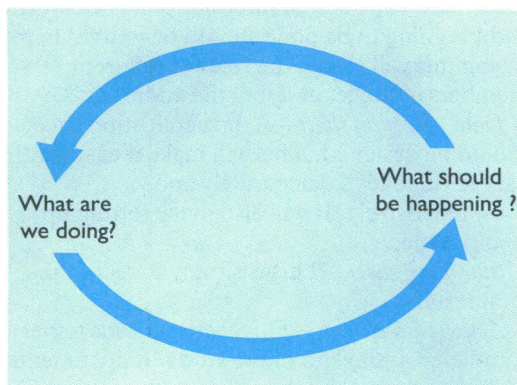


AUDIT IN PRIMARY CARE PAEDIATRICS

L Peter



Audit is the name given to the process of assuring the quality of the care that we deliver as health professionals. When we audit any aspect of our care we go through a series of steps, as follows:

1 *What are we doing?*—Here we measure our actual performance. For example, what percentage of our asthmatic children have had a peak flow recorded in the past 6 months?

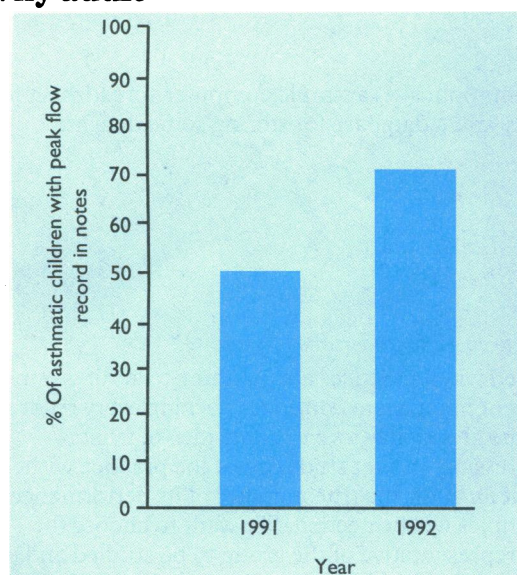
2 *What should we be doing?*—Here we decide what standard of care we should be aiming at. This step usually involves consensus among colleagues and reading recent publications.

3 *Comparing 1 and 2*—Here we face up to how far short of our own standards we actually fall. Sometimes we are pleasantly surprised to find that we have reached them.

4 *Negotiating change*—At this stage we examine, with other relevant health professionals, the facets of our practice that need to be changed to allow us to get nearer to the standard that we have set.

5 *Closing the loop*—This is a vital step. It entails reauditing the results to see whether our changes have been instituted and whether they are working. This has to be done over again until the team is satisfied that 1 and 2 are as closed as possible.

Why audit



It is one thing to know what to do, but another to be sure that we are doing it. Audit allows us to see how near we get to our standards. Even better, it shows us how our systems and every day practice let us down and gives us the opportunity to change them to allow our efforts to be optimised. Audit puts the control of the quality of our work into our own hands.

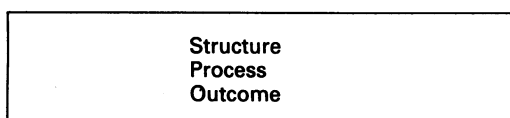
Definitions

Before continuing we should clarify the meanings of certain terms that we use when writing about audit.

Standard—This refers to the level of care that we have decided is desirable to achieve. For example, in the care of asthmatic children we may think that we would be satisfied if no more than three days of school a year were missed because of asthma. This is our standard.

Criterion—This refers to the element of care to which we are applying our standard. In the above example “days off school” is a criterion that we are using to set a standard for us to audit our care.

What to audit?



Medical care should be *acceptable, accessible, effective, equitable, and efficient*. If we wish to ensure quality then, with this in mind, we should look at what we are doing. This especially applies to the way we manage the common chronic illnesses, which give us so much work and our patients so much misery.

When we start to look at what we are doing in this way it soon becomes apparent that we could look at the quality of our equipment and buildings (structure) or the quality of our treatments and diagnoses and doctor-patient communication (process) or at the quality of our success in preventing the suffering of illness (outcome). These three headings, with the five headings in the previous paragraph, should provide a useful framework to build up our audit repertoire.

How to audit

ASTHMA AUDIT PROTOCOL DATA COLLECTION SHEET					
(Please tick when present in notes)					
No	Patient name	Emergency admissions in past year	Prescribed broncho-dilators	Peak expiratory flow readings in past year	Diagnosis of asthma in notes
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
28					
29					
30					
Total:					

Having identified the area to audit, all the team involved in the delivery of care in this area need to devise a protocol. This means a plan consisting of the following headings:

Background and aims of audit—A short introduction explaining why the particular audit was chosen and what it is hoped to achieve, along with some references if relevant to justify any expressed opinions.

Standards and criteria—These should be explicitly set out and explained and justified.

Method—The actual nuts and bolts of how the audit is going to be done should be written here. Doing this will clarify the roles of different members of the team doing the audit.

Data collection sheet—A data collection sheet should be designed. This will make it easy for the data to be collected accurately and comprehensively. It will also make totting up results easier.

Summary sheet—This is simply to record the total results.

Action and review—This section needs to be completed at the end of the study. It documents what action is to be taken as a result of the audit and when the audit cycle is to be rerun to gauge the effectiveness of any changes.

Equipment needed

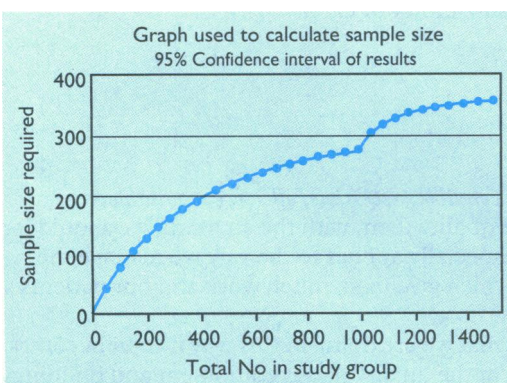
- Notes (in order)
- Age/sex register (manual or computerised)
- Disease register (manual or computerised)
- Time (staff or your own)
- Sample size graph (illustration below)

As well as the essential items opposite, a simple computer spreadsheet for presenting results graphically and a database for storing some data are useful optional extras.

Sample size for audit (rule of thumb)

“How many records do I need to check to undertake this audit?”

This question is often asked when practices are planning to audit groups of patients so large that it is not practical to consider checking every record. Auditing a small sample of the group may give us some idea of what is happening for an initial impression or pilot study, but if the practice wishes to have some confidence that an audit is a true measure of its performance then larger more reliable samples will be needed. We want to choose the smallest sample that will be representative of the group to be studied and to be reasonably certain that an audit of this sample will come close to the same answers (within 5%) as an audit of the whole group. The graph can be used to estimate the minimum sample size needed for an audit compared with the total number in a study group.



Example (see graph)

A practice wants to perform a criterion-based audit of the care of its asthma patients. There are 200 such patients on the asthma register, so, reading the graph, we can see that they will need to look at about 135 patients' records to be 95% confident that the results of the audit will be the same as if they had looked at every record. The results should be expressed as percentages of the individual criteria satisfied—for example, we are 95% confident that 55–65% of our asthmatic patients have had a peak flow recorded in the past 12 months. It is important that the sample should be a random sample.

Examples of audit in primary care paediatrics

Structure—We may want to look at how good our children's facilities are. The best judges of that are the children and their parents, so it is best to find out how we are doing from a patient satisfaction survey. If worded properly, such a survey could use the parents' comments to create ideas to change the existing arrangements to be more "child friendly."

Process—We could choose an important topic such as urinary tract infection in childhood. The sort of criteria of concern might be those shown opposite.

All these criteria need to be fully discussed, justified by good published work, and then have standards applied to them. For example, the standard for taking a midstream urine specimen before treating a child with a suspected urinary tract infection would probably be agreed by most reasonable general practitioners to be 100%.

Outcome—This is the most difficult subject to assess in the small populations that we deal with in general practice. However, it is possible to find a few examples. One could be to look at emergency admissions of children with asthma as a criterion of control outcome. Having sampled a group, the number of emergency admissions in a year can be measured. Having created whatever change was in mind for the children's care, the audit can be run again to see if emergency admissions have reduced.

Audit is particularly useful in primary care for assessing the effectiveness of clinics. For example, auditing various aspects of asthma care before and after instituting an asthma clinic will help ascertain whether or not the clinic is worthwhile.

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This article is a chapter from the third edition of the *ABC of One to Seven*, which has been edited by H B Valman. The book will be published in September 1993.

Possible criteria for audit of urinary tract infection care

- 1 The accuracy of the diagnosis—that is, was an appropriately taken midstream urine specimen used to make the diagnosis, and was the result consistent with the diagnosis?
- 2 Was the infection appropriately investigated and followed up?
- 3 Was a suitable antibiotic used?

Lesson of the Week

Heparin induced thrombosis: an important complication of heparin prophylaxis for thromboembolic disease in surgery

James B Hunter, Robert J Lonsdale, Peter W Wenham, Simon P Frostick

Heparin may cause life threatening thromboses, which can be prevented by regular monitoring of the platelet count

Heparin induced thrombocytopenia with thrombosis, or the "white clot syndrome," is a rare but recognised complication of heparin therapy. The syndrome is idiosyncratic, immune mediated, and not dose dependent and therefore is equally likely to occur with prophylactic and therapeutic heparin dosage regimens. Despite published reports on the subject we were alarmed that many surgeons who regularly use heparin to prevent or treat thrombosis were unaware that heparin can induce thrombotic complications in susceptible patients. We present three typical case histories, a brief discussion of the condition, and some guidelines on its prevention and treatment.

Case 1

A 79 year old woman was admitted for a subcapital fracture of the right femur in April 1992. Prophylactic treatment with unfractionated calcium heparin was started on admission at a dose of 5000 IU three times daily. A Thompson hemiarthroplasty was performed 48 hours after admission. On the seventh postoperative day she underwent routine plethysmography, and as a result of the findings phlebography was performed. This confirmed extensive right femoral vein thrombosis (fig 1). She was fully anticoagulated with

intravenous sodium heparin. A full blood count at the time showed platelets to be $73 \times 10^9/l$ (normal $150-400 \times 10^9/l$). Two days later she developed bilateral signs and symptoms of acute leg ischaemia. An arteriogram was suggestive of emboli and she underwent left femoral embolectomy. At operation the naked eye appearance was that of white clot, which was later confirmed histologically.

Although good flow was re-established at operation, the leg became ischaemic again. Two weeks later the patient underwent below knee amputation. Her heparin was continued postoperatively until she was fully anticoagulated with warfarin. Twenty four hours after stopping heparin her platelet count had recovered to $112 \times 10^9/l$, and it was normal next day.

Case 2

A 70 year old man underwent elective right total hip replacement in May 1992. He was given calcium heparin prophylaxis at a dose of 5000 IU twice daily. There was no history of peripheral vascular disease or cardiac problems. In 1986 he had undergone left total hip replacement without prophylactic heparin cover.

Ten days postoperatively he developed clinical signs and symptoms of a deep venous thrombosis and phlebography confirmed right femoral vein throm-

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