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Clinical Audit – Process and Outcome for Improved Clinical Practice

Abstract: Audit is a key aspect of everyday clinical care and essential for the safe as well as efficient functioning of any clinical environment. This applies to clinical care both within primary practice and secondary care within a hospital environment. The undertaking of an audit allows the clinician to analyse his or her own clinical practice in relation to current guidance or 'gold standard' parameters to enable best practice within all aspects of patient care to be implemented. This paper aims to explore the origins and importance of clinical audit as well as the various processes involved in undertaking it successfully.

Clinical Relevance: This article will enable clinicians to understand the importance of audit and how to incorporate it into their everyday practice.

Dent Update 2012; 39: 710–714

Clinical audit as a construct is embedded in the healthcare provision within the United Kingdom but has its origins in the Crimean War from 1853–1855. Florence Nightingale, an unknown British nurse at the time, noted the 'unsanitary conditions' and 'high mortality rates'¹ amongst injured soldiers at the medical barracks hospital in Scutari 1853. In response to these observations, she recruited a team of nurses to introduce strict cross-infection control measures within the hospital, as well as keeping records of relative mortality rates amongst the soldiers. This change of hygiene and sanitary procedures within the hospital led to a decline in mortality rates from 40% to 2%¹ and was instrumental in helping improve the quality of care within the hospital environment. This is

one of the earliest examples of 'outcomes management'.¹

Another advocate of improving the quality of patient care utilizing an 'end results outcome'² approach was Ernest Codman, a pioneering and dedicated surgeon in Massachusetts in the 1890s. He was a firm believer in analysing clinical 'misadventures'² and studying hospital outcomes, as well as how they could be improved. He developed his own hospital in the early 1900s, where he followed the progress of a large number of his patients through their recoveries 'within a systematic manner'² via a series of 'end result cards'.² This led him to establish an 'end results system'² which led to an improvement in patient care.

In 1989, the 'White Paper – Working for Patients'³ crystallized an initial move towards standardizing clinical audit as part of general 'professional healthcare'² within the United Kingdom.

Following the piloting of a voluntary programme, a funded clinical audit scheme was introduced in NHS general dental services in 1995. This was formalized into a contractual requirement to do 15 hours of clinical audit or peer review every 3 years from 2001.⁴ The

requirement to do clinical audit is not specific in the new NHS contract that commenced in 2006, only that there should be a practice-based quality assurance system.⁵

The National Institute of Clinical Excellence (NICE) has also published guidance on the 'Principles for Best Practice in Clinical Audit'.⁶ This guidance states that:

*'Clinical audit is at the heart of clinical governance' and 'It provides the mechanisms for reviewing the quality of everyday care provided to patients'. In addition, 'It addresses quality issues systematically and explicitly, providing reliable information and it can confirm the quality of clinical services and highlight the need for improvement.'*⁶

This statement clearly demonstrates the need for all clinicians to take responsibility for reviewing their clinical practice in the form of an audit on a regular basis in order to maintain a high standard of patient care.

The importance of clinical audit is well recognized by clinicians within the NHS as it forms a key pillar of clinical governance. A study undertaken

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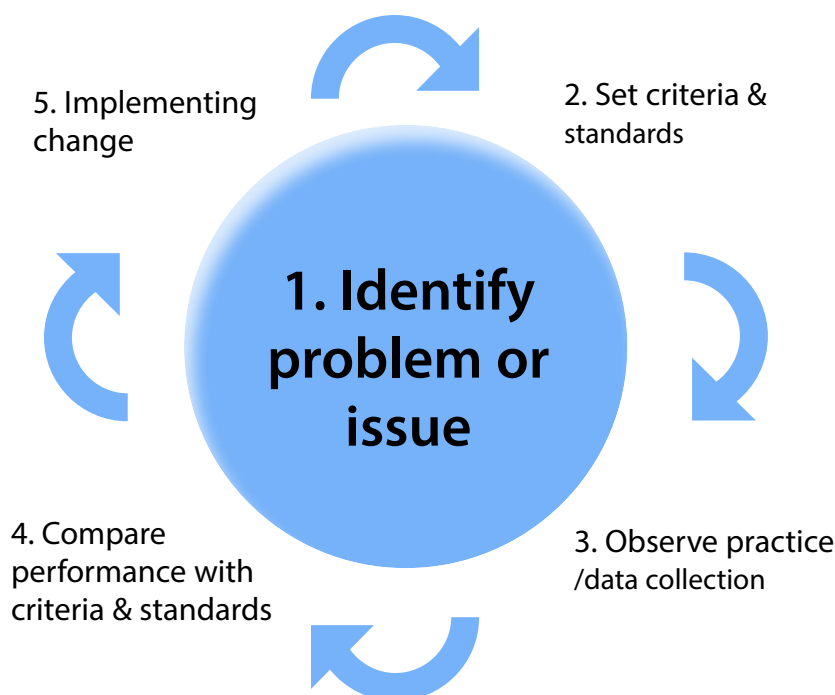


Figure 1. The Audit Cycle <http://www.rpd-research.org.uk/about.html>¹⁰

by Dinakara Babu *et al*⁷ demonstrated that 73% of medical trainees had undertaken an audit previously, yet only 44% had been trained to undertake an audit and only 22% of those questioned had undertaken an audit out of their own interest. This is rather concerning as an interest in improving one's own clinical practice and striving to provide a high quality of patient care is the bedrock of professional self development. Yet so many of us feel that we either simply cannot be 'bothered', do not have the time, or are unsure of how to go about undertaking an audit of our own clinical practice.

CQC and clinical audit

The Care Quality Commission was established on the 1st April 2009 as an independent regulatory board which regulates health and adult social care services within England. Its function is to ensure that service provision against specific outcomes are being met across healthcare within England, including dental practices. These outcomes include:⁸

- Respecting and involving people who use services;
- Records;

- Consent to care and treatment;
- Safety and suitability of premises;
- Cleanliness and infection control.

With regards to audit, one of the 28 outcomes of the CQC's 'Essential Standards of Quality and Safety'⁸ is: '*Assessing and monitoring the quality of service provision*'. This includes undertaking clinical audits as part of monitoring the quality of services provided to patients. This can include the results from audits undertaken within the practice, such as the quality of dental radiographs taken, medical record-keeping, decontamination and disinfection, etc. The CQC guidance clearly states that 'Findings from clinical and other audits indicate where action is needed to protect patients from identified risks'⁸ and thus forms a key aspect of demonstrating compliance to government set standards for healthcare provision.

So what is a clinical audit?

The definition of a clinical audit is 'a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation

of change'.⁶ Avedis Donabedian⁹ saw it in terms of structure, process and outcome, as discussed in detail later, but the key element of a clinical audit is to repeat the audit cycle and assess if any changes implemented as a result of the initial audit have directly led to an improvement of care within clinical practice.

Types of audits

There are various types of clinical audits such as:

■ **Standards-based audit** – This is the most common type of audit where standards are defined, data is collected and compared against these set standards and changes are implemented with a repeat of the audit cycle.

■ **Adverse occurrence screening and critical incident monitoring** – This type of audit seeks to 'peer review' cases or incidents which have led to an adverse outcome and allows a reflection of the incident as well as ways in which this situation could be avoided in future. Also known as a 'significant event audit'.

■ **Peer Review** – An 'assessment of the quality of care provided by a clinical team with a view to improving clinical care'. This involves a discussion of individual cases by peers in order to determine if the best quality of care has been provided within the given situation.

■ **Patient Surveys and Focus Groups** – These surveys provide a means to find out how service users feel about the quality of care that they have received, as well as feedback on how they feel as to how services could be improved.

There are six main steps or processes in undertaking a clinical audit (Figure 1):

1. Identify a problem;
2. Define standards;
3. Collect data;
4. Compare current clinical practice with set standards;
5. Implementation of change;
6. Repeat the audit cycle.

We will examine each of these steps in turn and assess how they can be implemented successfully with an example.

Step 1: Identify a problem

This step involves the selection

of a topic or an aspect of clinical practice which is of concern, eg an audit to assess the quality of referral letters by general practitioners within primary care. The key to this is to select a topic for which guidance can be sought, ie published parameters or standards and for which realistic standards can be achieved. The problems have to be relevant to the setting and important enough to patient care so that changes will have an impact.

Step 2: Define standards

Once a topic subject has been selected, guidance needs to be sought in relation to the topic and a set of ideal, yet realistic, standards must be set with regards to the published guidance. The guidance could be set standards such as NICE guidance or the DOH published guidance, or it could be related to published papers within the relevant topic. Sometimes there are no standards available and the clinicians will need to develop their own, based on what is practical, realistic and appropriate.

If we relate this to our example of the quality of referral letters by general dental practitioners within practice, this would involve setting a standard such as: more than 70% of referral letters written by dentists within the practice should contain key information such as the patient's name, date of birth, reason for referral, inclusion of radiographs where relevant, an attempt at provisional diagnosis of the problem, etc.

Step 3: Collect data

This stage should involve a clear protocol of the user group within the audit, the group of healthcare professionals involved within the users' care and the period over which the data is being collected. It is imperative that an adequate sample size is chosen which is both representative of the users within the group, but also realistic in the chosen time period that the audit is being undertaken over.

Again, with reference to the earlier example, the sample size would be related to the number of clinicians within the practice and choosing a sample size of patients per clinician which could provide

sufficient data for a reliable conclusion, ie five patients per clinician within a practice of eight dentists.

The important difference between research data and audit data is that statistical analysis is not intended to be applied to audit data. It is the trends revealed rather than statistically significant conclusions that we are examining. Audit can be a collaborative process that engages as many of the team as possible, both in the collection of the data, analysis of the results and implementation of change. Audit data can be collected by all members of the team as long as the data capture sheets are clear and objective.

Step 4: Compare current clinical practice with set standards

Once all relevant data has been collected, an analysis needs to be made of the results found in relation to the standards set at the beginning of the audit, as based upon relevant guidelines. An assessment should be made as to what degree current standards within the clinician's clinical practice are meeting set guidelines, eg do more than 70% of referral letters written by dentists within the practice contain key patient information?

Step 5: Implementation of change

Based upon the results of the data collected, a protocol for implementing changes into current clinical practice needs to be produced to ensure that all required standards are being met. For example, if it is found that only 60% of assessed referral letters written by general dental practitioners contain key patient information, including attached radiographs or clinical photographs where relevant to the case, a practice meeting can be held where the findings of the audit are discussed and all proposed changes introduced. This ensures that all clinicians involved are made aware of how their current clinical practice needs to change to meet the proposed guidance, but also, more importantly, to improve the quality of

patient care.

The management of change following audit can be problematic since it can require changes in systems, protocols and personal behaviour and may involve many different members of the team in order to secure lasting change. How that change is managed and who does it is equally as important as what needs to be changed and ensuring that senior clinicians and stakeholders, such as practice owners in general practice settings, are involved, take ownership and are supportive of the process, is vital.

Step 6: Repeat the audit cycle

This is a fundamental step within the audit process in order to ensure that all changes implemented have led to an improvement within the quality of patient care. If the standards that have been set are meaningful and achievable and they are met on re-audit, it is important to ensure that changes are monitored subsequently from time to time, particularly where patient safety is concerned.

Examples of topics to audit

There are many areas in which a clinical audit can be undertaken within practice, including:

- The quality of dental radiographs within general practice against NRPB guidelines;
- Patterns of antimicrobial prescribing;
- Patient satisfaction with treatment;
- Patterns of emergency dental attendances in practice;
- Average success rates of a clinician's root canal treatments over a set period of time;
- The quality and comprehensiveness of record-keeping;
- Patient understanding of oral health advice provided;
- Staff knowledge – managing medical emergencies/infection control protocols.

These are just some examples of common topics on which to undertake a clinical audit within primary care, however, it is important to note that any topic which is chosen should involve realistic aims and set standards

which are achievable within the time period chosen.

Criteria for audit

Published literature by the Government and Department of Health within recent years have highlighted the need for all dental professionals to set criteria and standards within healthcare that allow a measurement of a wide range of features with regards to the quality of services provided. These include improving patient access to healthcare as well as ensuring patient satisfaction with all care received.

The National Institute of Clinical Excellence (NICE) has discussed a set of 'criteria' within its published guidance in order to 'assess the quality of care provided by an individual, a team or an organization'.⁶ These criteria can either be statements in order to define what is being measured or a representation of aspects of care that allow an objective measurement of quality.

The criteria can essentially be classified into:⁶

- Structure (What is required);
- Process (What you do);
- Outcome of care (What you expect).

This classification allows easy identification of the source of an outcome failure provided that the structure and procedural elements have been met.

Structure criteria

These criteria essentially encompass the resources that will be required in order to undertake the audit, ie organizational resources, staff members, equipment provision, skills mix, etc. Ellison undertook an audit to assess the efficacy of three-day antimicrobial prescribing following incision and drainage of acute dento-alveolar abscesses in patients with systemic signs or symptoms.¹¹ The structural criteria included a set of departmental guidelines created within the Primary Care Department at the University of Bristol Dental Hospital on the usage of antibiotics within a primary care setting. These guidelines were agreed upon by staff within the department based upon 'best practice' and 'current guidance'.¹¹

Process criteria

These criteria refer to the actions and decisions made by healthcare professionals as well as users of the service, ie communication, investigations, assessment, prescribing, documentation, etc. Palmer *et al* assessed therapeutic antibiotic prescribing patterns by NHS general dental practitioners in England.¹² The process criteria included the usage of a questionnaire to examine GDP prescribing patterns and which 'clinical signs the practitioner would use to prescribe antibiotics for patients presenting with a dental infection'.¹² The chosen clinical systemic signs or symptoms within the study included an 'elevated temperature, evidence of systemic spread, localized fluctuant swelling, gross diffuse swelling, restricted mouth opening, difficulty in swallowing and closure of the eye because of swelling'.¹² In addition, ten health authorities were chosen for sampling within the study.

Outcome criteria

This refers to the 'physical or behavioural response to an intervention, reported health status and the level of knowledge and satisfaction'.⁶ These are criteria that directly relate to the outcome of an intervention, however, an audit should not be based solely on outcome criteria owing to the risk of insufficient data being available in order to implement changes for an improvement in clinical practice. LM Brocklebank assessed the quality of dental panoramic radiographs within a 'sample of general dental practices'.¹³ The outcome criteria within this audit were that: 0.8% of panoramic radiographs were of an 'excellent' standard and 66.2% were 'diagnostically acceptable'; 33% of radiographs were of an 'unacceptable' standard.¹³

Validity of criteria

Once an audit topic has been selected, a set of valid criteria must be developed. In order for the criteria to be valid, the following conditions should be met:⁶

- The criteria must be based upon sound clinical evidence;
- The criteria must be 'important aspects of care';⁶
- The criteria must be measurable.

Clinical guidelines and previous literature on the topic of audit can be used to develop valid criteria. A prime example of this are the guidelines published by the National Institute of Clinical Excellence (NICE) on the extraction of third molars and smoking cessation. The literature must be carefully reviewed and analysed for validity of the studies, as well as an assessment of the accuracy of results to match the aim of the study.

Teamwork and maintenance of standards

In order for an audit to be successful, it is imperative that any changes implemented as a result of the initial audit cycle should be adhered to by all members of the dental team. This not only ensures a high standard within the quality of care provided by the individual clinician, but also across the entire practice in an aim to ensure a continuity of care. This can also improve the patient perception of the practice and maintain an ever evolving relationship of trust, as well as ensuring a long-term maintenance of ideal 'gold' standards.

It is also important to involve all members of the dental team, where the audit allows, when undertaking a clinical audit. This allows a thorough assessment of the quality of care provided by all healthcare workers, thus portraying a true assessment of current clinical standards against best practice, rather than individual standards. An example would be an audit to assess the quality of dental radiographs taken by all clinicians within the practice and an involvement of dental nurses within the practice within the collection of data. Regular practice meetings with all members of the team can be held in order to discuss progress of the audit findings, as well as a discussion of any changes to be implemented within clinical care.

Another way to ensure maintenance of standards would involve re-auditing at regular intervals to ensure

that set standards are being met and an analysis of processes where there is a failure in outcome and subsequent maintenance of standards.

Conclusion

Audit is an ever important aspect of everyday clinical care and there is a responsibility on every clinician to maintain high standards of patient care. It is a process with several stages and must be undertaken within a systematic, yet realistic, manner in order to ascertain valid outcome criteria and to implement changes within a clinical environment successfully. The entire dental team must be involved in auditing for the implemented changes to work and to achieve a long-term maintenance of high standards.

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