Undertaking a clinical audit project: a step-by-step guide

How to use the step-by-step guide

This chapter provides a practical ‘step-by-step guide’ for carrying out a clinical audit project. The 10 stages in the clinical audit cycle are described together with the various activities for their completion. In order to demonstrate how each stage can be translated into practice, a ‘running’ example is provided of a clinical audit, which is shown in a shaded box and abbreviated to “Clinical audit on preparing families for assessment”. The example is of a clinical audit project on:

‘The preparation of families, by a multi-disciplinary team, for their initial assessment appointment at a child and family psychiatry department’

This is a fictitious example aimed to help clarify the clinical audit process and is not intended as an ‘ideal recipe’.

The clinical audit cycle

The conventional way of presenting the clinical audit process is as a ‘cycle’. The clinical audit cycle used in this book (see Fig. 2.1) has 10 key stages, each of which will be described in this chapter.

![Clinical audit cycle diagram](image)

**Fig. 2.1 Clinical audit cycle**
After completing all of the stages of the clinical audit process, the cycle should be repeated to assess whether changes in practice have resulted in standards being met. Clinical audits should involve more than one circuit of the cycle:

“In terms of how many times you might complete the audit cycle, two consecutive loops are generally seen as being enough” (Firth-Cozens, 1993).

With the model presented as a circle it appears as if you could continue to audit the same topic forever. For this reason, some people prefer to present the clinical audit process as a spiral of repeating cycles (Goodwin et al, 1996).

In order for the ‘audit loop to be closed’, changes in practice should be implemented and then re-audited to ascertain whether improvements in service delivery have occurred as a result. Unfortunately, these stages of the cycle are often omitted in clinical audit projects.
**Stage 1 – Select Topic**

The first decision to be made when embarking on a clinical audit project is: “What do you want to know about the service you are providing?”

**Areas for Audit**

As already mentioned, there are numerous topics which are suitable and relevant for clinical audit. The Venn diagram in Figure 2.2 shows some possible clinical audit topics in CAMHS using the Donabedian (1966) classification system of structure, process and outcome.

**Activities for Selecting a Topic**

To choose an appropriate topic for a clinical audit project, the following activities may be helpful:

(a) At an audit team meeting, discuss possible topics and prioritise according to perceived importance.

(b) Consult with any other relevant stakeholders (not on the audit team) about proposed topics.

(c) Evaluate the topics according to the criteria outlined below.

![Venn diagram showing clinical audit topics in CAMHS](image)

*Fig. 2.2 Examples of clinical audit projects in child and adolescent mental health services*
CRITERIA FOR SELECTING A TOPIC

It is advisable to choose a topic for your clinical audit project which encompasses as many of the following as possible:

- It is of concern to service users and has potential to improve service user ‘outcomes’.
- It is important and of interest to you and members of your team.
- It is of clinical concern (e.g. an acknowledged variation in clinical practice, high-risk procedures, complex management).
- It is financially important (either very common and/or very expensive).
- It is of local and/or national importance (e.g. a Department of Health initiative).
- It is practically viable (e.g. can be measured and you will be able to implement change or effect the implementation of change).
- There is new research evidence available on the topic.
- It is ideally supported by good research.

In general, the golden rule is that you should only ever audit your own practice. If, for some reason, you wish to gather data about the practice of others, then you should (a) involve them in the clinical audit project and (b) obtain their permission.

CLINICAL AUDIT OBJECTIVES

Having decided on the topic area it is helpful to clearly define your clinical audit objectives, that is why you are doing the audit and what you are hoping to achieve as a result. This will facilitate the setting of standards and development of data collection methods at a later stage.

**Example: Clinical audit on preparing families for assessment**

**Stage 1 – Select a topic**

Clinical audit topic

Preparation of families for initial multi-professional assessment appointment at a child and family psychiatry department.

Type of clinical audit

Process.

Objectives

(a) To confirm whether parents/carers are sent an information leaflet prior to assessment appointment.
(b) To confirm whether the parents/carers receive a telephone call from a member of the team prior to their assessment appointment.
(c) To determine whether the parents/carers feel adequately prepared for assessment as a result of the leaflet and telephone call.
Stage 2 – Review literature

Reasons for reviewing literature

There are a number of reasons why it is important to review the relevant literature at this early stage in the clinical audit cycle:

- to find out whether there are any recommended national standards on which to base the standards you are setting
- to find out about any previous audits which have been conducted on your specific topic to help you in both designing the method of data collection and setting standards
- to find out whether there have been any guidelines or research on the topic which can help to define what constitutes good-quality care in order to set standards.

Where to search for literature

You may find the information sources listed in Table 2.1 useful when searching for relevant literature. See ‘Clinical audit resources’ for further information about organisations.

<table>
<thead>
<tr>
<th>Source</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Databases</td>
<td>Medline, PsychLit, Embase</td>
</tr>
<tr>
<td>Internet</td>
<td>Scharr</td>
</tr>
<tr>
<td>Local and professional libraries</td>
<td>Royal College of Nursing, Royal College of Psychiatrists</td>
</tr>
<tr>
<td>Professional organisations</td>
<td>King’s Fund</td>
</tr>
<tr>
<td>National audit databases</td>
<td>National Centre for Clinical Audit</td>
</tr>
<tr>
<td>Synthesised research</td>
<td>Cochrane Library, Centre for Evidence-Based Mental Health</td>
</tr>
</tbody>
</table>
Stage 3 - Set Standards

The Importance of Setting Standards

Standards play an important role in the clinical audit process. Developing standards facilitates discussion among staff about a particular aspect of care and inspires some reading of the relevant literature. Comparing current practice against standards can highlight problems which may otherwise have remained unrecognised. Standards may help to motivate changes in practice by revealing gaps between the quality of current practice and the desired level of care provision.

How to Set Standards

Setting standards usually involves a number of stages as shown in Figure 2.3. When trying to develop standards it is worth considering the following points:

• Standards which are applicable to your specific service should be set and should be agreed by all relevant staff participating in the clinical audit.

• Where possible, standards should be based on the best available evidence regarding good practice.

• The development of standards will usually involve a combination of clinical experience and a review of the available evidence. In CAMHS there are very few national guidelines regarding clinical practice and there is limited robust research on certain topic areas. Standards often, therefore, must be based on the clinical experience of the service providers. On such occasions you may find it helpful to pose the following question to colleagues:

  “If a member of your family was to receive this service what do you think would be an acceptable standard?”

• In some circumstances, using clinical audit to observe your current practice may help to generate standards (see ‘When to set standards’ p. 14)

Where Standards Come From

Standards may be based on one, or any combination, of the following:

• National guidance or standards (e.g. Patients’ Charter).

• College or professional organisation guidelines.

• Laws (e.g. Mental Health Act 1983).

• Previously agreed local guidelines/protocols (e.g. through consultation with commissioners).

• Standards used locally by colleagues or competitors (e.g. your neighboring trust, ward, etc.).

• Research evidence (from which standards can be developed).

• Literature review of other clinical audits which have published their standards/results.

• Current knowledge from clinical experience.

• Current practice (observe and assess current practice).

Understanding Standards

A standard is:

“a statement which outlines an objective with guidance for its achievement given in a form of criteria sets which specify required resources, activities and predicted outcomes” (Royal College of Nursing, 1990).
All standard statements should contain a criterion and a target, as shown below.

\[
\text{Standard} = \text{criterion} + \text{target}
\]

\[
\begin{align*}
\text{(Statement of what is being measured)} & + \text{(Yardstick)} \\
\text{(measurement boundary)} & + \text{(% to be achieved)}
\end{align*}
\]

A criterion:
- forms the main body of the standard
- is a clear and precise statement of care
- uses words/phrases which mean that it is measurable
- indicates the boundaries of the measurement (e.g. a time frame and who it involves) known as a yardstick.

A target:
- is expressed as a percentage and defines the level of performance considered acceptable, in relation to the chosen criterion.

Below is an example of a standard statement about response times which contains all of the necessary components.

\[
\text{Target} = \text{(Criterion – in brackets)}
\]

\[
\begin{align*}
95\% & \text{ of (children referred to the department will be seen by a member of the team within two weeks of the referral being received)} \\
\text{Yardstick – in italic}
\end{align*}
\]

**SETTING TARGETS**

Targets should be set at realistic and attainable levels, while not being set too low. When setting targets the following factors should be considered:
- clinical importance
- practicability
- acceptability.

In the above example the target is set at 95%. A target of 100% would be unrealistic since there are inevitably some cases which will not be seen within two weeks for reasons that cannot be prevented (e.g. the family goes on holiday).

Sometimes it may be possible, prior to the clinical audit being conducted, to identify circumstances when it would acceptable for a criteria not to be met. In this situation it may be more sensible to set a target of 100% with **defined exceptions**. An example is shown below.

For 100% of adolescents attending the therapy group, a letter will be sent to their GP prior to attending their first group session explaining why the adolescent has been asked to attend and over what time period.

**Exceptions** Cases when consent to contact the GP is denied by the client.
DEVELOPING GOOD STANDARDS

When writing your standards try to remember that they should always be SMART:

- **Specific** – clear, understandable
- **Measurable**
- **Achievable**
- **Relevant** – to the aims of the audit
- **Theoretically sound** – based on current research.

WHEN TO SET STANDARDS

On our clinical audit cycle (Fig. 2.1) there are two places where standards can be set:

- before designing the audit and collecting the data (Stage 3) and
- after feeding back the results of the audit study (Stage 9).

Standards should be set as early as possible in the audit process, ideally before assessing your practice. As already mentioned, however, this may not always be possible. In such circumstances, the results of the audit should be used to inform the development of standards. The reasons for setting standards at Stage 3 and at Stage 9 are outlined in Table 2.2.

| TABLE 2.2  The purposes of setting standards at Stage 3 and Stage 9 |
|-------------------|-------------------|
| **STANDARDS SET AT STAGE 3** | **STANDARDS SET AT STAGE 9** |
| To: | To: |
| • measure whether the standards have been met | • describe the current situation |
| • identify some reasons for standards not being met | • contribute to setting standards |
| • examine whether standards need altering | |

**EXAMPLE: CLINICAL AUDIT ON PREPARING FAMILIES FOR ASSESSMENT**

**STAGE 3 – SET STANDARDS**

Standards set

(a) 100% of parents/carers will be sent an information leaflet by the team administrator no later than two weeks before they have their assessment appointment.

(b) 95% of parents/carers will receive a phone call from a member of the team 2-7 days before they have their assessment appointment.

(c) 95% of parents/carers who attend their first assessment appointment will feel adequately prepared as a result of the information they have been given.
**Fig. 2.3 How to set standards**

1. **Search for existing standards**
   - YES → **Discuss with team, adapt if necessary.**
     - **Able to reach consensus?**
       - YES → WRITE ‘SMART’ STANDARD STATEMENTS
       - NO → **Search for relevant existing research**
         - YES → **Discuss with team and base standards on research findings and clinical experience.**
           - **Able to reach consensus?**
             - YES → WRITE ‘SMART’ STANDARD STATEMENTS
             - NO → **Search for clinical experience within and/or outside team**
               - YES → **Able to reach consensus?**
                 - YES → WRITE ‘SMART’ STANDARD STATEMENTS
                 - NO → **OBSERVE PRACTICE**
               - NO → **Discuss with team. Agree!**
   - NO → **NONE**

2. **NONE**
   - **YES**
   - **NO**
STAGE 4 – DESIGN AUDIT

When designing a clinical audit project you will need to address the following questions:

- **Who will be involved?**
- **How will the project be carried out?**
  - Data collection: what information? what type to data? how should the data be collected? how can reliability and validity be ensured? how can the collection method be piloted?
  - Sample: what size? how should the sample be selected?
  - Data analysis: who will analyse the data? how will the data be analysed?
  - Feedback of findings – to whom and how?
- **When will the project begin and end?**

WHO TO INVOLVE IN THE CLINICAL AUDIT PROJECT

As many of the key stakeholders as possible should be involved in designing the audit (see ‘Who should be involved in the clinical audit?’ p. 4).

HOW TO DO THE CLINICAL AUDIT PROJECT

(a) DATA COLLECTION

By conducting stages 1–3 in the clinical audit cycle, the type of information you will require for the project will become increasingly evident. Most data collected for clinical audit are quantitative. It can also be useful to collect some qualitative data to increase understanding of complex areas (e.g. service users’ views). More time tends to be required for the analysis of qualitative data than quantitative data.

When undertaking a clinical audit project, people often decide to collect a range of data which they feel could be of clinical importance, although not strictly relevant to the objectives of the audit (e.g. demographic data). This may prove useful, but will clearly increase the time and costs required to complete the project.

Clinical audit data can be collected retrospectively or prospectively. Table 2.3 outlines the differences between these two methods and some of the advantages and disadvantages of each.

Data may be collected using any number of research methods. The most appropriate method for your project will depend on a number of factors such as the available time, budget and data sources. Examples of different data collection strategies are shown in Table 2.4.

There is no one ‘correct way’ of collecting data for a clinical audit project

As with research, clinical audit information needs to be collected in a way that it is both valid and reliable.

- **Validity** = the degree to which you are measuring what you are supposed to be measuring.
- **Reliability** = the degree to which you are consistently measuring what you want to measure (e.g. the same data would be collected by a different person, or by the same person at a different point in time).
One way of improving the reliability and validity of your clinical audit project findings is to ensure that your standards are rigorously developed (i.e. they are clearly defined and measurable). For example, if one of your standards is that 100% of therapists should explain clearly in the first 10 minutes of a family’s first appointment why the family has been referred and the purpose of the session, then it will be necessary to decide the components of a clear explanation in order to design a valid and reliable check-list to be used by the data collector.

The careful selection of an appropriate data collection tool is also important. If, for example, you used a satisfaction questionnaire designed for parents, to explore the views of children, then your findings would be invalid. Using established standardised psychometric tools and check-lists can increase the reliability and validity of your results.

With all clinical audit projects, especially those for which you have designed your own data collection tool (e.g. an interview schedule), it is advisable to pilot your method prior to beginning.

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**Table 2.3** The differences between retrospective and prospective data collection

<table>
<thead>
<tr>
<th></th>
<th>RETROSPECTIVE</th>
<th>PROSPECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEFINITION</strong></td>
<td>Data collected by looking back over your practice</td>
<td>Data collected from this point onwards, or starting at a future date</td>
</tr>
<tr>
<td><strong>WHEN TO USE</strong></td>
<td>When looking at what has been happening in a chosen topic area</td>
<td>When data are currently unavailable (i.e. has not been recorded as part of daily practice)</td>
</tr>
<tr>
<td><strong>ADVANTAGES</strong></td>
<td>Can be faster</td>
<td>Avoids using poor-quality, incomplete data</td>
</tr>
<tr>
<td></td>
<td>Provides a baseline</td>
<td>Allows design of a clear and concise data collection sheet</td>
</tr>
<tr>
<td><strong>DISADVANTAGES</strong></td>
<td>Past service users do not benefit</td>
<td>Provides no baseline for the audit</td>
</tr>
<tr>
<td></td>
<td>Data may be difficult to collect (e.g. poor-quality, information missing)</td>
<td>Can be time-consuming since a number of individuals must be relied upon to collect the data</td>
</tr>
</tbody>
</table>

**Table 2.4** Examples of data collection methods

<table>
<thead>
<tr>
<th>AREA FOR AUDIT</th>
<th>EXAMPLES OF SOURCES OF DATA</th>
<th>EXAMPLES OF METHODS</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRUCTURE: Service users’ satisfaction with facilities (e.g. consultation room)</td>
<td>Service users</td>
<td>Questionnaires or interviews</td>
</tr>
<tr>
<td>PROCESS: Waiting times for appointments</td>
<td>Patient Administration System (PAS)</td>
<td>Use data collection sheet to extract information from PAS</td>
</tr>
<tr>
<td>PROCESS: Communication with general practitioners/ referrers</td>
<td>Case notes</td>
<td>Use data collection sheet to record information from clinical records regarding correspondence</td>
</tr>
<tr>
<td>PROCESS: Therapeutic interventions</td>
<td>Observation of session</td>
<td>Through one-way mirror or video recordings. Use check-list to record information about interventions</td>
</tr>
<tr>
<td>OUTCOME: Impact of therapeutic intervention on service user</td>
<td>Service user and their family General practitioner Out-patient records</td>
<td>Questionnaires or interviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data collection sheet to extract information from out-patient records</td>
</tr>
</tbody>
</table>

For example, if one of your standards is that 100% of therapists should explain clearly in the first 10 minutes of a family’s first appointment why the family has been referred and the purpose of the session, then it will be necessary to decide the components of a clear explanation in order to design a valid and reliable check-list to be used by the data collector.

The careful selection of an appropriate data collection tool is also important. If, for example, you used a satisfaction questionnaire designed for parents, to explore the views of children, then your findings would be invalid. Using established standardised psychometric tools and check-lists can increase the reliability and validity of your results.

With all clinical audit projects, especially those for which you have designed your own data collection tool (e.g. an interview schedule), it is advisable to pilot your method prior to beginning.
the main data collection. This will help to identify any problem areas at an early stage. It should also ensure that you will be able to meet the original objectives of the clinical audit project from the data collected, and will reveal whether the tool is both appropriate and usable.

Always conduct a small pilot study

The reliability of data can also be improved by providing appropriate training in data collection for the person undertaking this task. For qualitative information where subjective assessments may sometimes be required (for example, rating whether a therapist makes sufficient eye contact with a family during a session), having one person to collect the data helps maintain consistency. Most of the time, however, this is unnecessary and/or the time and resources make it an impractical option.

Where several people are involved in collecting information, liaison and communication are important. You may even decide you want to include an additional ‘safety measure’ by testing for interrater reliability, for example by having two individuals separately rating the same therapist for eye contact, and then comparing their ratings.

(b) The sample

For some audits it may be possible to examine all of the relevant cases, where the total number in the population being studied is small, for example an audit of the outcome of an anger management group containing 15 adolescents. In most circumstances, however, it will be necessary to select a sample from the population.

A sample should be selected which reflects the characteristics of the population from which it has been drawn

If you select your sample from those cases most easily at hand (e.g. case notes currently in the office), then your sample is likely to differ systematically from the total population and will therefore contain bias. To avoid bias, any of the sampling methods outlined in Table 2.5 could be used.

<table>
<thead>
<tr>
<th>SAMPLING TECHNIQUE</th>
<th>DEFINITION</th>
<th>EXAMPLE: AUDIT OF ATTENDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RANDOM</strong></td>
<td>Every member of the population being studied has an equal chance of being picked</td>
<td>Total number of children seen by a team over one year is 400. Each child is assigned a number and a sample of 50 is selected using a random number table.</td>
</tr>
<tr>
<td><strong>SYSTEMATIC</strong></td>
<td>Members of the population are chosen in a systematic way</td>
<td>Every eighth child (in order of date of first appointment) is selected.</td>
</tr>
<tr>
<td><strong>STRATIFIED</strong></td>
<td>The population is split into groups with characteristics considered important to the outcome (e.g. males and females). Each relevant subgroup of the population is then randomly or systematically sampled in proportion to its size.</td>
<td>Children under the age of five and over the age of five are split into two groups. The first group contains 100 and the second 300. Twelve children are randomly selected from group 1, and 38 from group 2.</td>
</tr>
<tr>
<td><strong>CLUSTER</strong></td>
<td>Sampling of the group rather than individuals. A sample of groups is chosen first and then individuals are taken from each of these using any of the above methods.</td>
<td>Attendance is being audited at child and family psychiatry departments in London. All of the departments are listed, and 10 of the 20 are selected randomly. Individual cases are then selected from the 10 departments using one of the above sampling methods.</td>
</tr>
</tbody>
</table>
When selecting your sample you should also consider:

- what would be an appropriate sample size
- whether there are any cases which should be excluded from the sample and why
- the time period from which cases will be drawn (e.g. cases seen over past six months = population being studied)
- how cases will be identified (e.g. a number).

The sample needs to be large enough to be representative of the population you are studying. Factors which may influence the sample size chosen are listed below.

### Practical issues
For example, time, audit budget and availability of appropriate cases.

### Methodology
For example, postal surveys tend to have a low response rate so a reasonably large sample would be required.

### Size of the study population
For example, if you were auditing the assessment procedures used for children referred with suspected autism, and the total number referred in one year was 20, then it would not be appropriate to take a sample of 20% of this population (i.e. four children); if 200 children were referred to the team, however, then a sample size of 40 could be acceptable.

#### (c) Data analysis

When designing a clinical audit project it is helpful to discuss and decide how the data you collect will be analysed and by whom. For more detail about data analysis, see p. 22.

#### (d) Feedback of findings

Ideally, a strategy for feeding findings back to the relevant stakeholders should be developed at the outset of the clinical audit project. For more information about this see p. 24.

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**Example: Clinical audit on preparing families for assessment**

**Stage 4 – Design audit**

<table>
<thead>
<tr>
<th>Type of data Information</th>
<th>Prospective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of assessment appointment</td>
<td>Family ID</td>
</tr>
<tr>
<td>Date information leaflet sent</td>
<td></td>
</tr>
<tr>
<td>If sent late, reason why</td>
<td></td>
</tr>
<tr>
<td>Date of phone call and person who made it</td>
<td></td>
</tr>
<tr>
<td>Parents’/carers’ satisfaction with content of information leaflet</td>
<td></td>
</tr>
<tr>
<td>Parents’/carers’ satisfaction with phone call</td>
<td></td>
</tr>
<tr>
<td>Degree to which parents/carers felt prepared for an assessment</td>
<td></td>
</tr>
</tbody>
</table>

**Method**

- (a) Check-list put in all case notes to be completed by administrator, regarding date information leaflet was sent, and by clinicians, regarding the date of phone call.
- (b) Questionnaire, including Likert scales and open questions, to examine parents’ satisfaction with information given about assessment. Given to all parents who attend assessment appointment to complete after the first session.

**Sample**

- (a) All families who have a first assessment appointment over a six-month period (including those who do not attend).
- (b) All families who attend their first assessment appointment.

**Time period**

Data collected over six-month period starting from the following month.
WHEN TO DO THE AUDIT

The time period over which the data is collected will depend on your data sources, collection methods and the numbers required for a representative sample. For some projects you may be able to collect all of the data in one morning (e.g. retrospective study of attendance rates), whereas in others the data may need to be obtained over a one-year period. However, in designing the audit you must consider whether the results of an audit which would take two years to complete would still be beneficial in improving practice. Over long time periods many changes to service delivery may occur which could render the results of your project meaningless.
Stage 5 – Collect data

This is the stage at which you collect your data using the method developed and piloted at the design stage. You will need to address the following issues:

- For each individual included in the sample, ensure that you have an identifier or label (e.g. a number). Keep a list of the patients’ names and numbers separately from the data in order to maintain confidentiality. Clinicians’ anonymity should also be maintained (unless they have agreed to be named) when sharing the results.

- Develop a way of storing your data. This may involve designing a coding system for your data. Non-numerical clinical audit information may need to be translated into numbers to make it more manageable in terms of storage and analysis. A code will also need to be developed for missing data (see the example below).

- Ensure that your data is stored in such a way that it is both secure and conforms to legal requirements. For example all personal data on a computer should be “secure from loss or unauthorised disclosure” (Data Protection Act 1984).

Example: Clinical audit on preparing families for assessment

Stage 5 – Collect data

Coding system

When parents are asked what they find most helpful about the telephone call received prior to their appointment, responses could fall into the following categories which could then be coded numerically, as shown.

<table>
<thead>
<tr>
<th>RESPONSE CATEGORY</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reassurance received</td>
<td>1</td>
</tr>
<tr>
<td>Opportunity to ask questions</td>
<td>2</td>
</tr>
<tr>
<td>Clarification regarding structure of session</td>
<td>3</td>
</tr>
<tr>
<td>Friendliness of clinician - reduced anxiety</td>
<td>4</td>
</tr>
<tr>
<td>No response</td>
<td>5</td>
</tr>
</tbody>
</table>
STAGE 6 – ANALYSE DATA

OBJECTIVES OF DATA ANALYSIS

When analysing your data you will generally want to try to reach conclusions about:

• the general pattern of actual practice
• the degree to which actual practice (results of audit) is meeting the standards set
• those cases for which it is clinically acceptable for the standards not to be met.

METHODS OF DATA ANALYSIS

Analysing audit data does not usually require complex statistical tests, although these may be necessary in certain situations. Clearly the type of data you have collected will determine the type of analysis employed. The following approaches may be used in analysing your data.

(A) DESCRIPTIVE STATISTICS

This is where the data are described numerically. You may wish to calculate:

• the frequency of certain events/values occurring (i.e. rates and percentages)
• the mean, and/or the median – the most ‘typical value’ for the data
• the range and/or standard deviation – to show the variability of the individual results.

It is often useful to present descriptive statistics graphically using, for example, bar or pie charts.

(B) STATISTICAL TESTS

These may be used:

• when conducting an outcome audit, for example comparing ‘before’ and ‘after’ results on questionnaires to find out whether there has been a statistically significant improvement in the client symptom scores; or
• when wanting to show whether the results you have obtained can be attributed to chance variation.

(c) QUALITATIVE ANALYSIS

Where open-ended questions have been asked as part of the clinical audit project, qualitative data will be obtained. There are a number of ways of analysing qualitative data. It may be possible, for example, to conduct a content analysis of the major recurring themes and a frequency count may then be performed.

COMPARING WITH STANDARDS SET

Where standards have been set, the final part of your analysis will entail calculating the percentage of cases meeting and not meeting each standard.

At the standard-setting and design stages of the clinical audit cycle it may not have been possible to identify circumstances in which it would be acceptable for cases not to meet a certain standard. Discussions with colleagues about specific cases may highlight some situations in which it is considered clinically acceptable for standards not to be met. In these situations, your results may prove most meaningful if you calculate the following percentages:

• percentage of cases meeting each standard (calculated from whole sample including non-applicable cases)
- percentage of cases not meeting each standard (again including non-applicable cases)
- percentage of cases considered non-applicable (not meeting standards for clinically acceptable reasons)
- percentage of applicable cases meeting each standard
- percentage of applicable cases not meeting each standard.

Where there is only a small difference between the target set and the percentage of cases meeting the standards in the clinical audit, it may be difficult to know whether this is just due to chance. Confidence intervals can be calculated to obtain a more accurate idea of whether there is a statistically significant difference between your results and the set standards.

**Example: Clinical audit on preparing families for assessment**

**Stage 6 - Analyse data**

Data analysis in this case would involve calculating percentages for cases in which the leaflet was sent within the time specified, phone calls were made within the time specified, etc. Qualitative analysis which involves identifying the major themes could also be employed for the open questions on the satisfaction questionnaire. It may be possible then to calculate the frequency of occurrence of these themes.
Stage 7 – Feedback Findings

Communicating your findings to the relevant stakeholders is an important part of the clinical audit process if it is to have any impact on the quality of the service you are providing.

Who should know about the findings

It is important that all of the key stakeholders are made aware of the findings of the project and are provided with an opportunity to comment on them. This will include those individuals:

- whose practice was examined
- who are on the clinical audit project team
- who would be involved in making changes to improve the particular aspect of care in question.

Different people may have access to different levels of information. For example clinicians may know the ‘scores’ of all of the other clinicians if previously agreed, but it may not be appropriate for commissioners to have access to this level of detail.

Dissemination methods

A combination of passive feedback (written information) and active feedback (discussion of findings) is preferable when communicating the findings of your project.

(a) Audit reports (passive feedback)

It is important to produce a written record of your clinical audit project, which clearly outlines how you approached each stage in the clinical audit cycle and the results you obtained (a pro forma which may be used for this purpose is provided on p. 126). This can then be disseminated to the relevant people as a way of feeding-back findings. This also ensures that a record of the study is kept for future external and internal use, for example by individuals wishing to conduct a similar clinical audit project, or by commissioners requiring evidence that the quality of service provision is addressed by the department.

(b) Discussion of results (active feedback)

Discussing the results of the clinical audit project with key stakeholders is an essential exercise through which areas of practice which need to be changed can be identified and agreed.

Example: Clinical Audit on Preparing Families for Assessment

Stage 7 – Feedback Findings

Findings would need to be fed-back via written reports and verbal discussions, to:

(a) all clinicians on the team;
(b) all team administrators;
(c) the team manager; and
(d) any other relevant stakeholders.
Stage 8 – Change practice

If the clinical audit results demonstrate that your standards are being achieved, then changes in practice may not be necessary, since your current practice appears to be effective. However, in most cases one or more of the standards will not have been met. If standards were not set, you will still probably have revealed certain areas of practice that need addressing. Changes in practice may have already occurred simply as a result of doing the audit. Data-gathering itself can lead to changes in behaviour, as can staff discussions about the topic area and the results of the clinical audit project. However, to ensure that certain improvements are made and maintained, a more overt process is required which involves a number of activities, as shown in Figure 2.4.

The following questions should be addressed in discussions with members of the clinical audit project team, and with other relevant stakeholders. Answers to the questions can then be used to develop an action plan as shown.

What are the problem areas, i.e. what standards are not being met?

What are the potential causes of the problems (e.g. lack of resources, inadequate knowledge/skills, lack of procedures, etc.) and which of these are most likely?

How could these problems be overcome (i.e. ideas for change) and which solutions are most likely to be successful?

Whose support will be needed for change to be implemented?

CLINICAL AUDIT ACTION PLAN

Develop a clinical audit action plan which specifies:

- what needs to change
- how change could be achieved - what actions need to take place
- who needs to take these actions
- when the proposed actions will begin
- how these actions will be monitored and by whom
- how and when to assess whether the actions taken have achieved the desired outcome

RE-AUDIT

Fig. 2.4 Implementing change after audit
**Stage 9 - Set/Review Standards**

As part of the feedback discussions it will be important to consider ‘standards’. At this stage you may be either setting standards for the first time or reviewing the standards already set and used for the clinical audit project.

**Using Clinical Audit Results to Set Standards**

The results of your clinical audit project can be used to set some standards for your particular service. If, for example, you found that letters were being sent to general practitioners after the first assessment appointment for 80% of cases, you may decide to set a target of 90% to work towards. You may also decide to establish a precise time period over which these letters must be sent and clearly specify who should send them. Your standard statement may therefore read as follows:

For 90% of cases a letter will be sent to the GP by the case consultant within one week following the first assessment appointment.

You could then conduct another clinical audit to see whether the standards you have set are being met.

**Reviewing Standards Set**

You may find that certain standards you had set were too high, too low or poorly worded. Discussions with colleagues should be used to modify these standards appropriately.

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**Example: Clinical Audit on Preparing Families for Assessment**

**Stage 9 - Set/Review Standards**

**Standard one (set at Stage 3)**

100% of parents/carers will be sent an information leaflet by the team administrator no later than two weeks before they have their assessment appointment.

It may be found that some families are offered an assessment appointment very soon after the referral is received. These families will have to be sent an information leaflet immediately, which they will consequently receive less than two weeks before their appointment. Standard one may therefore need altering, either by reducing the target (e.g. to 90%) or by specifying non-applicable cases such as those described above.
**Stage 10 - Re-audit**

The final stage in the clinical audit cycle involves deciding when and how to re-audit the topic.

**The Importance of Re-auditing**

It is important to go around the clinical audit cycle for a second time in order to discover whether:
- agreed actions have occurred
- changes have achieved the desired improvements – i.e. closer to set target and, therefore, improvements in service delivery
- standards continue to be met (where no changes were made).

**How to Re-audit**

Re-auditing involves repeating each stage of the clinical audit cycle. However, certain stages will not require any further work, for example another literature search may be unnecessary if a thorough one was conducted for the first clinical audit and the re-audit is performed shortly afterwards. The clinical audit cycle may need to be repeated several times before you are confident that improvements have been made to the quality of the service, and that these improvements are being maintained.

You may decide that it would be more appropriate to conduct more specialised clinical audits as a result of the first clinical audit project, rather than attempting to re-audit the whole topic area at one time. The way in which you decide to approach the re-audit will depend on the findings of your first clinical audit, as shown in Figure 2.5.

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**Figure 2.5 Re-auditing**
EXAMPLE: CLINICAL AUDIT ON PREPARING FAMILIES FOR ASSESSMENT

Implementing change - possible suggestions

The clinical audit project may highlight that the following areas need to be addressed.

(a) The content of the information leaflet needs modifying.
(b) The information leaflet needs to be written in a variety of different languages.
(c) Contacting parents who work proves to be difficult and clinicians find themselves spending a lot of time trying to speak to parents prior to the assessment appointment. One solution could be to send a letter with the information leaflet giving a date and time when parents/carers can ring the clinician to discuss the forthcoming appointment, if they wish.

Action plan for (a) may be as follows.

(a) 15 minutes of next team meeting will be spent discussing how the content of the information leaflet could be improved, using feedback from parents/carers.
(b) Clinician X will take suggestions away and make draft changes to the leaflet, which will be circulated to all team members prior to the next team meeting.
(c) At the next team meeting (one week later), the draft changes will be discussed, modified and agreed.
(d) The modified leaflet will be given to team administrator who will organise for it to be printed.
(e) The leaflets will be sent out to all families coming for first assessment appointment starting the following month.
(f) The clinical audit lead, Clinician Y, will monitor that the above is taking place according to time scale outlined.

Re-audit

Four months after the introduction of the new information leaflet, parental satisfaction with the leaflet will be re-audited.