annual meeting in Liverpool in 1979, the BMA for the second time, having talked about it in 1977 in Glasgow, decided that they wanted to look at all the alternative systems of medical

audit at present in operation. They agreed to make positive recommendations to the 1980 representative meeting and although at that meeting little progress was made it is evident the debate will continue.

There are, of course, many methods of quality control beyond those outlined in the essays in this collection. It seems evident a great deal is going on, but little of which is absolutely applicable for the profession as a whole. One of the most important things to be done is to look at the possibilities in individual specialties; say, hospital, community medicine and general practice, and see where the interfaces occur and where collaboration is possible. It is necessary however, to put into practice the practical methods of audit which have already been identified in the individual specialty. It was noted that the consultants group in the BMA had produced their own report but it appeared to have been put into suspense. Nevertheless, it is possible it may be resurrected and looked at again in the light of ruling conditions. It is also understood a conference is planned by the BMA to indicate ways in which audit can be applied in general practice. It is probably appropriate now for more active interest to be stimulated. The major question is probably how to get to the isolated practitioners, also to the specialist, in whatever field, who is not prepared to collaborate and that raises questions of sanctions.

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## 8. EPILOGUE

It was the nature of the symposium and the participants that there was a fair measure of agreement and little criticism of the kind of approaches advocated. Yet it does reflect the case that within the profession things are gradually moving in the way that the Trust's group feel they would like to see them go. That is not to say that events could not move faster. It is clear the Colleges could have an important role in this respect through the Higher



Training Committees. It seems there would be some advantage in having questions of what hospitals do about audit incorporated in a rubric for approval of higher medical training posts. This is a powerful sanction that is available to the Colleges because unlike in general practice, almost all consultants are training juniors of one sort or another. The ratio of trainees to non-trainees is much higher at the specialist level than at the family practise level, which provides the leverage for a potential sanction.

The sick doctor is in a special category. The new Health Committee at the GMC may be a help in dealing differentially with this problem. The so-called 'rogue elephants', the bad doctors, are an almost insoluble problem. Perhaps, as public concern grows, Regional Health Authorities may have to be more willing to use early retirement as a mechanism. This incidentally, is a good argument for keeping consultant contracts at Regional level, not bringing them down to District level—one of the things the 'Patients First' document (and unanimously opposed by the JCC). The Regional level is important because, if the very bad doctor has to be dealt with at District Level, all sorts of local problems could arise.

The Trust's Group intend to review the position in the light of the evidence from this meeting and other current initiatives.

# REVIEWING PRACTICE IN MEDICAL CARE

## Steps to Quality Assurance

Essays by Anthony Alment;  
Colin Dollery; Ian McColl;  
Cyril Clarke and A. G. W. Whittfield;  
Michael Matthews; J. N. Lunn and  
W. W. Mushin; D. N. Baron; K. T.  
Evans; K. Rawnsley;  
John Horder; Brian Williams  
Edited by Gordon McLachlan

There is much widespread misunderstanding both about the nature of the means for quality control and its constituent elements. Much of the public debate about audit assumes wrongly there is some expert body with high public status to control quality. This is not so. There are many aspects of quality and to achieve and maintain high standards involve many and separate mechanisms including a variety of educational hurdles as well as specific enquiries.

The NPHT has been active over the years in stimulating interest in quality assurance. This collection of essays is published in furtherance of the policies of keeping alive the interest of various specialties in the medical profession and of encouraging greater efforts to improve the quality of medical care.

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