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© Clinical Audit Handbook

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## FOREWORD

Safety is an important attribute of health care systems that minimizes the incidents and impact of adverse events and maximizes recovery from such events. Ministry of Health, Malaysia (MoH) has become a strong supporter of patient safety and makes it a core element of its many quality improvement activities. National Quality Assurance Program (QAP) was launched in 1985 and utilizes various relevant approaches which include the clinical audit. In the earlier years, clinical audit activity includes peri-operative mortality review (POMR), adult intensive care audit and maternal mortality review. In 2009, the clinical audit was made as one of the six core processes and programs in the MoH's Clinical Governance Framework. Clinical governance is a system through which health care organizations are accountable for continually improving the quality of their health services and safeguarding high standards of care by creating an environment that supports excellence in clinical care.

Clinical audit is a systematic review and evaluation of current practice against explicit criteria, followed by implementation of change with the aim to improve patient care. It can confirm the quality of clinical services and highlight the need for improvement.

Kedah State Health Department has held workshops and competitions for clinical audit since 2007. The numbers of participants and involvement of clinicians had grown over the years which reflected their enthusiasm and commitment. Nevertheless, there are several areas in the conduct of the clinical audit that needed to be improved. One of the reasons for these shortfalls is the unavailability of a national guidebook on clinical audit. Participants needed to do their literature search and trainers for the workshops were using various references such as from the National Institute for Clinical Excellence (NICE) and New Zealand's Towards Clinical Excellence. Thus, Clinical Audit Handbook is produced as a guide which will be the first of its kind in MoH.

The handbook provides a framework for the conduct of a clinical audit. The authors have reviewed the literature concerned and have first-hand experiences in conducting clinical audits as well as training participants. The handbook has been reviewed by two expert external reviewers. I hope that this handbook will provide a useful guide that helps nurture and sustain clinical audit program.

A handwritten signature in black ink, appearing to read 'Norhizan', written over a light blue circular stamp.

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## **LEARNING OBJECTIVES**

At the end of this handbook, readers will be able to:

- 1) Understand the process of carrying out a clinical audit
- 2) Identify opportunities for improvement
- 3) Identify key measures for improvement
- 4) Identify process of gathering information
- 5) Analyze and interpret findings
- 6) Formulate appropriate strategies for change

## **EXPECTED OUTCOME**

A proposal to conduct a clinical audit



# CHAPTER 1

## INTRODUCTION TO CLINICAL AUDIT

### 1.1 Why clinical audit

It is crucial for health care providers to provide and deliver care in safe, effective, efficient and timely manner. If all health care providers practice these, thus no matter where the patients are cared for (and they may be our beloved ones) they will be in safe & competent hands. How do we go about this? There are various ways to ensure safe, effective, efficient and timely care and these include clinical audit tool.

Clinical audit is a tool which can be used to find out if we are providing care according to agreed evidence based practices and clinical practice guidelines. Clinical audit is one of the core processes and programs in clinical governance <sup>1,2</sup>. It is also an essential requirement in the Hospital Accreditation Program.

### 1.2 Definition of clinical audit

National Health Service (NHS), United Kingdom has come up with a universally accepted definition of clinical audit <sup>3</sup>.

*“Clinical audit is a quality improvement process that seeks to improve patient care and outcome through systematic review of care against explicit criteria and the implementation of change. Aspects of structures, processes and outcomes of care are selected and systematically evaluated against explicit criteria. Where indicated changes are implemented at an individual, team, or service level and further monitoring is used to confirm improvement in healthcare delivery.”*

## 1.3 Objectives of clinical audit

The objectives of clinical audit are as follows:

- 1) To determine whether we are doing what we should be doing such as according to Clinical Practice Guideline, policies and procedures.
- 2) To determine whether standards are being met and if standards are not met, identify contributing factors, problems and solutions.
- 3) To highlight problems and help with solutions.
- 4) To identify and promote good practice which leads to improvement in patient care.

## 1.4 Clinical audit versus research

Clinical audit seeks to ensure that existing knowledge is being put into practice (i.e. 'Are we doing what we should be doing?'). On the other hand, research seeks new knowledge (i.e. "What is the best practice"). *Smith* stated that research is concerned with discovering the right thing to do whereas audit is ensuring it is done <sup>4</sup>.

**Table 1:** Clinical Audit versus Research: Ask yourself the following questions

No.	Questions	Yes	No
1	Is the aim of your project to improve the quality of patient care in your local setting?		
2	Will the project involve comparisons of practice against standard?		
3	When carrying out your project, does it involve changes to treatment or services?		

(Adapted from The Simple Guide to Clinical Audit, NHSBT <sup>5</sup>)

If you answered YES to Q1 and Q2 and NO to Q3, then your project is a clinical audit.

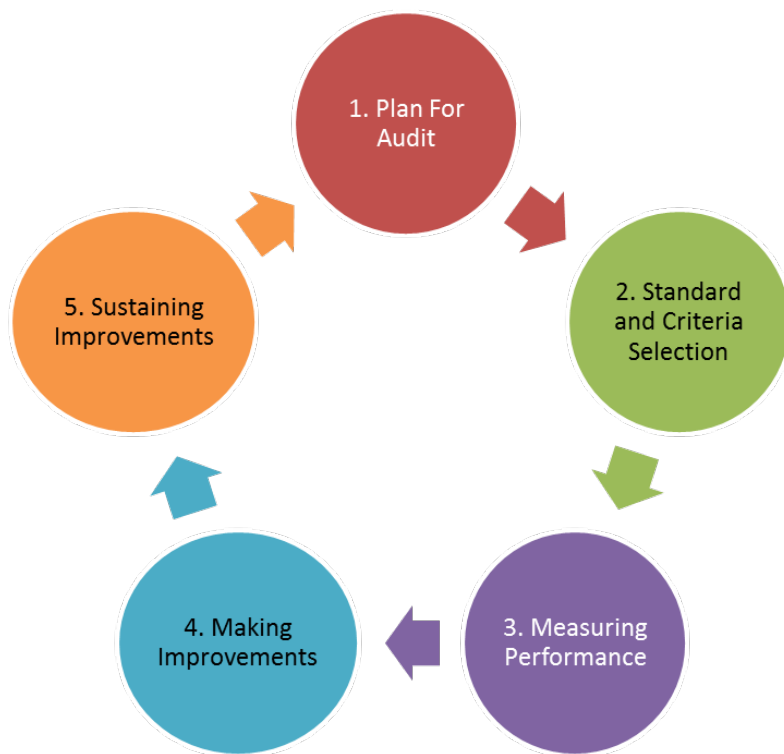
If you answer otherwise, then most likely your project is a research

**Table 2:** Differences between clinical audit and research

Clinical Audit	Research
Creates knowledge of current clinical practice and need for improvement	Try to create new knowledge about best practice
Measures current practice against explicit standard	Tests hypotheses that evaluate or compare interventions
Does not affect the normal treatment of patients	May involve patients being given different treatments
Results are usually only relevant to the area evaluated	Results need to be generalizable to a wider population
Clear responsibility to act on findings	No mechanism to act on findings
Findings usually only influence practice within the area evaluated	Findings can have a wide influence on practice

(Adapted from The Simple Guide to Clinical Audit, NHSBT <sup>5</sup>)

To ensure that the audit is complete and effective, you must observe and follow the Clinical Audit Cycle.



**Figure 1: Clinical audit cycle**  
(Source: A practical guide to clinical audit by HSE <sup>6</sup>)

**Table 3:** Examples of clinical practices that show the difference between clinical audit and research.

Clinical audit	Research
What is our practice on judicious use of antibiotics in treating pharyngitis?  (Are we doing what we should be doing according to Clinical Practice Guideline?)	What are the appropriate symptomatic relief for pharyngitis? This may include hydration, lozenges, honey lemon drink, NSAIDs and gargle (i.e. discovering the right thing to do)
How are we treating pressure sore? Do we follow evidence based practice?	What is the most effective way of treating pressure sore?

**Table 4:** Examples below are not clinical audit

1. Patient satisfaction survey	This could be used as a tool in clinical audit to gather information about the degree to which care was delivered against standards.
2. Performance indicator monitoring	This could be a source for clinical audit topic. Outcome monitoring helps define standards for future clinical audits.
3. Morbidity review or mortality review	This could be a source for clinical audit topic. This often concerns with accountability as well as learning points.
4. Data collection such as number of operation done (such as departmental statistic)	Not a clinical audit. It is merely data collection (one of the many steps in clinical audit)

(Adapted from Clinical audit: A guide for NHS boards and partners, HQIP <sup>1</sup>)

## 1.5 Scope of this handbook

Aims of this handbook are:

- 1) To support healthcare providers in understanding the concept and processes of clinical audit
- 2) To support best practices in clinical audit
- 3) To improve awareness of clinical audit as an essential and integral part of clinical practice
- 4) To provide practical guide to the methodology of clinical audit

This handbook contains:

- 1) Description of the five stages approach to clinical audit
- 2) Real examples of clinical audit which have been done previously to further explain the methodology
- 3) Samples of clinical audit tools that could be used to conduct clinical audit so that user need not reinvent such tools.
- 4) A template for clinical audit proposal

## 1.6 5 Stage approach to clinical audit

- |          |                            |
|----------|----------------------------|
| Stage 1: | Planning for audit         |
| Stage 2: | Select criteria & standard |
| Stage 3: | Measure performance        |
| Stage 4: | Making improvements        |
| Stage 5: | Sustain improvements       |

## CHAPTER 2

### 5 STAGE APPROACH TO CLINICAL AUDIT

#### 2.1 Stage 1: Planning for clinical audit

##### 2.1.1 Step 1: Gather the team & leadership

Requirement of the team:

- Identifying the skills and people needed to carry out the audit, and training of staff and encouraging them to participate.
- Involve the right people with the right skill from the start.
- Certain skills are needed, which include:
  - ✓ Project leadership, project management, project organization
  - ✓ Clinical, managerial, and other service input and output
  - ✓ Audit method expertise
  - ✓ Change management skills
  - ✓ Data management: data collection, data entry, data analysis, & data presentation
  - ✓ Facilitation skills.



Audit team comprises staff from all relevant groups involved in the care delivery, audit staff.

All of audit team members:

- ✓ Must understand the processes of clinical care concerned
- ✓ Must have a basic understanding of clinical audit
- ✓ Understand the purpose of the audit
- ✓ Committed to the plan and objectives of the audit
- ✓ Understand what is to be expected of them – specific roles & responsibility: leader, data management, communication, etc.
- ✓ Must understand the ground rules for meeting

### 2.1.2 Step 2: Determine audit topic

Relevant literature and/or reference should be used as sources for determining clinical audit topic. The literature referred should be within the last 5 years unless it is a landmark study. References that are used for determining clinical audit topic include the following:

- critical incident reports
- clinical practice guidelines
- policies and procedures
- complaints or comments from stakeholders (staff, patients, relatives)
- direct observation of care

A system is required to help us in selecting a clinical audit topic. Donabedian classification system is one such good system and it contains three elements: structure, process and outcome <sup>7</sup>. This system can be used to focus on areas of practice and thus, help us selecting a topic.

**Table 5:** The Donabedian classification system of structure, process and outcome.

<b>STRUCTURE</b>	Includes the resources required to deliver care, environment in which care is delivered, availabilities of facilities, availabilities of equipments, and documentation of policies, procedures, protocols & guidelines
<b>PROCESS</b>	The procedures & practices implemented by staff in the prescription, delivery & evaluation of care- these may be specific to the clinical process or service/administrative processes
<b>OUTCOME</b>	The effect of care received by service users as a result of healthcare provisions and the costs to the service of providing care i.e. the results of clinical intervention

From the system above, you may encounter that you have a few areas of concern. However, you could not possibly carry out more than one audit at any one time unless you have more than enough resources which include time.



Checklist below could help you in prioritizing clinical audit topic.

**Table 6:** Checklist that could help you to prioritizing clinical audit topic.

Ask yourself these questions	Yes	Maybe	Do not know	No
Is the problem measurable against relevant standard?				
Is the topic high risk?				
Is the topic high volume?				
Is the topic high cost?				
Is there wide variation in practice?				
Is there local concern about practice?				
Are standard guideline available?				
Is the topic important locally?				
Is the topic important nationally?				
Can practice be changed?				
Is there evidence of higher complication rates or adverse outcome?				

How to use the above table: If your answers are mostly 'Yes' or 'May be', you probably have a good clinical audit topic.

A good clinical audit topic:

- addresses a known quality issue
- addresses an important area
- has the potential to achieve improvement in the quality of patient care
- addresses an area of clinical certainty & consensus
- has clinical support
- involves self-audit

## EXAMPLE

The following are examples of clinical audit topics which have been conducted in Kedah hospitals.

- 1) An audit on the use of granisetron injection for chemotherapy-induced nausea and vomiting in Hospital Sultanah Bahiyah (*Chan Huan Keat, Khor Seau Ting and Tan Say Li*).
- 2) Audit on postpartum oral glucose tolerance test following gestational diabetes mellitus (*Dr Mohd Azri Mohd Suan, Dr Maheran Rodzali and Dr Kunasegaran Kanniah*).
- 3) The implementation of pain score as the fifth vital sign in Hospital Kuala Nerang (*Dr Mohd Nazrin Jamhari, Dr Muhammad Fadhil Mohd Marzuki*).

### 2.1.3 Step 3: Objectives of the audit

What is the overall purpose of your clinical audit project? The purpose of the audit could be stated in the aims and objectives. Objectives and aims help you stay focus on the important issues. Objective describes the aspect of quality you are going to measure.

The following verbs are useful:

**Improve**

**Increase**

**Enhance**

**Ensure**

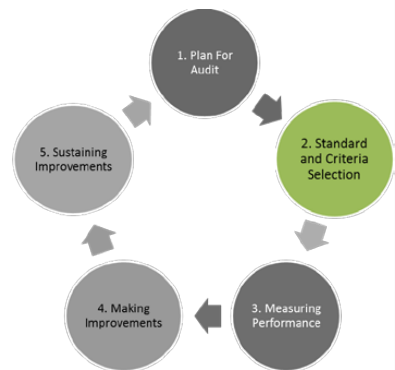
**Change**

#### EXAMPLE

Audit title	Audit objective
An audit on the use of granisetron injection for chemotherapy-induced nausea and vomiting in Hospital Sultanah Bahiyah	To enhance the prescribers' adherence to recommended indications and doses of granisetron injections
Audit on postpartum oral glucose tolerance test following gestational diabetes mellitus	To ensure postpartum mother who has gestational diabetes mellitus have their Oral Glucose Tolerance Test (OGTT) done at six weeks
The implementation of pain score as the fifth vital sign in Hospital Kuala Nerang	To improve the implementation of pain score as the fifth vital sign.

## 2.2 Stage 2: Standard and Criteria

When the audit topic has been selected, the next essential step is to review the available evidence to identify the standards and audit criteria against which the audit will be conducted.



### 2.2.1 Step 1: Definition of standard

A standard is a measurable statement about performance describing the quality of care to be achieved based on the best available evidence. It may describe:

- Minimum performance or results
- Excellent performance or results or
- A range of acceptable performances or results.

### 2.2.2 Step 2: Where to find standard?

Useful sources for standards include:

- Local standards in the form of evidence based guidelines.
- Nationally endorsed clinical guidelines.
- Standards and clinical guidelines from relevant quality and safety program. Clinical care program and professional bodies.
- Clinical guideline development organisations such as NICE.

What if standards are not available?

You will need to develop them in conjunction with the clinical team – a panel of experts.

### 2.2.3 Step 3: Definition of criteria

Criteria is the measurable key components of a standard. Criteria specify what is to be measured in a clinical audit, such as the appropriateness of specific health care decisions, the effectiveness of specific processes of care, or the acceptability of specific outcomes.

For criteria to be valid and lead to improvements in service user care, they should be consistent with SMART guidance:

- **S**pecific (explicit statements, not open to interpretation).
- **M**easurable.
- **A**chievable (of a level of acceptable performance agreed with stakeholder).
- **R**elevant (related to important aspects of care).
- **T**heoretically sound or timely (evidence based).

Criteria can be classified as:

1. Structure Criteria - (What is needed), refers to those resources that are required to deliver care, including the numbers of staff and skill mix, current knowledge, skills and attitudes, materials and drugs, equipment and physical space
2. Process Criteria - (What is done), refers to the actions and decisions taken by healthcare professionals together with users and includes communications, assessments and prescription of surgical and other therapeutic interventions. The importance of process criteria is determined by the extent to which poor design and/or non adherence with processes in place influences care quality.
3. Outcome Criteria - (What is expected to happen as a result), refers to the expected outcomes of care. Increasingly the measurement of outcomes of care is being seen as the most appropriate measure of effectiveness.

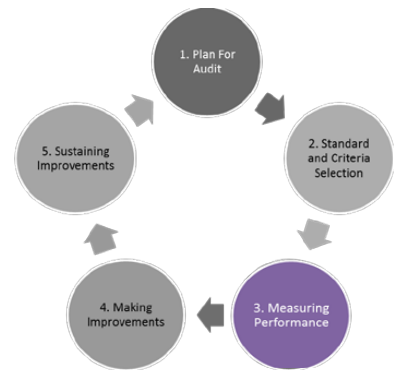
#### EXAMPLE

Audit title	Audit standard	Audit criteria	References
An audit on the use of granisetron injection for chemotherapy-induced nausea and vomiting in Hospital Sultanah Bahiyah	<p>1. Only prescribed in moderately and highly emetogenic chemotherapy unless it is justified.</p> <p>2. Only prescribed at the lowest effective dose, which is 1mg or 0.01mg/kg unless it is justified.</p>	<p>Indication of granisetron injection.</p> <p>Dose of granisetron injection.</p>	Systemic Therapy of Cancer 2nd Edition, Ministry of Health Malaysia, 2007

## 2.3 Stage 3: Measuring performance

### 2.3.1 Step 1: Population & Sampling

Clinical audit involves comparing some aspect of patient care against an agreed standard. The patients who have received this aspect of care are known as the 'audit population'. Ideally a clinical audit should include all patients, but this can be impractical due to resource or time constraints. To make the audit more manageable, we can select a smaller sample of this population whilst ensuring that the sample is representative of the whole population.



Clinical audit is not research, so whereas a research study will need large numbers of subjects to show which intervention is best, clinical audit needs only to determine whether practice complies with standards. Using a sample is acceptable as long as everyone is aware of the greater chance that the sample may not be representative and agrees that improvements can be made to local management based on the results. Sometimes, smaller sample sizes can produce great information related to the audit project.

There is no magic number as to exactly how many sample that you need – this will depend on:-

- the area being audited
- the amount of data being collected
- how easy it is to collect that data
- the resources available for data collection

But don't use a VERY SMALL number (e.g. one digit number) as your audit sample size as it will not reflect actual practice / area that being audited. If you need software to calculate your audit sample size, here is an online link to help you:

[www.raosoft.com/samplesize.html](http://www.raosoft.com/samplesize.html)

### 2.3.2 Step 2: How do I choose my sample?

#### Random sampling

- *Simple random sampling* - Cases are selected in a completely random way which ensures that each case has an equal chance of being selected e.g. by using a computerized random number list or drawing random numbers out of a sealed container / envelope.
- *Stratified random sampling* - The population is divided into groups depending on characteristics they share in common e.g. diagnosis, blood group, age, collection team. A random sample is then selected from each group.
- *Systematic random sampling* - The population is arranged in order and the first case is then selected at random. The rest of the cases are then selected at pre-defined intervals, e.g. every 3rd or every 5th patient.

#### Other sampling method

- *Purposive sampling* - Cases are selected for specific purposes –because they have particular characteristics, for example, blood group, age, diagnosis.
- *Convenience sampling* - Cases are selected for inclusion in the sample because they can be accessed relatively easily.

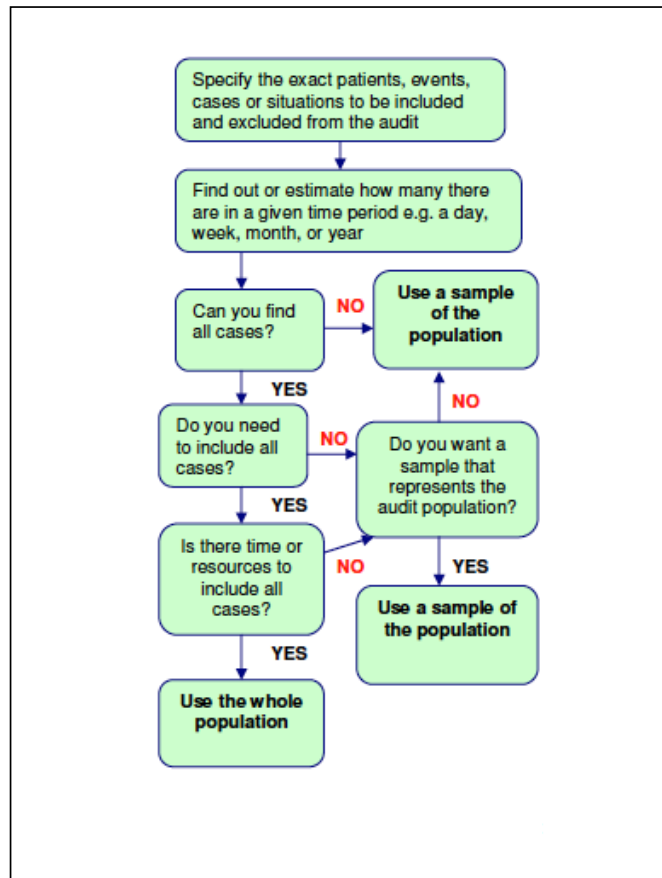
#### **REMEMBER!!**

- If you plan to take ALL patients / subjects in the population as your audit sample, then there should be NO SAMPLING METHOD used for your audit. Sampling method is only applicable if you want to select a small number of patient / subject from big population.

#### Sampling Bias

If you do not choose your audit sample carefully, it can skew your audit results and give inaccurate information. It is important that you choose the best method of sampling for the given situation, ensuring that the audit is as robust as possible.

The diagram below shows a simple process to help decide whether you should choose the whole audit population or use a sampling method to make your audit more manageable.



**Figure 2: Flow chart on decision sampling**  
(Adapted from The Simple Guide to Clinical Audit, NHSBT <sup>5</sup>)

### 2.3.2.1: Inclusion & Exclusion Criteria

In order to ensure that the audit sample is representative of the target population and to collect data which is fit for purpose, it is necessary to define what information should be collected and what information should not be collected.



- *Inclusion criteria* - are the criteria for including patient/staff in the audit or a target population to whom a clinical guideline is intended to apply.
- *Exclusion criteria* - are the criteria for excluding patient/staff from the audit.

**EXAMPLE**

<b>Audit Topic</b>	<b>Example of inclusion and exclusion criteria</b>
An Audit on the Use of Granisetron Injection for Chemotherapy-Induced Nausea and Vomiting in Hospital Sultanah Bahiyah.	<i>Inclusion Criteria:</i> All adult chemotherapy prescriptions prescribed with granisetron injections received from Jan-March 2011.
	<i>Exclusion Criteria:</i> Prescriptions with incomplete information.
Audit On Postpartum Oral Glucose Tolerance Test Following Gestational Diabetes Mellitus at Hospital Sultan Abdul Halim.	<i>Inclusion Criteria:</i> All women who diagnosed with GDM and delivered in Hospital Sultan Abdul Halim, Sungai Petani.
	<i>Exclusion Criteria:</i> Women with Established DM
Audit on implementation of 'Pain Score as The 5th Vital Sign' at Hospital Kuala Nerang.	<i>Inclusion Criteria:</i> 1. All medical record of patient been admitted from Jan 2011 until May 2011. 2. All doctors and paramedics at Hospital Kuala Nerang
	<i>Exclusion Criteria:</i> 1. Psychiatric and Paediatric patient aged below 5 years old. 2. Doctors or paramedics which become one of the clinical audit project members.

### 2.3.3 Step 3: Developing audit tool & method of data collection

Once the topic, aim, standards and population have been defined, you can design a tool to collect the appropriate data.

#### 2.3.3.1: Data to collect

Data collection should include relevant information about the sample of patient / staff audited, which may include:

- Basic demographic data – e.g., patient's age, sex, ethnicity
- Clinical data – e.g., peak flow readings and medication.

The specific information you collect will depend on what data analysis you will be conducting to determine whether you are meeting your audit objectives.

#### 2.3.3.2: When will data be collected?

Before you start to think about how you are going to collect your audit data, you need to determine whether to look back at what has been done before (retrospective) or to collect data as each subject is treated (concurrent or prospective). There are advantages and disadvantages to each method and the topic of your audit and your data sources will influence which is the most suitable method to choose.

- **Retrospective data collection** is good if you are collecting data from established sources and the information is well documented. However, it provides information about past practices that may have changed.
- **Prospective / Concurrent data collection** is good if you require additional information to that normally documented. However, this requires additional resources as either you or a health professional involved in patient care has to collect data. Once your method has been established, you need to design your data collection tool.

**Table 7: Advantages and disadvantages of using retrospective and prospective data.**

Timing of audit	Advantages	Disadvantages	Application
Retrospective	<ul style="list-style-type: none"> <li>• Ability to review many records of patients and/or documents</li> <li>• Cost-effective option</li> </ul>	<ul style="list-style-type: none"> <li>• Data may be incomplete or inaccurate</li> <li>• May not be suitable for rapidly changing treatment/technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Large sample</li> <li>• Good data available</li> </ul>
Prospective	<ul style="list-style-type: none"> <li>• Can determine data to be collected, and quality of collection</li> <li>• Quick and accurate identification of cases to study. Prevents lengthy tracking after discharge</li> </ul>	<ul style="list-style-type: none"> <li>• Potentially more expensive than retrospective audit for similar-sized sample</li> <li>• Data collectors may need more training</li> </ul>	<ul style="list-style-type: none"> <li>• Useful for evaluating audit topics where data are not retrievable by diagnostic coding methods and in high cost/high risk situations</li> </ul>

### **2.3.4 Step 4: Designing data collection form**

To ensure consistent collection of data, the data collection form should be simple and unambiguous. For each of the standards defined for the audit, there should be at least one question with clear options for the answer. Ensure you can identify which goal each question addresses.

In designing a data collection form / questionnaires, consider the following points:

- Keep the questions short and simple.
- Where possible use forced choice options such as tick boxes to simplify data recording and analysis.
- If brief guidance notes are required put them after the question.
- The data to be collected should be relevant to the objectives and criteria for the audit and the expected performance levels.
- Acronyms, jargon and technical terms should be avoided.
- Definition of terms used should be included where necessary (involves defining terms in the audit criteria and known exceptions).
- Closed questions should be used, these should be clearly worded and contain no ambiguity i.e. clarify the format for the answer (for example, date: day/month/year).
- Limit the use of free text or open questions to clinical audits as free text is difficult to code and analysis is very time consuming.
- Data items should be presented in a logical order i.e. the tool should not require the person collecting or analyzing the data to skip backwards and forwards.

**2.3.4.1: Data Collection Forms / Proformas** – these are forms designed specifically for your audit and ensure that only relevant information is collected. You need to ensure that the form is unambiguous - this is especially important if several people are collecting data, to prevent each person interpreting the form differently. Forms from previous audits on similar topics can be useful, either to use again or to give your ideas to develop your own.

**2.3.4.2: Questionnaires** – Question content will be based on your audit standards and criteria i.e. what data you want to collect. How questions are worded is important, they should be clear, unambiguous and not 'lead' the respondent to give the answer you would like. It is good practice for them to always contain contact details.

### 2.3.4.3: Ensure Reliable and Valid Data

- **Reliability** relates to the extent to which your audit findings are repeatable and is concerned with the level of error in the measurement process. Variation in the measurement process will lead to unreliable data, so you need to ensure your data collection tool and method is specific and unambiguous.
- **Validity** is concerned with the extent to which the audit measures what it is supposed to measure. This can be improved by ensuring that your audit is well designed with clear, unambiguous objectives and standards and you use robust data collection and checking methods.

### EXAMPLE

Example of Data Collection Form.

Data Collection Form A  
Granisetron Injection Audit: Prescription Checklist

A. Demographic Data			
1	Subject ID		6 Ethnic group
2	Prescription date		<input type="checkbox"/> Malay <input type="checkbox"/> Indian <input type="checkbox"/> Chinese <input type="checkbox"/> Others
3	Ward/ Clinic		7 Gender
4	Prescriber		<input type="checkbox"/> Male <input type="checkbox"/> Female
5	Patient's age (years)		8 Diagnosis
			<input type="checkbox"/> Lung <input type="checkbox"/> Nasopharynx <input type="checkbox"/> Ovary <input type="checkbox"/> Cervix <input type="checkbox"/> Breast <input type="checkbox"/> Colorectal <input type="checkbox"/> Pancreatic <input type="checkbox"/> Hematology <input type="checkbox"/> Others: _____

B. Chemotherapy Regimens			
9	Chemoregimen with dose	1. _____ mg (Day ____ to ____)	10 IV Dexamethasone dose (pre-chemo)
		2. _____ mg (Day ____ to ____)	<input type="checkbox"/> 4mg <input type="checkbox"/> 8mg <input type="checkbox"/> 12mg From Day ____ to ____
		3. _____ mg (Day ____ to ____)	11 IV Granisetron dose (pre-chemo)
		4. _____ mg (Day ____ to ____)	<input type="checkbox"/> 1mg (10µg/kg) <input type="checkbox"/> 3mg (40µg/kg) From Day ____ to ____
		5. _____ mg (Day ____ to ____)	12 PO Dexamethasone dose (post-chemo)
			<input type="checkbox"/> 2mg TDS X ____/7 <input type="checkbox"/> 4mg TDS X ____/7 From Day ____ to ____
		13 Other adjunct antiemetics (if any)	Pre-chemo: 1. _____ mg X ____/7 2. _____ mg X ____/7 3. _____ mg X ____/7 Post-chemo/ Take-home: 1. _____ mg X ____/7 2. _____ mg X ____/7 3. _____ mg X ____/7

## EXAMPLE

### Example of questionnaires

PILOT STUDY UNTUK KAJIAN KLINIKAL AUDIT 'PERLAKSANAAN PAIN SCORE DI HKN'.  
SILA BULATKAN JAWAPAN ANDA :

#### Bahagian A

1. Jawatan
  - a) Pegawai Perubatan
  - b) Ketua Jururawat
  - c) Jururawat
2. Tempat Bertugas
  - a) Wad Lelaki
  - b) Wad Perempuan
  - c) Wad Bersalin
  - d) Wad Kanak-Kanak
  - e) Lain-Lain
3. Adakah anda pernah mendengar mengenai 'Pain As The 5 Th Vital Sign'.
  - a) Ya
  - b) Tidak
  - c) Tidak Pasti
4. Daripada mana anda mendengar 'Pain The 5 Th Vital Sign'.
  - a) Kursus / CME
  - b) 'Pain The 5 Th Vital Sign' Guidelines.
  - c) Bed Side Teaching
  - d) Dari Rakan-Rakan Sekerja

#### Bahagian B

1. Berikut adalah 'Pain Assessment Tool' kecuali :
  - a) Wong- Baker Face Scale
  - b) Glassgo Coma Scale
  - c) Numerical Rating Scale
  - d) Visual Analogue Score
2. bagaimanakah tahap kesakitan di nilai menggunakan Numerical Rating Scale ?
  - a) 0 – 10
  - b) 1 – 10
  - c) 0 – 5
  - d) 1 – 100
3. Berikut adalah 'Pain Assessment Tool' yang di syorkan oleh Kementerian Kesihatan Malaysia
  - a) FLACC Observation Pain Score
  - b) Combination Rating Scale
  - c) Visual Analogue Score
  - d) Numerical Rating Scale
4. Apakah julat kesakitan untuk 'moderate pain' ?
  - a) 4 – 6
  - b) 3 – 5
  - c) 5 – 6
  - d) 4 – 5
5. Apakah julat kesakitan untuk 'severe pain' ?
  - a) 6 – 7
  - b) 8 – 10
  - c) 5 – 10
  - d) 7 – 10

6. berikut adalah tahap 'Severity' berdasarkan 'Analgesic Ladder'kecuali :
  - a) Mild
  - b) Moderate
  - c) Uncontrolled
  - d) Acute Pain
7. Apakah ubat / analgesic yang di syorkan untuk pesakit dengan 'mild pain'?
  - a) No medication or PCM
  - b) PCM / Mefanemic Acid
  - c) Tramal / Nubain
  - d) Celecoxib / Syp. Morphine
8. berikut adalah kaedah untuk menilai tahap kesakitan pesakit kecuali :
  - a) Pesakit menilai sendiri menggunakan 'pain ruler'
  - b) Menilai dari riak muka pesakit
  - c) Menilai melalui tindakbalas fizikal pesakit
  - d) Melalui penilaian pain score sebelumnya yang tercatat dalam carta pemerhatian pesakit
9. Berikut adalah rawatan 'non pharmacology' yang boleh diberikan kepada pesakit yang mengalami kesakitan.
  - a) Massage
  - b) Touch Therapy
  - c) Distraction Technique
  - d) Semua di atas
10. berapakah tahap kesakitan pesakit sebelum dibenarkan pulang ke rumah ?
  - a) 0 – 3
  - b) 0 – 2
  - c) 0 – 1
  - d) 0

Terima Kasih Atas Kerjasama Anda.

### **2.3.5 Step 5: Pilot the audit method & tool**

The best way to test the reliability and the validity of your data collection method is to pilot your audit. This involves picking a small audit sample and performing a 'mini audit' in which you collect data and analyze the results, comparing against your standards to determine if you obtain the information that you require. You can pilot the tool on a few cases that will not be included in the sample (around 10% of the planned sample size) <sup>7</sup>.

The people who are going to perform the audit should check the results for any misinterpretations and determine if any modifications are required before commencing the audit proper. If this pilot is successful, you can proceed with your audit. It is recommended that you always pilot your data collection method prior to your audit.

### **2.3.6 Step 6: Collecting the data**

After all preliminary steps have been taken and appropriate procedures are in place, you are ready to collect the data. Data collection is only part of the process of measuring performance, in order to compare actual practice and performance against the agreed standards, the clinical audit data must be collated and analyzed.

#### **REMEMBER!!**

- ✓ If the data collection takes too long, interest will be lost and data completeness will suffer.
- ✓ In numerical audits, the number of cases selected should reflect the commonness of the condition or therapy, but should be of reasonable number to draw subsequent conclusions.
- ✓ In time-based audits, one to three months should be adequate for the majority of audits.

### QUICK LOOK AT METHODOLOGY

<b>When</b>	Time frame: The time period chosen depends on the number of cases that are treated on a daily basis and the number needed to make a confident judgment of the care provided.
<b>What</b>	<p>Data collection tools: Forms that are designed specifically for the audit and ensure that only relevant information is collected or</p> <p>Questionnaire: Well-designed questionnaires can provide a wealth of information.</p> <p><i>(It is recommended that you always pilot your data collection method and tool prior to your audit)</i></p>
<b>Who</b>	Depending on the audit, data may be collected by more than one person or different people may be responsible for completing different data sets. There should be no confusion over terminology. A definition should be provided for each data item so that it is collected consistently (inter-rater reliability). In addition, everyone involved in data collection should know and understand who is responsible for the various elements including what, how and where the data is to be recorded.
<b>Where</b>	The department that will involve in the audit.
<b>How</b>	Data can be collected either manually and/or electronically.



### 2.3.7 Step 7: Collate and interpret the results

The basic aim of data analysis is to convert data into useful information. You are looking for patterns in the data that will tell you how well you comply with your audit standards. Data analysis answers the questions posed by the audit objectives. If you collect the right data, it will be easy to analyze and get the information you want.

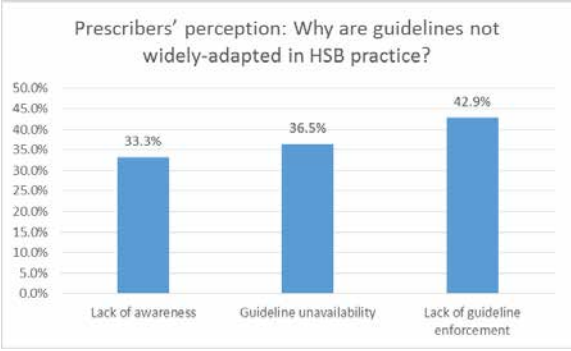
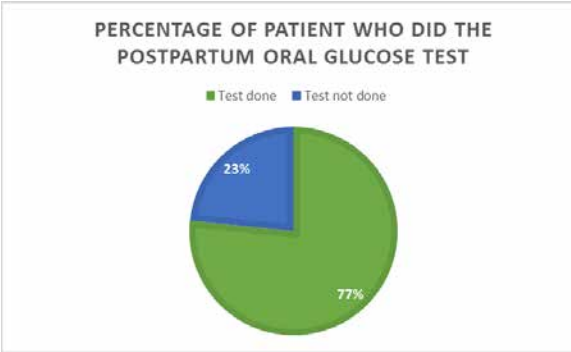
Where possible, use simple statistical methods to analyze the results against the agreed standards to highlight the areas requiring improvement. If more sophisticated methods are required, it may be necessary to seek external statistical or analytical expertise.

It is often necessary to perform basic calculations on the raw data collected in order to get results from which conclusions can be arrived. The type of data analysis depends on the type of information collected. The following descriptive statistics are the most commonly used data analysis tools.

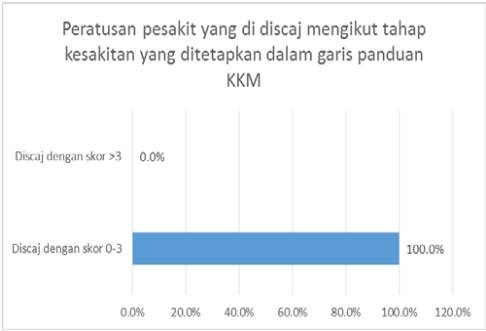
- *Mean* –the mathematical average, you add all the values up and divide by the number of data points.
- *Mode* – is the most commonly occurring data point.
- *Median* – when the data is sorted into numerical order, the median is the middle value.
- *Standard Deviation* - gives information about the spread of data around the mean. The value of the standard deviation should be compared relative to the mean. A large standard deviation, when compared to the mean, implies the data is widely spread whereas a small standard deviation implies the data is mainly concentrated around the mean.

Very important, your audit results should answer back your objectives. Here are some of the examples of audit results.

## EXAMPLE

Audit title	Audit objective & result								
<p>An audit on the use of granisetron injection for chemotherapy-induced nausea and vomiting in Hospital Sultanah Bahiyah</p>	<p>To assess prescribers' perception of the granisetron injection utilization in the prevention of Chemotherapy-Induced Nausea and Vomiting.</p>  <table border="1"> <caption>Prescribers' perception: Why are guidelines not widely-adapted in HSB practice?</caption> <thead> <tr> <th>Reason</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Lack of awareness</td> <td>33.3%</td> </tr> <tr> <td>Guideline unavailability</td> <td>36.5%</td> </tr> <tr> <td>Lack of guideline enforcement</td> <td>42.9%</td> </tr> </tbody> </table>	Reason	Percentage	Lack of awareness	33.3%	Guideline unavailability	36.5%	Lack of guideline enforcement	42.9%
Reason	Percentage								
Lack of awareness	33.3%								
Guideline unavailability	36.5%								
Lack of guideline enforcement	42.9%								
<p>Audit on postpartum oral glucose tolerance test following gestational diabetes mellitus</p>	<p>To determine the percentage of patients who returns for oral glucose tolerance test postpartum.</p>  <table border="1"> <caption>PERCENTAGE OF PATIENT WHO DID THE POSTPARTUM ORAL GLUCOSE TEST</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Test done</td> <td>77%</td> </tr> <tr> <td>Test not done</td> <td>23%</td> </tr> </tbody> </table>	Category	Percentage	Test done	77%	Test not done	23%		
Category	Percentage								
Test done	77%								
Test not done	23%								

**EXAMPLE**

Audit title	Audit objective & result						
Audit on implementation of 'Pain Score as The 5th Vital Sign' at Hospital Kuala Nerang.	<p>To identify percentage of patient that were discharge with correct pain score.</p>  <p>Peratusan pesakit yang di discaj mengikut tahap kesakitan yang ditetapkan dalam garis panduan KKM</p> <table border="1"> <thead> <tr> <th>Discharge Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Discaj dengan skor &gt;3</td> <td>0.0%</td> </tr> <tr> <td>Discaj dengan skor 0-3</td> <td>100.0%</td> </tr> </tbody> </table>	Discharge Category	Percentage	Discaj dengan skor >3	0.0%	Discaj dengan skor 0-3	100.0%
Discharge Category	Percentage						
Discaj dengan skor >3	0.0%						
Discaj dengan skor 0-3	100.0%						

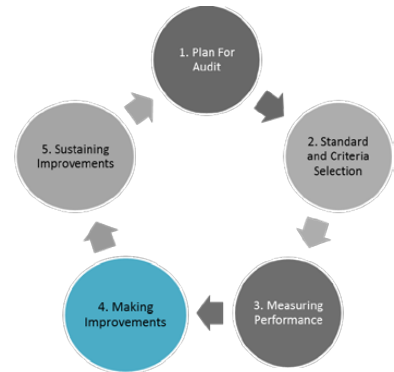
**REMEMBER!!**

- Keep your result simple. Present your audit result in a simplest way using simple statistical analysis, so that everybody can understand your project. Very rarely we use intermediate – advanced statistic in clinical audit that involve p-value, survival analysis, cost-effective analysis, etc.
- Don't include results that are not related to your topic / objective.

## 2.4 Stage 4: Making improvements

### 2.4.1 Step 1: Identify gap between performance and standard

Once data is collected and analyzed, the findings may reveal that the current practice meets the standards. Thus, the results should be shared and the healthcare providers involve the delivery of care shall be congratulated. If on the other hand, the findings may show that the current practice does not meet the standard, make sure that these findings are correct after you have excluded error in data collection and data analysis. Thereafter, look for reasons why the standard was not met.



Review cases of unacceptable care in the audit so that you could:

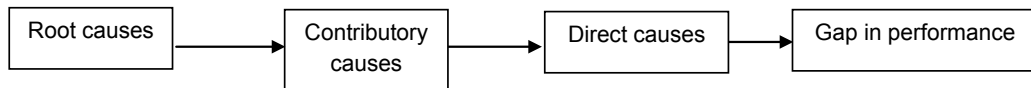
- clearly identify and agree on areas for improvements
- analyze the areas for improvements to identify the contributing factors or root causes

Look for the following:

1	Patient factors	Clinical condition, personality, inter-personal relationship
2	Task & technology factors	Lack in procedures/ guideline, poor quality of information in procedures, shortfall in care processes
3	Staff factors	Attitude, inter-personal factors, competency, experience, fatigue, stress
4	Team factors	Supervision, leadership, communication
5	Work & care environment factors	Heavy workload, crowded patient care area, workplace hazards
6	Management & organization factors	Lack of ongoing & refresher training, lack of resources (including equipment & staff), leadership, inappropriate allocation and/or assignment of staff
7	External factors	Regulatory or financial constraints

There are 3 types of causal factors:

- 1) Direct cause
- 2) Contributory cause
- 3) Root causes



Guideline not available	Inexperienced staff	Heavy workload	3 mg granisetron prescribed instead of 1mg
Training not provided	Lack of knowledge on indication of granisetron		
	Lack of knowledge on chemotherapy regime		
	Lack of knowledge on dose of granisetron		

There are a few tools that can be used to facilitate in identifying the contributing factors or root causes that result in the gap in performance:

1. The five (5) whys
2. Cause and effect (fish bone diagram)

### The five whys <sup>8</sup>

This is the simplest technique to look for root causes. It involves repeatedly asking the question 'why?' in order to drill down further into an issue which can lead to the cause of the problem.

The reason for any problem can often lead to another question. This is only a guide as depending on the issue, the question may be asked a lesser or greater number of times before reaching the origin of the problem. This process can be used independently or as part of a cause and effect diagram.

#### EXAMPLE

Example of 5 Whys (based on the Audit on the use of granisetron in chemotherapy – induced nausea & vomiting in Hospital Sultanah Bahiyah)

- **Why** do doctors prescribed 3 mg of granisetron injection for chemotherapy – induced nausea & vomiting? Answer: because the doctor thought that 3 mg is more effective than 1 mg
- **Why** do the doctors thought that 3 mg is more effective than 1 mg? Answer: because the doctor lack in evidence based practice
- **Why** do the doctors lack in evidence based practice? Because guideline is not readily available. Because lack of training
- **Why** is the guideline not readily available? Because no policy required that guideline should be readily at the work station
- **Why** is there lack of training? Because policy does not state that training is required

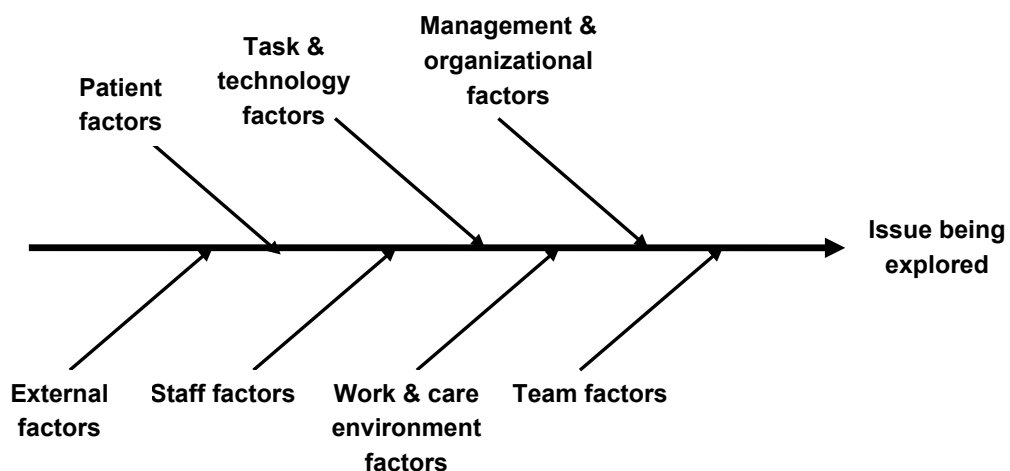
### **Cause and effect (fish bone) diagramming**

Fishbone diagram or famously known as Ishikawa diagram is a graphic problem solving tool. It can be used to explore and display the possible causes for effects or problems. It can be used to structure a brainstorming session as it can help to sort ideas into various useful categories.

An issue or an effect is written at the head of the 'fish', then a common set of major categories of causative factors are written on diagonal lines branching from the main arrow, 'the bones'.

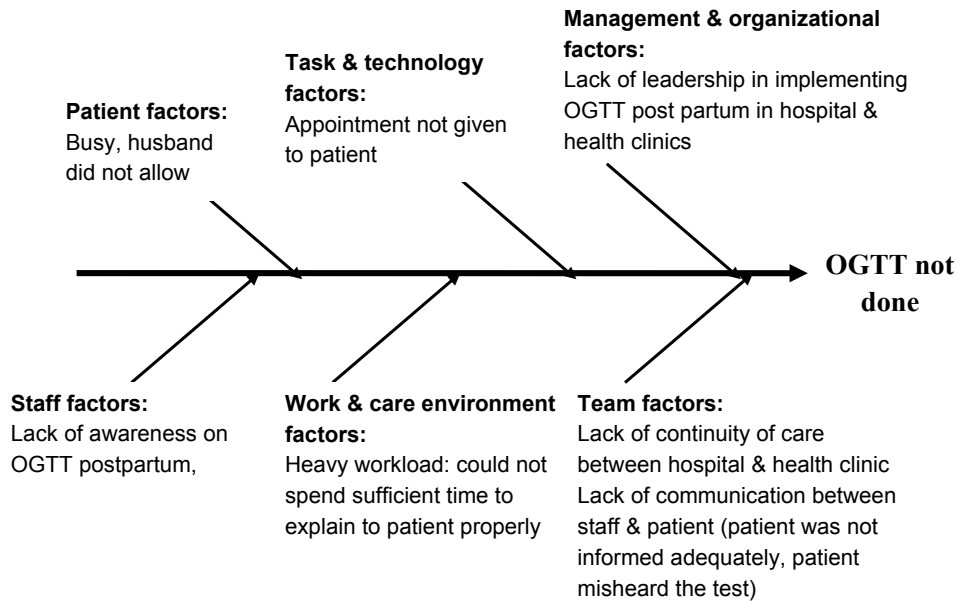
A list of possible causes for each category should be generated through brainstorming by asking the question 'why does this happen?' in relation to each cause. The causes and sub-causes are then listed on branch bones (branching off from the main branch/cause). This will highlight relationships among the causes. It is necessary to keep asking 'why?' until a useful level of detail is reached and an appropriate solution may be developed.

By establishing the reasons why performance levels for specific criteria were not met, the team are then enabled to discuss/lead discussions around recommendations for improvements.



## EXAMPLE

Example of Cause and Effect (fish bone) diagram (based on the Audit of postpartum oral glucose tolerance test following gestational diabetes mellitus).





### 2.4.2 Step 2: Identify areas for improvement

After you have identify contributing factors and/or root causes of why the standards are not met, think of possible solutions to make improvement. The proposed solutions should address the identified contributing factors and/or root causes.

Ashmore, Ruthven and Hazelwood identify clinical audit as a change process <sup>9</sup>, stating:

*‘Audit that simply measures but does not drive change to address problems identified, is not good audit. All good audit projects must include a program of change activity and post-identification of the findings from audit, to ensure necessary changes happen.’*

Making improvement require change in the way we used to do things and practice. It may also require change in our thinking in delivery of care to patients. More often than not, change is not easy to be embraced and implemented by many people. This is because change requires us to move away from our comfort zone and enter the zone that we are not familiar with.

In fact, change is often the most difficult part of the audit <sup>6</sup>. When the audit team have developed the solutions for improvement, the team should make decisions on how changes can be introduced and monitored.

Table 8: Areas to be improved

<b>STRUCTURE</b>	Skill and knowledge of people.  Adequacy of resources: equipment, space, staff.  Availability of guidelines/policies/procedures/manual.  Use of technology such as information system.
<b>PROCESS</b>	Provision of care: problem recognition, diagnosis, management, re-assessment.  Recipient of care: utilization, acceptance, understanding.

How do you initiate change?

First, you need to understand why people do not want to change <sup>10</sup>. There are 4 common reasons why people do not perform the way they should:

1. They do not know what they are supposed to do
2. They do not know how to do it
3. They do not know why they should
4. There are obstacles beyond their control

Secondly, you need to know the process of change.

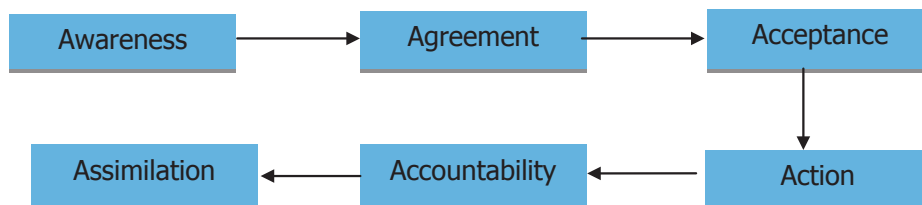


Figure 4: Process of change

Table 9: Stages of change

<b>Awareness</b>	Communicate change proactively. Communicate about what are the changes, why change, the benefit and implications, who involve, when, approach of change, process of change and monitoring of change.
<b>Agreement</b>	Conduct credible analysis & study, address the real issues & problems faced by organization & people affected by it, come up with hard facts & evidence.
<b>Acceptance</b>	Address insecurity, discomfort and uncertainty, need to appeal in achievement, self-esteem, pride, sense of belonging and common 7 noble vision.
<b>Action</b>	To ensure action, provide motivation (conducive environment & reward), guidance (how to do, identify small wins) and facilitation (monitoring of action, provide feedback).
<b>Accountability</b>	People willing to accept accountabilities for tasks, activities & programs. Provide clear & specific roles & responsibilities, measure performance and develop periodic progress review.
<b>Assimilation</b>	A stage whereby the thinking, feeling and the actions of the people are synchronized to bring about the desired change.

### **2.4.3 Step 3: Formulate action plans**

Before considering solutions, consider the following questions:

- Will the solutions lead to change?
- Are the solutions feasible and acceptable to staff and patients

Results should be used in conjunction with feedback and local consensus to change clinical practice and to improve standards. Identify priorities for action and these should be clearly documented.

Quality improvement plans or action plans can be developed to address those areas requiring improvement. It is important that improvement tasks in the Action Plans relate to local and national priorities or targets and the service provider's own available resources. Action Plans should also be integrated into the existing management system of the service provider to monitor implementation.

Action Plans should be time limited with clear milestones and concrete recommendations. Responsibilities for implementing tasks or actions should be clearly allocated to staff who carry the necessary authority to effect such change. Sometimes, tasks in the Action Plans are beyond the scope or domain of individuals. In these cases, the support and backing of the service is fundamental to the success of the audit.

**EXAMPLE**

Example of Action Plan (based on the Audit on the use of granisetron in chemotherapy –induced nausea & vomiting in Hospital Sultanah Bahiyah)

<b>Problem</b>	<b>Recommendation</b>	<b>Who's responsible</b>	<b>When</b>
Guideline enforcement	1. Implement order form for oncologist or specialist to justify non-indicated or high dose of granisetron	1. Head of Department, Pharmacy	Start March 2012
	2. CDR to prepare granisetron injection in 1 ml syringe	2. CDR unit	Start March 2012
Guideline availability	1. Ensure guideline available in all relevant wards & units	1. CDR unit	Due February 2012
	2. Develop & disseminate updated information on granisetron use in the form of poster to all doctors concerned.	2. Health Education Unit	Due February 2012
Guideline awareness	1. Training for doctors on the latest guideline.	1. CDR unit	November 2011

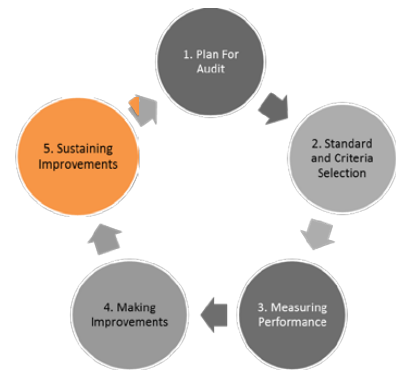
## 2.5 Stage 5: Sustain improvement

### 2.5.1 Step 1: Monitoring implementation

#### 2.5.1.1 Why to sustain improvement?

The audit cycle is a continuous process. A complete audit cycle as described by Ashmore, Ruthven and Hazelwood <sup>11</sup>:

*'... ideally involves two data collections and a comparison of one with the other, following implementation of change after the first data collection, in order to determine whether the desired improvements have been made. Further cycles may be necessary if performance still fails to attain the levels set at the outset of the audit. At this stage there may be justification for adjusting the desired performance levels in the light of the results obtained.'*



#### 2.5.1.2 Who should monitor?

Where quality improvement plans are put in place, monitoring should be performed to ensure plans are implemented as agreed and within the agreed timeframe.

Person who should monitor the implemented plan are:

1. Clinical leads/ manager who agree to implement quality improvement plans are accountable for the delivery of quality improvement plans and sustaining quality improvement.
2. Appropriate governance committee who responsible for monitoring and reporting the progress of implementation through the reporting structure.

Performance indicators can be used to monitor improvements as a result of quality improvement activities. A small number of key performance indicators may be developed for each quality improvement program to monitor implementation of the improvement plans.

### **2.5.2 Step 2: Re-audit and comparing performance**

The final step is to re-audit. This important step shows whether the changes implemented have improved care or whether further changes are required. Re-audit is usually limited to those areas highlighted as requiring improvement. If you find no, or only limited improvement, you may need to:

- review some of the other solutions that were not used after the initial audit.
- find completely new solutions.
- undo some of the changes if they are not successful – but you need to try them to gain evidence of their effect.

### **2.5.3 Step 3: Disseminating and sharing report/performance**

A successful audit in one service may be transferable to other parts of the service. Completed audits should be shared locally via the most appropriate mechanisms, including department quality and safety meetings, journal club meetings, the intranet, newsletters and local conferences and seminars. Consideration should also be given to sharing clinical audit work regionally and nationally through relevant journals, conferences and other media.

**CONGRATULATIONS!**

This audit cycle is now complete.

## **2.6 Here are some do's and don'ts in conducting clinical audit**

### **Stage 1**

1. Unable to recognize the differences between clinical audit and research
2. Not focusing, very ambitious

### **Stage 2**

1. Not involving the right people as team member
2. Very poor understanding of the clinical audit cycle (different people went for workshop, different people involve in the audit project)
3. Not choosing the topic of clinical audit based on the seriousness or the relevance of the problem
4. Chosen vague audit topic, example: medical record audit
5. Literature review must be relevant to the topic chosen
6. No definition of important keywords
7. Objective not correlate with the main topic, as a result not clear outcome of the audit
8. Literature review must be relevant to the topic chosen (international or local study)
9. Standard must be clear and significant as suggested by national/international guidelines, literature reviews etc.
10. Refer to the literatures that having almost similar background of the respective unit/department.
11. Criteria chosen not meet the objective given

### **Stage 3**

1. Collecting unnecessary data
2. Questionnaires not validated
3. No pilot study done
4. Not significant shortfall in quality due to wrong sampling technique use that lead to wrong analysis result
5. Results not answering the objective

### **Stage 4**

1. Shortfall in quality (SIQ) - to solve the major problem first then followed by minor
2. No assumption of possible contributing factor



## CHAPTER 3

### REPORT WRITING

#### 3.1 How to write a proposal

When you are ready to embark on your clinical audit, the next step is to write a proposal. Doing this will require a few things:

- You may need to flip back Chapter 2 of this handbook, in particular Stage 1 and 2.
- When you are done gathering your team and choose a leader, the first meeting should focus on writing the proposal.
- You will need to review some data, or statistic.
- No doubt, you need to discuss with other people, outside the team, to obtain more information for your proposal.
- After you prepare a proposal, make sure you identify potential stakeholders and brief them to have their utmost cooperation to expedite the audit.

## Template for Clinical Audit Proposal

Name : .....

Department : .....

Topic :

.....  
.....

Objectives :

.....  
.....  
.....

Standards :

.....  
.....  
.....

Standard	Criteria	Exclusion	Definition/instruction

Plan for data collection :

Your standards will help you plan for data collection.

- 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?

.....

.....

.....

### Sample Data Collection Form

Task/data	Responsibility	Date line	Status	Remarks

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

### **3.2 How to write a good report**

#### **The clinical audit report should:**

- Be simple and clear.
- Be written in plain English.
- Use a structured, systematic approach, for example, IMRAD (introduction, method, results and discussion which would include recommendations and an agreed quality improvement plan).
- Present descriptive statistics graphically where possible
- Make sense and follow a logical progression.
- Be easy to understand – the report should be written in such a way that it could be understood by a colleague from a different discipline. A good report will make even a complex issue understandable to all.

#### **Template for Clinical Audit Report**

##### **1. TITLE PAGE/ SLIDE**

- Name of the organization (hospital, health district, institution) and name of division/specialty
- Project title
- Project lead/s (and name of the person who wrote the report, if different)
- Date of report/ presentation

##### **2. BACKGROUND**

This section explains the rationale for doing the audit, i.e. why it is a priority for quality improvement. The evidence base for the audit topic should be summarized, with full references provided at the end of the report. If you convened a team to undertake the audit, this is a good point to explain how this was organized and who was involved.

##### **3. AIM, OBJECTIVES & STANDARDS**

This section sets out the aim, objectives and standards of your clinical audit project.

- Aim - Defines what you hope to achieve i.e. the overall purpose of the project.
- Objectives - Defines the individual steps that need to be taken in order to achieve your aim.
- Standards - The quantifiable statements detailing the specific aspects of patient care and/or management that you measure current practice against. You should specify the audit criteria, target, exception(s) and source(s) of evidence.

#### 4. METHODOLOGY

This section should outline:

- The population for your audit project. For example:
  - “Patients aged over 50 years of age admitted to the ward for a suspected MI”.
- Whether it is a retrospective or prospective audit. For example:
  - “A prospective audit assessing the first 30 patients aged over 50 who were admitted to the hospital for a suspected MI from 01/03/10”.
  - “A retrospective audit looking at all patients aged over 50 who were admitted to the hospital for a suspected MI during February 2010”.
- How these patients were identified, e.g. from the electronic hospital information system, laboratory systems, radiology database etc.
- Sample size (if required).
- Time period audited.
- The data collection method. For example:
  - “Data was collected from patients’ case notes using a data collection form
  - “Patients were asked to complete a patient survey following their consultation.
- Who was responsible for data collection?
- The method of data input (if appropriate) and analysis e.g. data was input into and analyzed using Microsoft Excel.

#### 5. RESULTS

The results for each standard should be presented in this section to establish which standards are being met, and which are not. If you find a standard is not being met you need to identify why and how practice can be improved to ensure that the standard is met in the future. You may also consider if there were other, acceptable reasons for the standard not being met, i.e. an exception not considered during the planning stage. The results to each standard should be presented using graphs to further illustrate, if appropriate.

### **3.3 How to write an abstract**

Font: Arial, Size 12, 300-350 sentences (depend on the committee)

Outline of abstract:

- Introduction/background
- Aim/objective
- Methodology
- Analysis of the results (including any shortfall in quality)
- Strategy for change (Making Improvement plan)
- Conclusion/discussion

Introduction/background:

A brief description of problem statement based on local or international literature review. State briefly reason for choosing the clinical audit. Summarize the evidence base for the audit topic

Aim/objective:

This will explain what the project is trying to achieve and should have been identified before the audit commenced. Standards Clinical audit must measure against standards, guidelines or benchmarks of some sort, these should be identified and where they come from (the source and strength of evidence).

Methodology:

Describe how these patients were identified, the sample size, the time period, and clarify how this was calculated or agreed upon. This section should also include detail to allow anyone re-auditing to use the same approach and methodology.

Results (and include any shortfall in quality):

Explained briefly the significant results referring to standard and criteria that were agreed upon.

#### Strategy for change (Making Improvement plan):

A quality improvement plan (action plan) should be agreed saying what changes will be implemented, who will be responsible for carrying them out and when this will be done. Make sure these are realistic and achievable. If appropriate (i.e. changes are to be made), set a date for a re-audit to complete the audit cycle.

#### Conclusions/discussions:

This section should not contain any new data. It should draw on the results and make careful interpretation of the findings. Compare the results to other audits. Discuss the strengths and weakness of the audit, are there any discrepancies? Discuss the meaning of the findings and possible implications for health care professionals.

## **CHAPTER 4**

### **PRESENTING A CLINICAL AUDIT**

#### **4.1 Presenting your clinical audit**

The aims of presenting your clinical audit are:

1. To get your clinical audit messages across the key staffs
2. To generate discussion and then agreement about changes to practice

There are four stages in presenting your clinical audit:

1. Planning
2. Writing
3. Practicing
4. Delivering

##### **4.1.1 Planning presentation of clinical audit**

There are a few things to consider in planning your presentations which are as follows:

1. What are your objectives: attempt to get additional resources (influencing presentation), simply imparting information (factual presentation), opportunity for discussion
2. Who is your audience: this will give you some idea on how and what to say such as use of medical jargon, jokes, statistical terms etc
3. How much time do you have: keep it short (maximum time 10-15 minutes) and simple. You could prepare some handouts and disseminate it prior to the presentation. Explain in your presentation that you assume the audience have read the information.
4. What visual aids do you need: ensure the equipments are available and in good order. It is a good practice to use a presentation controller and laser pointer.
5. Decide where you want to present the audit e.g. departmental meeting, hospital meeting, state meeting, national meeting, etc.



### **5.1.2 Preparing your presentation**

The slide presentation should be kept simple and short. Use bullet points to convey key messages. Try to use 1-6-6 template (as a guide) for each slide: only one idea for each slide, six line of text in one slide and no more that 6 words in each line. Where appropriate, use graphs and tables and try to balance the use of these illustrations.

When using abbreviations and acronyms, make sure you use them when you are sure that the audience understand them. Be careful of what font to use: type, size, capital or small letters, font color. It is a good practice to use font such as Arial, Times New Roman, Verdana and Tahoma. The appropriate font size are 24-28. Avoid using capital letters as it makes you look like shouting. As for color scheme, it is best to use black font with white background or white font with black or dark grey background. Color font can add interest to the presentation but do not over do it.

If you use custom animation, use it sparingly as overdoing it could distract the audience. Avoid using hyperlink unless you are sure that the link is smooth.

### **5.1.3 Practicing your presentation**

Before the presentation day, it is best to practice the presentation. Practice it in front of your colleague or even to the bathroom mirror. Try not to stop if you make mistake. Have the audiovisual aid during your practice and this ensure at least you know how to use them. Time yourself so that you will know you would not go beyond the allocated time. Keep practicing until you are able to present within the time. It is good practice to visit the room or venue of the presentation.

You could use 'prompt cards which are small cards with key points written down as reminder. You need to anticipate questions and be prepared with the answers. If you are aware of any flaws in your audit, state this in your presentation by including counter argument. Bullet points or images can be set up so that they appear one at a time. This is to focus the audience's attention.

## **4.2 Format of presentation**

There is a certain format to present a clinical audit which is the following:

- i. Title of clinical audit
- ii. Introduction
- iii. Problem statement
- iv. Literature review
- v. Objective(s) of audit
- vi. Standard and Criteria
- vii. Definitions or key words
- viii. Methodology
- ix. Results
  - x. Reasons for shortfall in quality
  - xi. Strategies for change
  - xii. Results after implementation of change
- xiii. Conclusion
- xiv. References

### Title of Clinical Audit

The title of clinical audit should be self-explanatory and it illicit what aspect of care which is audited.

Examples are as the following:

- (i) Clinical audit on the standard practice in diagnosing laryngolaryngeal reflux in tertiary referral center (aspect of care audited: diagnosis)
- (ii) Timely referral of patient with strokes to the Occupational Therapy Department in Hospital Sultan Abdul Halim (aspect of care audited: referral)
- (iii) Audit on the use of granisetron injection for chemotherapy-induced nausea and vomiting in Hospital Sultanah Bahiyah (aspect of care audited: indications of medication)
- (iv) Audit on the adherence to cytotoxic regimen as in MOH Chemotherapy Protocol 2004 (aspect of care audited: adherence to protocol)
- (v) Audit on the care of tracheostomy among patients in Intensive Care Unit, Hospital Kepala Batas. (aspect of care audited: tracheostomy care)

### Introduction

This is a brief statement introducing the audit and conveying some general impression of the subject matter. It is best to provide reference to support the statement.

Example: Audit on adherence to postpartum oral glucose tolerance test (OGTT) among patients with gestational diabetes mellitus (GDM)

The introduction would be like below:

*“ Ministry of Health, derived from WHO ,RCOG and ACOG guidelines, has come up with the standard protocol that entailed repeating OGTT between 6 to 9 weeks post delivery for women with history of GDM.”*

## Problem Statement

This is a brief statement on why the topic (problem) was chosen and important. The selection of the problem could be based on a small preliminary study to verify the problem and to look into the magnitude of the problem.

Example (using the same audit title as above):

*“Despite the guidelines that recommend such testing, our previous record indicate that only 27.9% of patients with GDM came back for repeat OGTT after delivery”*

## Literature Review

Literatures that are relevant and recent should be referred. The literature should support the introduction and the problem of the subject matter. It should also provide some information on how other centers (both locally and abroad) are performing pertaining to the subject matter and this could be used to compare your performance with the others.

Example: Audit on the use of granisetron injection for chemotherapy-induced nausea and vomiting (CINV)

Literature review would be:

*“Granisetron is recommended to be used only for moderate and highly emetogenic chemotherapy regime by almost all the updated internationally-accepted guidelines. The recommended dose for the prevention of CINV is IV 1 mg or 0.01 mg/kg 30 minutes before the commencement of chemotherapy. There is no significant difference in the degree of control of CINV between low doses (1 mg) and commonly used high doses (3 mg).”*

## Objective of the Audit

(Refer 2.1.3, page 18)

## Standard and Criteria

(Refer 2.2, page 19)

### Definitions and key words

Certain definitions and key words should be briefly explained in order to have the understanding of the audience. Examples include conformance to a set of instructions in a protocol or procedure such as conformance to the administration of oral medication by nursing staffs. In this case, we need to identify how to determine conformance that involve many steps: do you need to comply with all the steps to be conforming to the protocol.

### Methodology

Briefly explain the methodology used in the audit such as design of study, sample and sampling technique, data collection and data analysis.

### Result

The first result that you should show is the result that answer the objectives of the audit. Use simple and easy charts and graphs.

### Reasons for shortfall in quality

Show the findings (possible contributing factors) that might explain why the standard is not met. (Refer 2.4.1, page 35)

### Strategies for Change

Present the strategy for change in tables so that they are clear. Refer example of action plan, page 44.

### Results after implementation of change

You could use charts and graphs to illustrate the comparison between results before and after the implementation of change.

## Conclusion

Summarize your key points and findings and state the impact of the audit to patient care and the organization. It is best to include the way forward for improvement.

## References

List all the references that you use.

----- **NOTES** -----

## References:

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