

## CLINICAL AUDIT – A LITERATURE REVIEW

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### Abstract

Clinical audit is a proven method of quality improvement. It gives staff a systematic way of looking at their practice and making improvements. Auditing can be done right from the record maintaining, diagnosis and treatment and postoperative evaluation and follow-up. Clinical audit may contain many components of clinical research but it is different from that. This paper reviews basis of clinical auditing, its role in dentistry and Indian scenario

*Review (J Int Dent Med Res 2014; 7: (2), pp. 49-55)*

**Keywords:** Clinical auditing, Dentistry, Research.

**Received date:** 22 February 2014

**Accept date:** 03 March 2014

### Background

“Health is a state of complete physical, mental and social well being, and not merely the absence of disease or infirmity” as defined by the World Health Organization.<sup>1</sup>

As oral physicians all of us are concerned about this wellbeing of our patients and strive hard to achieve this state.

Many instances of national publicity and criticism regarding patient care in hospitals were seen commonly. Society has become very vigilant and critical about the standard of patient outcomes.

Clinical audit is a proven method of quality improvement. It gives staff a systematic way of looking at their practice and making improvements. Clinical audit: 2-6

- identifies and promotes good practice and can

lead to improvements in service delivery and outcomes for users

- can provide the information you need to show others that your service is effective (and cost-effective) and thus ensure its development
- provides opportunities for training and education
- helps to ensure better use of resources and, therefore, increased efficiency
- can improve working relationships, communication and liaison between staff, staff and service users, and between agencies.

Historically, audit has been recorded as early as in 1066 in Domesday Book with the development of national statistics of births and deaths.<sup>7</sup> In 1750 BC, King Hammurabi of Babylon penalized clinicians on poor performance in order to ensure adequate patient care.<sup>2,8</sup>

However, Florence Nightingale is considered as the pioneer of clinical audit, as her assessment of the effectiveness of cleanliness and its enforcement resulted in tremendous reduction in mortality rates of hospitalized patients during the Crimean war of 1853-5. Ernest Codman is recognized as being the first true medical auditor for his work in 1912 on monitoring surgical outcomes of his patients.<sup>2,8-10</sup>

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In recent years, the concept saw light when the United Kingdom pioneered the move to integrate clinical audit in professional healthcare with the introduction of the white paper.<sup>2,9</sup> This paper defined medical audit as “the systematic critical analysis of the quality of medical care including the procedures used for diagnosis and treatment, the use of resources and the resulting outcome and quality of life for the patient”<sup>7,9</sup>

The definition from National Institute for Clinical Excellence (NICE) is: A quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit standards and the implementation of change. “Principles for Best Practice in Clinical Audit”, NICE, 2002<sup>2-5</sup>

### Clinical Audit and Research

Clinical audit may contain many components of clinical research. Hence there is a great deal of controversy in delineating the terms audit and clinical research. Research seeks new knowledge whereas Audit seeks to ensure that existing knowledge is being put into practice.

Table 1 shows differences between research and clinical audit. Adapted from Madden (1991) and Firth-Cozens (1993)<sup>3, 5, 6</sup>

RESEARCH	CLINICAL AUDIT
Research uses experimental methods such as randomised control trials	Audit uses a comparison of current practice with best practice
Research uses a range of statistics to make inferences	Audit uses simple descriptive statistics to describe current practice
Research can be generalised to other populations	Audit relates only to the area where it is carried out
Research provides evidence for clinical policies and guidelines	Audit measures how well current care conforms to clinical policies and guidelines
Is theory driven	practice-based
often a one-off study	an ongoing process
May involve allocating service users randomly	Never involves allocating patients randomly to different treatment groups different treatment groups
May involve administration of a placebo	Never involves a placebo treatment
May involve a completely new treatment	Never involves a completely new treatment

**Table 1.** Table shows differences between research and clinical audit.

### Types of clinical audit

#### According to Sandhya K Lokuarachchi<sup>2</sup>

**1. Standard based audits:** A cycle involving defining standards, collecting data to measure current practice against these standards and implementing necessary changes.

**2. Adverse occurrence screening and critical incident monitoring:** Often used to review cases with special concern or unexpected outcomes. This reflects the way the team has functioned and helps to learn for future.

**3. Peer-review:** Individual cases are discussed by peers to determine whether best care was given. Somewhat similar to type 2 above, but might include interesting or unusual cases rather than critical incidents. Recommendations are very often not followed as there is no systematic method to follow.

**4. Patient surveys and focus groups:** Carried out by obtaining views of patients, regarding the care received.

European Society of Radiology subcommittee on audit and standards audit states two kinds of audits.<sup>4</sup>

**Internal audit:** which is more commonly carried out, refers to audit carried out within a department or institution

**External audit:** audit performed by professionals from outside the department or institution. Whether internal or external, audit should not be carried out without the knowledge of those involved in the delivery of the service and should be a planned, scheduled process.

**Frostick SP, Radford PJ, Wallace WA and ESR also consider<sup>4,7</sup>**

#### Structure audit

Which denotes resources found within the operatory and hospital and also management of structure and equipment, technology, staff, training, investigations and administration of these resources.

### Process audit

Which incorporates the efficient functioning of the staff and involves in-toto evaluation of all the processes involved in the delivery of care from the time of referral through diagnosis to treatment and handing over of a report and the employment of capacities towards this. Thus it is a quality management of the processes, justifying waiting times and examination practices and protocols.

### Outcome audit

Which concerns the patient. It involves the patient's perspectives, the doctor's as well as the patient's expectation and the community's expectation through community health councils and legal channels. However, outcome does crucially involve the patient's inclination, psyche, determination, education and beliefs; how they can articulate the outcome and how they perceive it.

According to Copeland G it can be divided into:<sup>2</sup>

#### Prospective clinical audit

This permits accurate real-time buildup of data which mirrors current and prevalent practice rather than the historical ones.

#### Retrospective clinical audit

Serves as a historical yardstick but is of crucial use if a complaint, litigation or serious adverse outcome arises and a review of practice is required urgently.

Academy of Royal Colleges categorizes audit into ;<sup>11</sup>

#### Local clinical audit

Focuses on aspects of care that have been prioritized by the individual clinician, clinical team or service provider

#### Non-local clinical audit

Focuses on those aspects of care that have been prioritized at a regional, national or

specialty level and encompasses clinicians and clinical teams from multiple service providers.

### Who Should Be Involved In The Clinical Audit:<sup>3</sup>

A clinical audit project is more likely to be successful and beneficial to service users if all of the key stakeholders are involved from the outset. These may include:

- clinical and non-clinical staff providing the service
- service users
- people whose support may be required to implement resulting changes in practice (e.g.managers, referrers, trust board members).

If individuals are unable to attend team meetings, then they will need to be consulted and kept informed about the clinical audit project throughout the process.

A 'clinical audit project team' works together from the early stages when decisions are being made about what to audit and how to design the audit. Roles and responsibilities within the team will need to be identified, for example audit project lead, data collector.

### The stages in clinical auditing:<sup>2-6</sup>

#### Stage 1 – Identify topic / problem to be audited

Topic chosen should be of obvious importance to the team, department and patients. When you are thinking about topics for audit, consider areas where there is:

- Local concern
- Patients' concerns
- Risk issues
- Trust priorities
- Wide variance

#### Finding your evidence

Evidence can come from a range of areas. This list gives a good hierarchy for looking for evidence:

- National guidelines (NICE, NSFs, Royal Colleges)
- Research findings, particularly systematic reviews
- Local policies, protocols and procedures
- Local consensus

• **But not because we've always done it**

Be careful about using local consensus. It's not proven best practice – but sometimes it's all you've got.

**Primary sources of information include:**

- Books
- Journal articles, reviews, letters, comments and editorials
- Reports from DoH, Royal Colleges
- National guidelines, NSFs
- Local care plans, protocols, guidelines etc
- Patient information leaflets (NHS, charities and self help groups)

**Databases that guide you to evidence include:**

- The Cochrane Library of Systematic Reviews
- MEDLINE – Index Medicus
- EMBASE – European, excellent for drugs and pharmacology
- HMIC – Health Management Information Consortium
- CINAHL – Cumulative Index to Nursing and Allied Health Literature
- CANCERLIT and other specialist databases

**Stage 2 – Define criteria and standards**

Criteria are explicit statements that define what is being measured. It is a measurable outcome of care. Standard is the threshold of the expected compliance for each criterion.

**Standards:** Standards specify what should be provided and how. They should be developed from the evidence of best practice by looking at specific areas of care. Audit standards must be SMART.

**Specific** covers one topic only

**Measurable** can be measured in a practical way

**Achievable** is something that is reasonable for staff to achieve

**Relevant** is an issue that is important to patients and staff

**Timescale** can be measured within a reasonable period of time

You need to be realistic in what you audit. You start with a broad audit **topic**, decide what is most important within this to give you objective(s) and then set specific standards from these objectives.

**Sources of standards:** Standards against which local performance can be measured can be found from a variety of sources

1. Local, European or international legislation. Compliance with these standards is compulsory.<sup>12</sup>

2. Peer-reviewed research. These will provide benchmark standards but may have to be interpreted in the light of local facilities and expertise.

3. Recommendations or consensus statements from learned or national societies and organisations. These will usually have been developed to be applicable in routine practice<sup>13, 14</sup>

4. Where no published or recommended standards are available, these may have to be established by local agreement or consensus before the relevant audit is undertaken. Under these circumstances, locally sourced data from comparative investigations, pathology, surgical findings, peer group review or clinical follow-up may allow the setting of local standards for outcome audits.

**High or low standards?:** Standards, other than those governed by legislation, are not necessarily pass or fail. A very high or aspirational standard may only be achieved by the very few but could serve to encourage maximum improvement. If the selected target standard is based on the average expected performance, then initially, 50% will be expected to fall below it. A low or minimum target standard may be regarded as the minimum acceptable level of performance. The level of the standard selected should be taken into account in interpretation of results.

**Stage 3 – Method and data collection**

Method or type of audit process is chosen depending on audit objectives. Data collection should be precise and only the essential data should be collected. Data collection may be retrospective, concurrent or prospective.<sup>9, 15, 16</sup>

Data may be collected using computerized information or done manually. Consideration should be given to what data will be collected, where data will be available and who will collect the data. Your standards will help you decide what and how to collect the data. Consider

- What data do you need to collect?
- Where is the data?
- Who will collect it?

- How will it be collected?
- How much should you collect?
- How long will it take?
- What resources do you need? (time, people, support)

**Always do a pilot** – look at 2 or 3 patients / cases / records

- Check whether your audit design works by testing it on a few cases.
- If it doesn't, re-design and pilot again.

The data should enable you to measure practice against the standards.

#### Ways of collecting data

Data can often be collected from patient's notes, or by interviewing patients or staff, or by using questionnaires.

#### Sample Size

You don't need a big, or statistically significant, sample for an audit, but you do need a fair sample that represents all the patients / cases / records. For example, if you choose the notes that are most easily to hand, you may miss the more complex cases.

Ethical issues should be given due consideration. Data collected must relate only to the objectives.

Patient and staff confidentiality need to be respected.

### Stage 4 – Comparison of performance with criteria and standards

Data collected are analysed. Results are compared with criteria and standards. How well the standards were met is concluded. Reasons for any deviation from standards and areas with potential for improvement should be recognized.<sup>9, 15, 17</sup>

#### Analysis of data:

Use a tool to analyse the data. This may be pencil and paper and a calculator or a simple spreadsheet. You only need simple descriptive statistics – averages and ranges, not complicated statistical tests. Consider:

- Were the standards met?
- If not, why not?
- Does the data point to ways of improving care?
- What do the results tell you?

### Stage 5 – Implementing change

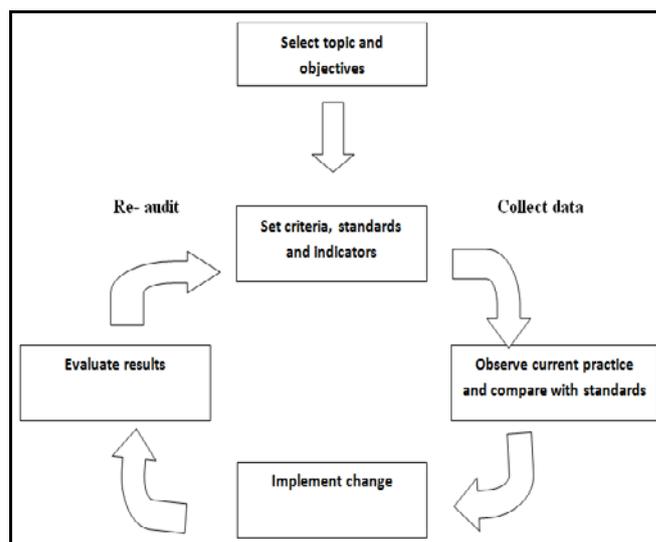
Once the results of audit are analysed

and discussed and areas for potential improvement are identified, recommendations for improvement are formulated.<sup>9, 15</sup> Action plan should be made for implementing changes. Persons responsible and time frame and the action to be taken should be clearly defined.

At this stage a report should be sent to the clinical audit department where there are well organized clinical audit departments.<sup>9, 15</sup> In the absence of a well organized system report should be forwarded to administrators who are responsible for overall patient care at local or national level. Make an action plan with recommendations, actions, responsibilities and timescale for implementation. Identify who will review how the action plan is going.

### Re-audit and sustaining improvement

After an agreed period of implementing changes the audit should be repeated.<sup>8, 9, 15</sup> Same strategies used for the original audit should be used to ensure comparability. The re-audit should reveal that the changes have been implemented and improvement has been made. Depending on achievements further re-audits may be planned. If acceptable quality of care is sustained re-auditing can be replaced by some form of monitoring and audit processes reintroduced when indicated. Results of good clinical audits should be disseminated locally, nationally and internationally when relevant.<sup>8, 9, 15</sup>



### Clinical audit in dentistry

The scope for clinical audit in the vast and

burgeoning field of dentistry is endless. Distinct to other areas of healthcare, dentists generally get to examine ambulant and asymptomatic patients at varying intervals, who just consult for a periodic review of their oral health. Thus, dentists are blessed with an exclusive opportunity to assess and record the normal and establish the baseline measurements and document the location and profile of lesions by means of diagrams or photography.

It must be recognized that in a dental setup, care of the patient is not restricted just to the oral problem but also includes assisting and empowering the patients in their healthcare by instituting a regimen that is best provided by a multidisciplinary team including the oral healthcare provider.

Variability in patient care is confounding and varies dramatically with doctors, specialties and geographic region. This has been observed even within the same institution where identical problems may have been addressed with different therapeutics.<sup>18</sup>

Auditing is being carried out on a small scale in various facets of dentistry. Auditing can be done right from the area of record maintenance through the diagnosis and treatment and till the postoperative evaluation and follow-up. An audit to assess the standard of clinical record-keeping by undergraduate dental students reported that constructive changes can be achieved by creating an understanding amongst them on the importance of keeping records.<sup>19</sup> Audits involving the general dental practitioners' experiences and practices of antibiotic prescription highlighted the need for clinical audit, in conjunction with continuing education in the prescribing of antibiotics.<sup>20, 21</sup>

A prospective oral mucositis audit assessed the various facets of severe oral mucositis in patients receiving high-dose conditioning chemotherapy and concluded that severe mucositis is a more common problem than previously reported, thus justifying effective preventative and therapeutic measures.<sup>22</sup>

A study conducted to audit and monitor the uptake of national mouth care guidelines for children and young people undergoing treatment for cancer stressed upon ensuring effectual use of oral assessment scales and aids for them to receive suitable dental care throughout and after their treatment.<sup>23</sup> The value of patient feedback in the audit of temporo-mandibular Joint (TMJ)

arthroscopy was assessed and a disparity between the clinical evaluation and the patients' perception of effectiveness was noticed thus emphasizing the importance of patient feedback.<sup>24</sup>

Another auditing recommended arthrocentesis as an effective, minimally invasive alternative technique for TMJ pain not responding to conservative management.<sup>25</sup> An audit of the time of initial treatment in avulsion injuries opined that improving public knowledge about tooth storage in avulsion injuries is critical to long-term prognosis of the teeth.<sup>26</sup>

A multi-centre audit conducted to assess the best method for achieving a functional and aesthetically acceptable appearance after unilateral cleft lip repairs suggested the need for an internationally agreed objective method of assessment for this facial deformity.<sup>27</sup>

### **Clinical audit for dentistry in India:**

Many questions have to be answered its feasibility in India like;

- Do we have adequate resources to implement audit system?
- Who will comprise the audit team?
- Who will be the central authority for conducting dental audit ?
- Will the dental practitioners and concerned authorities of dental institutions extend their cooperation to carry out a systematic audit?
- What should be the time interval required for conducting audit and how long should the process continue?
- What is the acceptable standard or benchmark level of dental care?

### **Conclusion:**

- Clinical audit, the cornerstone of clinical governance, ensures that the strategy is executed as planned, and in the process provides a framework to highlight and enable changes to be incorporated ensuring improved patient care. It must be reiterated that research needs the word 'investigate' and audit needs the word 'improve'.
- The immense potential of clinical audit can be utilized only when open-mindedness and innovativeness are encouraged and evidence-based work culture is cultivated.

- An inquisitive and informed mind; rigorous, vigilant and thoughtful planning; investigation and documentation; positive and resourceful organization are the lifeline of a clinical audit.
- Lobbying of policy-makers should be done to implement mandatory dental auditing system for all the dental practitioners and dental institutions.
- Governmental and/or non-governmental organization(s) and/or professional bodies should recruit an auditing team to serve as the third eye of dental care.

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