# *Aspects of Audit*

# 2 Audit in British hospitals

CHARLES D SHAW


## Summary and conclusions

**British hospitals have advantages over other areas of health care for developing and evaluating audit: more uniform and comprehensive medical records, statistical and diagnostic data, fewer patient contacts, more time to examine patients and record information. Although little has been published, a few studies show the extent to which formal audit has been developed in Britain.**


## Introduction

For many reasons acute hospitals appear to be the ideal places to evaluate and develop medical audit in Britain. This is despite the fact that they handle a relatively small and selective proportion of the work load in health care compared with long-term care, general practice, and community health.

Most of the pioneering work on audit in North America has focused on hospital care, and many of the problems and possible solutions that have emerged may apply elsewhere. Dr John Porterfield of the American Joint Council on Accreditation of Hospitals has said that hospitals offer the most expensive and most critical form of care, provide the necessary clerical and administrative structure for audit, and deal with the tangible episodes of illness.

In Britain the cogwheel structure of medical advice in hospitals is a more appropriate forum for discussion than is available in many general practices. There are at least some junior medical staff, and clerical staff experienced in handling data. Medical records are more uniform and comprehensive, and statistical and diagnostic data are available for inpatients through the Hospital Activity Analysis, the Mental Health Enquiry, and the Hospital In-Patient Enquiry. The purpose and nature of inpatient treatment are easier to define than in other areas of health care, there are fewer patient contacts, and there is more time to examine patients and record information. These advantages reinforce, and are in turn reinforced by, a long teaching tradition.

## Formal or informal audit?

Most hospitals have regular meetings to present and discuss selected cases, some concentrating on deaths and complications. There are doctors who feel that the existing methods of review give adequate assurance of the quality of hospital care, but others argue that regular review should be more formal and include routine performance as well as the management of clinical curiosities. Fernow and McColl offer three reasons in support of this. Firstly, whereas informal audit was adequate in the past when only one clinician was managing a patient, techniques are now needed to audit the performance of the team. Secondly, defining the standards of care would reduce the tendency of external observers to equate efficiency with greater output. And, finally, experimenting with audit now might avoid the pitfalls found in North America.

The following are examples of formal hospital audit: the National Laboratory Quality Control Scheme, the Confidential Enquiry into Maternal Deaths, national studies of deaths associated with anaesthesia (Association of Anaesthetists), deaths among medical inpatients under 50 (Royal College of Physicians), and preoperative chest radiographs (Royal College of Radiologists). Multicentre and national studies are essential for evaluation and for the external audit—that is, audit by organisations outside the hospital or practice—of rare occurrences. But internal audit—that is, self-audit and peer review—of daily practice is more appropriate for small, local groups.

## Examples of formal audit

Published reports of formal, local audit by peer review are hard to find, in part because they are rarely indexed as such. Some are included here, not because they fulfil the definition but because they show the practicalities of audit. These reports are classified by hospital procedures and units, clinical management, and referrals from general practice. The objectives, methods, and conclusions of the studies are given, but I recommend that the reader refer to the original papers.

HOSPITAL PROCEDURES AND UNITS

*Routine preoperative chest x-ray examination (Rees et al, 1976)*

**Aim** To evaluate routine preoperative chest *x*-ray examination in non-cardiothoracic surgery.
**Method** Records of 667 consecutive cases were supplemented, for the latter 152, by questionnaire and analysed with reference to the history, physical examination, and radiological findings.
**Findings** Patients under 30 years of age represented 16% of the work load but they yielded no significant *x*-ray findings relevant to anaesthesia or surgery: of all significant *x*-ray findings, 54% were due to cardiomegaly and 19% to chronic respiratory disease; 38% had received a chest *x*-ray examination in the past year; 12·5% had received more than the maximum recommended marrow dose.
**Conclusions** The procedure was being overused and was potentially harmful. Further study was required in order to draft clinical guidelines for its use.

**Gloucestershire Area Health Authority, Cheltenham GL50 2QN, Gloucestershire**
CHARLES D SHAW, MB, BS, senior registrar in community medicine (previous appointments: representative for the Canadian Council on Hospital Accreditation, Ottawa, Canada, and medical director, King Edward VII Memorial Hospital, Bermuda)

*Comment* Although this study set out only to evaluate the procedure, it would have been interesting to know, from the viewpoint of audit, whether the findings eventually led to a change in practice. The conclusions were substantially endorsed by a subsequent multicentre study by the Royal College of Radiologists.

*Routine chest x-ray examination before electroconvulsive therapy (ECT) (Abramczuk and Rose, 1979)*

**Aim** To evaluate the use of routine chest *x*-ray examination before ECT as a predictor of post-ECT morbidity.
**Method** Records of consecutive patients attending for two years (total 367) at an ECT clinic were analysed with reference to physical findings, result of *x*-ray examination, and morbidity.
**Findings** *X*-ray examination gave no extra information relating to risk. One-quarter of the patients apparently had had no physical examination in the month before a course of treatment.
**Conclusion** The screening procedures, as practised, were ineffective and wasteful; every patient should have a history and physical examination immediately before treatment.
*Comment* This study shows a common phenomenon in audit—namely, that when routine practice is examined systematically it is often found to differ appreciably from what was assumed to occur.

*Perinatal necropsy (Gau, 1977)*

**Aim** To justify postmortem examination of perinatal deaths.
**Method** The necropsy diagnoses made by one pathologist on 78 cases over three years were compared with the clinical diagnoses.
**Findings** 11·5% of the necropsy diagnoses differed radically from the clinical diagnoses, and a similar percentage gave added information.
**Conclusions** Necropsy is a "justifiable intrusion into the sensitivities of medical staff and relatives." It adds confidence to genetic counselling and, as a result of this survey, led to a change in the management of hyaline membrane disease.

*Intensive care unit (Tomlin, 1978)*

**Aim** To examine the effectiveness of one intensive care unit (ICU) and its contribution to the work load of other departments.
**Method** 1718 admissions to the ICU over four years were related to specialty, mortality, and pathology work load.
**Findings** Mortality in the intensive care unit fell as sophisticated monitoring was introduced for various types of patient. Although mortality within the unit was independent of age (under 70), it correlated closely after discharge from the unit.
**Conclusions** An inadequate number of beds had resulted in premature discharges and increased mortality. Successful ICU treatment led to a greater nursing work load on general wards. Automatic blood-gas analysis was not only economical but also improved medical care. Earlier introduction of monitoring equipment (delayed for economic reasons) might have saved several lives. Such an audit is valuable for recognising clinical and administrative problems and identifying the effects and priorities of changes in management.
*Comment* This study shows how audit can be used to generate clinical information on outcomes for more rational planning than is possible basing a study on use of resources (numerical norms of input).

CLINICAL MANAGEMENT

*Surgical outpatient follow-up (Coggon and Goldacre, 1976)*

**Aim** To assess the value of outpatient follow-up after emergency appendicectomy.
**Method** The records of 351 patients were reviewed retrospectively.
**Findings** 85% were given follow-up outpatient appointments: of those who attended, 12% had complications but only one patient needed to be readmitted. Fewer than half of the patients were seen either by the operating surgeon or his assistant. 94% of readmissions were referred from home by the general practitioner.
**Conclusions** With the possible exception of patients with complications before discharge, routine follow-up could be managed by general practititioners. This would not lessen the variety of teaching material in the outpatient unit but would allow better use of specialist time.

*Management of the acute abdomen (Gruer et al, 1977)*

**Aim** To solve some of the problems of diagnosing and managing acute abdominal pain.
**Method** The initial and final diagnoses in 407 patients seen over six months in a general hospital were compared for general practitioners, accident department staff, and ward medical staff. Guidelines for diagnosis were then issued to hospital staff, and information on diagnostic accuracy was fed back to them. Then, with the help of a community physician, the study was extended to selecting cases for referral by a group of six general practitioners.
**Findings** The diagnostic accuracy of hospital staff rose from 55 to 77% and the proportion of unnecessary laparotomies fell from 20 to 7%. Of all patients attending the general practitioners with abdominal pain, only 4% were referred to hospital as emergencies.
**Conclusions** Each participant must be prepared to accept change for improvement and recognise each other's problems. The difficulties of such a project were reduced by a stage-by-stage approach. Community physicians might contribute to the design of the study and analysis of data.
*Comment* This audit shows not only how clinical problems are defined but how solutions are found and how their effectiveness can be evaluated.

*Accident and emergency radiology (De Lacey, 1976)*

**Aim** To assess the value of radiology to the accident and emergency department.
**Method** A one-year retrospective review of records was combined with a prospective study to define the actual reasons for *x*-ray examination.
**Findings** Rib injuries were 3% of 10 000 *x*-ray examinations; of these, 13% showed rib fracture and 3% of patients also had a complication (pneumothorax). Each pneumothorax requiring treatment was apparent clinically before radiography.
**Conclusions** There was minimal clinical value in such an investigation. A frontal chest view to detect complications rather than fractures might be a more economical and effective examination.

REFERRALS FROM GENERAL PRACTICE

*Referrals to ear, nose, and throat (ENT) department (Knowles et al, 1979)*

**Aim** To assess ENT training needs for trainees in general practice.
**Method** The diagnoses by referring general practitioners and consulting specialists were compared for 479 consecutive patients seen over three months.
**Findings** Referral diagnoses were divided into four discrete groups when analysed according to the degree of agreement with specialist diagnoses, and according to the number of additional diagnoses made by the specialists.
**Conclusions** Concurrence was poor when diagnosis required skilful examination and interpretive questioning. This suggests a specific need for hospital-based specialist training. Such studies are feasible in a small non-teaching district general hospital.
*Comment* This is tangible evidence of the potential contribution of audit to education.

*Appropriateness of referrals (Stott and Davis, 1975)*

**Aim** To enhance the value of referrals to consultants.
**Method** As part of a regular review programme weekly meetings were held in a teaching group practice to examine each new referral letter. The appropriateness of each letter was discussed in terms of clarity and accuracy of information, choice of specialty, preliminary investigation, and expected response from the specialist. Each referral was reviewed again three months later to compare expected with observed results.
**Conclusions** The exercise was demanding but educational, demonstrating gaps in knowledge, skills, and communication.
*Comment* Several studies have examined referrals from general practice as tangible and significant events in patient care.

## Experimentation and publication of results

These studies are examples of subjects that can be examined by systematic medical audit, although it may be argued that some are research studies rather than audit. Indeed, since several of the authors could not be described as practising in "the same specialty and broadly similar conditions," as defined by the Committee of Enquiry into Competence to Practise, these studies may be considered to verge on external audit.

Because the form of audit that would be most acceptable to the medical profession would be confidential to the peer group, and because it would be inappropriate to assume that the results of such an audit could be applied to another group in another situation, ultimately there may be no reason to publish accounts of local audit once the principle has been established.

There are many questions about what kinds of audit are workable in Britain. The experience from overseas may answer some, but many require experimentation in Britain and publication of the conclusions. There is no better testing ground than our hospitals.

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This is the second in a series of five articles on medical audit in Britain. Readers may obtain specific references from the author.
No reprints will be available.

# MATERIA NON MEDICA

### East and West

My first introduction to Western classical music was a performance of Tchaikovsky's *Fifth Symphony* in an open-air theatre in Bombay. This was about 30 years ago. I have only two vivid recollections of that experience: firstly, that I clapped quite enthusiastically after the end of the first movement and, secondly, that of a tall bearded Sikh banging the drums near the end of the symphony. My second introduction to the orchestral music was via Strauss's beautiful *Blue Danube* waltz. I remember listening to the record over and over again and humming the tune.

When I came to England I decided that I would acquaint myself with Western music. I bought a small radiogram out of my first salary, became a member of the record lending library, bought a Penguin paperback on musical appreciation, and started my aural titillation in earnest. But very soon I got into difficulties. I could never match up the critic's explanation of the music with my personal experience of listening. All the flamboyant writings of the critic were lost on me. I could hear the instruments, I could enjoy the music, but I could not get the "message" which, according to the critic, the composer was trying to pass on to me. Music would touch my emotional chords but not my intellectual ones. I discussed this with a musical friend and his considered opinion was that I was listening to music at a very seminal level. After a lot of analysis I found the reason. In Indian music composer and performer are one and the same person. The musician starts with a scale and within the limitations imposed by the scale he is free to explore any combination. The rewards of creative combination, at least in the performance of Indian music, are a personal experience of emotions. The calibre and the greatness of an artist are his ability to influence the mood of his audience. This rapport between the composer-performer and the listener is absolutely vital in Indian music. Joy, sorrow, anger, elation are some of the responses evoked by music. The relationship between the musician and the listener is sensuous as between two lovers. There is no intellectual discourse. No wonder I could not come to terms with the critics. I was moulded by a cultural tradition going back centuries. It was so much a part of me that to change it would have meant dismantling my being. So now I enjoy the Western classical music along with Indian at the same level. I can cry with Tchaikovsky's *Fourth*, feel homesick with Dvorak's *New World*, march with elation with the *1812 Overture*, jump with joy with Mozart's infectious gaiety, fall into a reverie with Beethoven's *Fifth*, and to hell with the critics.—ARUN M GORDHANDAS (general practitioner, Scunthorpe).

### Silver spoons

Several years ago in Leicester, while looking for stamps in a second-hand shop, I bumped into Dr Thomson searching for his silver spoons (*BMJ* 16 February, p 469). That reminded me of the origin of Apostle spoons, which are among the most collectable items on the antique market. These are the spoons on which tots teethed in Olde England and there are said to be only seven complete sets of 13 spoons known. The 12 Apostles figure at the ends of the handles and the 13th "master spoon" or "lady spoon" has either Jesus or the Virgin Mary on it. In 1974, before inflation really started to bite, a set of 13 was sold at an auction in London for £10 000. Even in bygone days, they could be afforded only by the "crème de la crème" and this may be the origin of the saying: "To be born with a silver spoon in one's mouth." The 1894 edition of Brewer's *Dictionary of Phrase and Fable* states that the origin of the phrase is: "Born to luck and wealth. The allusion is to silver spoons given as prizes and at Christenings. The lucky man is born with it in his mouth and needs not stop to earn it."

More common are sets of four spoons representing the four Evangelists. I only wish my parents had given me a set of silver spoons at my christening.—JAMES DUNLOP (community physician, Hull).