THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

MEDICAL AND HEALTH SCIENCES
SCHOOL OF MEDICINE

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

YEAR 6

COURSE BOOK

2021

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FOREWORD

Welcome to your Obstetrics and Gynaecology attachment!

Obstetrics and Gynaecology (O&G) is that branch of medicine, which concerns itself with the health care of women and with the physiological, psychological and pathological events of the reproductive process.

Obstetrics includes preparation for pregnancy, as well as the pregnancy, and the postnatal period. Gynaecology encompasses all the aspects of reproductive medicine as well as the pathology of the reproductive system such as gynaecological malignancy and other conditions including early pregnancy problems. Since most doctors, regardless of their discipline will care for women and families, core experience in O&G is a requirement for all students.

This part of your undergraduate course is a component of the Life Cycle module and builds on the Human Reproduction and Development course that you studied in Year 3 and also the Human Early Life Development Project. Caring for women is also an integral part of Women's Health and you will have experienced components of this area throughout your learning.

Our midwifery colleagues are keen to facilitate learning experiences for you – be sure to make the most of your brief time with them. Senior midwives have a lot of knowledge and experience that they can share with you

During your four week attachment in Year 6 you will be attached to a hospital team. During this attachment there will be more of an emphasis on gynaecology but you will also be expected to build on your obstetric knowledge and experience and have the opportunity to complete your logbook.

Pregnancy is an exciting adventure in which you can participate. Mother and baby are usually well. Most of them are joyfully experiencing a physiological process and you will learn from them a great deal about life, as well as about pregnancy and womanhood. However, outcomes are not always as hoped and it is important to have some knowledge of being part of the family experience of childbirth is a great privilege and it is important to recognise this and respect the wishes and dignity of the women and their families.

Experience in gynaecology will enhance your experience relating to women's health. It will also advance your knowledge in relation to endocrinology and oncology, as well as fertility and its related problems.

Ours is a practical speciality and this is a practical course, offering considerable opportunity for self-education. **It is up to you to make the most of the opportunity.** Please remember to appear and behave towards our patients as you would wish others to appear and behave towards female members of your family.

Our course is regularly reviewed and updated in the light of evidence-based research. We encourage you to discuss clinical issues with our staff.

Finally, this book is for staff and students, so that the experience for each group is clearly defined.

Professor Larry Chamley
Head of Department

INTRODUCTION

This course book is updated annually with helpful feedback from past students. We would like to get your suggestions at the end of your attachment on how we can improve for next year. Students from last year told us their best learning experience was seeing patients on their own in clinic or on acutes, and presenting them to their registrar, house surgeon, or SMO. It was most useful when they considered some possible diagnoses, initial investigations, and asked questions about the specific case. We do encourage you to look for all these opportunities for active learning.

You are asked to read all sections of this Course book regardless of the hospital you are based in.

Objectives of the course book are to:

1. Identify and define learning objectives – the logbook in particular sets out what our expectations are for basic women's health knowledge and skills of graduates from University of Auckland who are soon starting work as a house officer in a DHB and going on to be a GP or specialist in any area (it is not just a tick-box exercise)

2. Develop a scenario or case-based approach to learning, covering knowledge and skills that need to be acquired during the course.

3. Encourage the development of critical appraisal skills and appreciation of evidence-based medicine within the speciality of O&G.

4. Introduce you to the members of the clinical and academic teams and their defined roles and responsibilities. A quality learning experience and education is cultivated in an environment where students know what we expect of them and where students also know what they can expect of us.

It is to be emphasised that this Course book does not replace the recommended texts; rather it is a companion to them. Please also refer to the Phase 3 (Year 6) Guidebook, sections on O&G.

Contact me anytime if you have questions or concerns.

Dr Michelle Wise
Overall Year 6 Course Coordinator
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COMBINED YEAR 5 & 6 LOGBOOK REQUIREMENTS

- On the first day of the Year 6 attachment, please look at the Summary page of your logbook. Make a plan with your supervisor in order to complete your required assessments and procedures.

- During the first few weeks of the attachment, if you are having difficulty completing logbook objectives, please discuss with your supervisor and/or registrar to enable them to help you

- At the mid-cycle debrief, if you are still not meeting your learning objectives, please discuss with the local Year 6 Clinical Site Supervisor at your hospital

- The logbook requirements reflect the learning objectives (next page) and complement the Learning Outcomes listed in the Year 6 Guidebook.

- The Year 5 & 6 requirements are combined. Some DHBs do not offer all clinical experiences, however, students should be able to complete all requirements over the course of both their attachments in O&G.

- There are a number of clinical competencies that require sign-off from a staff member (SMO, Fellow or Registrar). This indicates that the student can perform that procedure or assessment competently, i.e. on their own.

- Certain clinical competencies always require direct supervision (e.g. pelvic exam), even if the student has been signed off as being competent to do on their own

- There are a number of clinical experiences with a minimum number required in order to obtain an acceptable level of experience by the end of Year 6. That being said, it is expected the student will usually perform more than the minimum number, especially for those requiring sign-off.

- **In the last week of your attachment, complete the Year 6 column in the Summary pages of your logbook (pages 22-25).** After that organise to meet with the local Year 6 Clinical Site Supervisor to review your logbook. Once reviewed and signed off, these need to be handed over to your local site co-ordinators, who will then forward them onto to Michelle Carvalho.

In order to pass the run, the logbook needs to be complete:

- all experiences are logged appropriately to reflect knowledge and skills gained in O&G
- experiences from GP attachments or Elective/Selective can also be included
- all days are accounted for
    - if sick leave for one or two days, your supervisor needs to be made aware
    - if sick leave for 3 or more days, you need a medical certificate
    - any other leave needs to be requested in advance in writing to the Phase 3 Director

LOGBOOK OBJECTIVES

Notes

() Numbers in brackets are minimum required
*Need to be signed off in log book by staff member that student is able to perform the procedure or assessment competently.
Some procedures and assessments will always be performed under supervision

The number of vaginal births set is to ring-fence the opportunity for you to be involved in labour and birth. It is not an absolute requirement to pass your O&G placement. It is recognised that there will be considerable variation in the numbers of vaginal births between students as it is unpredictable whether a vaginal birth is the end result of any given labour. Provided you make full use of the opportunities to attend births during your birthing suite shifts, the actual numbers achieved will be considered favourably. If <5, please provide a description of your learning in the Logbook for the vaginal births that you are able to attend.

A: OBSTETRICS

Clinical experience /Procedures

1. Attend antenatal clinics (6)
2. Conduct first antenatal history and exam, and present findings (on ward or in clinic) (4)*
3. Examination of a pregnant abdomen (20)*
    - Fundal height measurement (from 26 weeks)
    - Fetal heart sound detection (from 12 weeks)
    - Fetal lie and presentation (from 30 weeks)
4. Assessment of woman with the following clinical condition:
    - bleeding and/or pain in early pregnancy (2)*
    - nausea and vomiting in early pregnancy (1)
    - preeclampsia (1)*
    - suspected small for gestational age baby (1)
5. Request an antenatal ultrasound scan under supervision (1)
6. Attend an antenatal ultrasound scan (1)
7. Attend prenatal screening counselling (and / or invasive procedure) (1)
8. Be involved with:
    - Care of women in labour (5)
    - Involved with / perform / assist with vaginal births (5)* [*see notes on Page 17 of your logbook*]
9. Assist in theatre with a caesarean section (1)
10. Assist with active management of third stage (1)
11. Examine the placenta (1)
12. Inspection of the perineum postpartum under supervision (at least 1)
13. Examination of healthy newborn at birth (2)*

14. Urine pregnancy test (1)
15. Urinary dipstick for protein (1)
16. Postnatal mother and baby check could be with midwife or GP (1)
17. Attend perinatal morbidity / mortality meeting (1)

B: GYNAECOLOGY

Clinical experience /Procedures

18. Attend gynaecology clinics (6), could include specialty clinics:
    - Fertility (1)
    - Colposcopy (1)
    - Abortion assessment (1)
19. Provide contraceptive counselling (1)*
20. Assessment of woman with the following clinical condition:
    - lower abdominal pain – not pregnant (2)*
    - heavy menstrual bleeding (1)*
    - urinary incontinence (1)
21. Perform speculum examination under supervision (5)*
    - Perform endocervical swabs and complete lab req under supervision (2)*
    - Perform cervical smear and complete lab req under supervision (2)*
22. Perform bimanual examination under supervision (5)*
23. Write a prescription under supervision (1)
24. Insert a urinary catheter - can be in theatre (1)
25. Assist in theatre with
    - EUA D&C or ERPOC (1)
    - Laparoscopy (1)
    - Laparotomy (1)

WHO'S WHO

OVERALL YEAR 6 COURSE COORDINATOR – DR MICHELLE WISE

YEAR 6 CLINICAL SITE SUPERVISORS

Auckland City Hospital	Dr Jason Waugh
Middlemore Hospital	Dr Charlotte Oyston
Waitemata DHB	Dr Wendy Burgess
Waikato Hospital	Dr Richard Foon
Rotorua Hospital	Dr Alice Pan
Taranaki Hospital	Dr Olivia Payne
Tauranga Hospital	Dr Chris Thurnell
Whakatane Hospital	Dr Thabani Sibanda
Whangarei Hospital	Dr Jenny Blasingame

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PROFESSIONALISM

Medical students at the University of Auckland are expected to maintain a high level of professionalism during their clinical years, and this is especially true in the O&G attachment. We would like to highlight the following:

1. Do try to see women on your own rather than in pairs

2. Wear your identification badge and introduce yourself to the woman as a final year medical student

3. Ensure appropriate consent is obtained to be part of her care ("*I hope the nurse/midwife/doctor asked if it was ok for me to be involved in your care. May I ask you some questions about your health, then I will go and get Dr ---, and if it is ok with you, we can examine you together and come up with a plan for your care*.")

4. If you are asked questions by the patient regarding her care these are only to be answered with a staff member present *("I will get the doctor to answer that.")*

5. If you are asked to assess a patient and she seems unwell or unstable call for more senior help immediately

6. Do try to consider the information provided by the history and examination and present a working diagnosis and differential diagnosis to the registrar or consultant, along with a plan for initial investigations and management

7. Usual practice in maternity clinic and labour and birthing suite is that students are supervised doing abdominal palpations by a staff member in order to gain feedback on technique.

8. Expected practice in gynaecology clinic and acute women's assessment area is that students must **always** be supervised doing pelvic examinations by a registrar or consultant

9. **A patient must not leave clinic/hospital without being seen by a registrar or consultant. This must be clearly documented in the clinical record.**

BEHAVIOUR AND DRESS CODE ON YOUR O&G ATTACHMENT

(taken from Year 6, Guidebook Page 109 E.3 Dress in the Wards & General Practice)

You should adopt professional attitudes in respect behaviour and dress. Consider the effect of how you present yourself on the therapeutic relationship you will have with patients, and the professional relationships you are building with the healthcare team and public. Some minimum expectations are:

- **When working on the wards and in clinics, your appearance, including dress, hairstyle, and shoes, should be professional, unexceptional, neat and tidy.**
- Your demeanour should similarly be pleasant, professional, and courteous at all times.
- **Dress sensibly and appropriately, with no revealing clothing.**
- No jeans are to be worn.
- For safety reasons, closed shoes must be worn.
- Consider tying back long hair for safety and hygiene reasons. **Do not have an extreme hairstyle that will detract from your professional appearance.**
- Do not use work computers for personal matters including personal email and social media
- Cell phone use should be carefully considered. It is not appropriate to have your phone out during a ward round or in a clinic setting (even if you are using it for medical purposes).
- Social media use should be carefully considered. Do not disclose information about yourself that might undermine your relationship with patients. Similarly, do not disclose information that might identify patients. You are advised to read the Medical Council of NZ Statement:

  https://www.mcnz.org.nz/assets/standards/9fcbd84fb3/Statement-on-use-of-the-internet-and-electronic-communication-v2.pdf

CONSENT AND PATIENTS' RIGHTS

We would like to emphasise the importance of observing and respecting patients' rights as determined by the Consumer's Code of Rights, the NZ Medical Association's Code of Ethics, and the Medical Council's Ethical Guidelines.

A brief summary of essential consent requirements:

1. It is the woman's right to decide whether she agrees to have her history taken or an examination/procedure performed by a student. Patients are to be informed of this right.

2. **The School of Medicine has a Sensitive Examination Policy which states the requirement for a staff member to be present when a student is performing any intimate examination.**

3. It is the woman's right to have a support person present.

4. It is the woman's right to refuse to participate in student teaching without this decision jeopardising her care.

5. **Hospital staff should obtain patient consent for medical student involvement in care;** verbal consent is sufficient prior to a student taking a history or performing an examination in a clinic setting or for observing in the operating theatre or delivery suite.

6. For pelvic examination under anaesthesia (EUA), formal written consent must be obtained in advance. The O&G clinician obtains the patient's consent while the student is not present. Both the O&G clinician and the patient need to sign the pre-printed sticker, which is then placed on the operative consent form.

7. Medical students are provided with a supply of stickers (example below) which they should ensure is completed prior to undertaking a pelvic examination under anaesthesia.

> I, (patient name) ..... consent to medical student (student name) ..... conducting a pelvic examination in theatre during my anaesthetic under supervision by an O&G clinician.
>
> Patient Signature: .....
> O&G Clinician Signature & Date: .....

8. The identity of students is to be made known at every patient encounter. Students must wear their identity badge in all clinical sessions.

9. Students are to respect patient confidentiality.

10. Situations needing particular care with regard to consent for student observation and/or involvement:
    - Children under 16 years of age
    - Patients with different cultural background to that of the student
    - Patients not proficient in English
    - Patients with confusion, mental incompetence or hearing problems

YEAR 6 EXPERIENCE IN O&G

LEARNING OUTCOMES

Learning outcomes for the clinical attachment in O&G are clearly outlined in the Phase 3 (Year 6) Guidebook. Please refer to this.

LEARNING OBJECTIVES

The learning objectives listed below are specific objectives you should aim to acquire by the end of your Year 6 attachment. The list is not meant to define the limits of your experience. You are expected to discuss with your supervisor by the end of the second week of the attachment if there are any areas on this list you have not covered or are not confident with.

- Be able to take routine gynaecological history in a sensitive manner, including sexual history and contraceptive practice.
- Recognise conditions and presentations that constitute obstetrical and gynaecological emergencies.
- Be able to form a diagnosis on the patients seen based on the history, clinical findings and investigation results available.
- Be able to discuss the management of early pregnancy complications, such as bleeding, and nausea/vomiting
- Be able to discuss the management of common gynaecological problems, such as pelvic pain, heavy menstrual bleeding, menopausal symptoms, postmenopausal bleed, pelvic organ prolapse.
- Counsel pre and post-operative patients on the nature and significance of gynaecological operations.
- Be able to advise women and their partners about available methods of contraception, including permanent contraception
- Conduct both the first and subsequent antenatal visits, including palpation of pregnant abdomen and measuring fundal height. A video depicting the gold standard method of fundal height examination is available on Canvas: https://canvas.auckland.ac.nz/courses/47253/files/folder/Attachment%20Information/F.%20%204%20Week%20Obstetrics%20%26%20Gynaecology/1.%20Important%20Information?preview=3904253
- Be able to demonstrate with a model the anatomy (including dimensions and variations of shape) of the bony pelvis.
- Be able to detect pregnancies that have deviated from normal, by correctly identifying risks and potential adverse outcomes.
- Have an understanding of the normal limits of fetal growth and be able to recognise discrepancies between dates and uterine size, clinically, and using customized growth chart.
- Recognise the early signs and symptoms of preeclampsia and be aware of the complications of this syndrome and know how to prevent and treat them.
- To demonstrate the mechanisms of labour (cephalic or breech presentation).
- Be able to manage the third stage of labour.
- Be able to perform speculum and bimanual examinations.
- Be able to perform cervical smears and endocervical and vaginal swabs.
- Test for and demonstrate the presence of urethrocoele, cystocoele, uterine prolapse, enterocoele and rectocoele during speculum examination.
- Recognise an abnormal vaginal discharge.

Seminars and Tutorials

You are expected to attend all audit, quality and educational activities that your team attends. There is no formal O&G teaching in Year 6. You are expected to review your Year 5 notes at the beginning of the Year 6 attachment, and to review the teaching videos on Canvas on the taking an obstetric history, performing an obstetric exam, and taking a gynaecology history. You are welcome to use the "Introduction to O&G" textbook (Farquhar and Roberts).

GENERAL GUIDELINES TO CLINICAL DUTIES

It is your responsibility to get oriented to your clinical setting in advance of your first clinical duties.

PART 1 Outpatients

Gynaecology Clinic

You should attend at least one a week. Take the history on two or more patients, and then under registrar or consultant supervision, examine them and do initial tests as appropriate (e.g. smear, swabs). Write up their case histories, results of examination, impression and differential diagnosis, and initial management. Help with labelling specimens and completing (but not signing) forms. Help with labelling and writing out a prescription (but not signing). Offer patient education pamphlets. Ensure appropriate follow-up.

Abortion Assessment

The following statements have been supported by the Board of Studies (December 2020)

- It is expected that at some point during the Year 5 or Year 6 O&G clinical attachment, students attend local abortion services and follow the patient journey from referral to planning the procedure
- It is expected that students observe qualified health care practitioners (nurses, midwives, social workers, counsellors, doctors) consulting with patients who request abortion or discussion of pregnancy options
- It is expected that students attend and observe consultations without pre-judgement and do not express their personal beliefs to the patient
- It is not expected that students observe abortion procedures (medical or surgical); if students wish to observe, this opportunity is available, and students can discuss in advance with the local abortion service provider, and this would require patient consent as with any other health care procedure

And the following advice is provided:

- Students may have personal cultural/religious/moral objections to abortion (or contraception, sterilisation, circumcision) and find it a difficult subject, but it remains important for students to see this as an opportunity to be exposed to this area of women's health and broaden their perspective. The aim is not necessarily to change their opinion of it, rather for students to educate themselves and learn from the women who experience abortion, and try to understand their life circumstances that lead to requesting abortion. We want students to respect and care for women who may make different choices to themselves.
- Students are not providing patient care as qualified health care professionals, so the law on conscientious objection does not apply. Rather, students are learning about abortion, which includes the expectation within the MBChB teaching programme to observe counselling on pregnancy options in an abortion clinic. Conscientious objection *does not override a health practitioner's professional and legal duty to provide prompt and appropriate medical assistance to any person in a medical emergency*. Thus, it is essential for undergraduate medical students who are unlikely to provide abortion services in their career, to achieve the learning outcomes for abortion care and to understand the principles of duty of care.

- As future doctors, they will need to know how to refer women to abortion providers, and maintain a caring patient-doctor relationship throughout. By observing counselling of pregnancy options, students will be better able to understand the complexity of individual patient situations and observe the importance of treating woman with compassion
- On a practical level, students will have advance notice of attending an abortion clinic, so there is time to consider their own values, beliefs and opinions, how these may differ from others, and how they will be able to show empathy for women choosing to have an abortion. **If a student is unsure about attending, they should discuss this in advance with their cohort Clinical Site Supervisor.**
- We would like students to feel safe and supported. Students are encouraged to access counselling services within the University if their observation at an abortion clinic raises personal issues. For example, a student's family/community may have a cultural/religious/moral objection to abortion, or a student or their partner may have previously accessed abortion care services or be pregnant themselves during their O&G attachment.

Maternity Clinic

You should attend at least one a week. Take at least one complete antenatal history per clinic and identify antenatal risk factors and any complications that have arisen. Determine the management strategies to mitigate these risks to the woman and/or her pregnancy. Examine at least four pregnant women, including abdominal palpation per clinic, and where booking tests are done, assist with these.

Documentation

Document clearly in the notes. Indicate that verbal consent was obtained from the patient to include you in their care, and the name of the registrar/SMO that supervised your clinical encounter. Consider dictating the note, as long as Registrar/SMO will edit prior to finalising.

All patients seen at outpatient clinics should be discussed with either the Registrar or Consultant BEFORE they leave the clinic.

PART 2 Inpatients

Elective Gynaecological Surgery

You will be expected to present at least one patient per theatre session at the pre-operative ward round, assist at their surgery and be responsible for the recording of post-operative progress notes.

Operating Theatre

You are encouraged to attend and, if not assist, observe at least the common gynaecological surgical procedures - abdominal hysterectomy, vaginal hysterectomy, pelvic floor repair, diagnostic laparoscopy, laparoscopic tubal ligation, diagnostic hysteroscopy, and dilatation and curettage.

Antenatal and Postnatal Patients

You are expected to accept house officer responsibility for two of your team's patients, accepting additional patients as the others give birth or are discharged from hospital. The assessment and progress of these patients and their babies is to be followed through Labour and Birthing Suite and the puerperium.

Labour and Birthing Suite

You will be expected to be involved in management of women with normal labour. You will also be expected to be involved in the labour and birth of women with abnormal labour. This includes taking observations, assessing progress of labour using partogram, management of pain, and interpretation of fetal well-being.

You will be assigned one or more patients by the Charge Midwife and you are to admit them if they are new or follow them through if they are not.

You are asked to observe the first vaginal birth you attend. Always ask the woman directly for permission to attend, perform abdominal and vaginal examinations as appropriate, and to assist, with supervision, the birth of her baby. All vaginal examinations are to be done with the assistance of the attending midwife or doctor. The birth is an event at the end of labour, therefore you should understand the mechanics and physiology of labour as well. Direct responsibility will be to the attending midwife and doctor. Any other clinical tasks delegated to you will be at the discretion of the midwife and doctor who will provide continuous supervision and guidance.

Acute Gynaecology

You will be rostered with your team/consultant/registrar/SHO. The on-call house officer and registrar will allocate you patients on their arrival in hospital. You are to take the history and perform the initial examination of two or three patients during each duty. All pelvic examinations are to be supervised by a doctor.

You are expected to present the case to the registrar or consultant, including a working diagnosis and differential diagnosis, investigations, and initial management plan. You will follow-up the subsequent management, and will be responsible for assessing and documenting the progress of your patient. You are encouraged to follow patients to ultrasound and to operating theatre as appropriate.

Follow-up and Handing Over

You must see and make appropriate recordings in the case notes of your own postnatal, gynaecological, antenatal patients and babies at least once a day. When you go off duty, you must take care to acquaint the resident House Surgeon taking over your duties with those patients presenting real or potential problems.

<u>Some common abbreviations used in O&G (please also refer to local DHB guidelines:</u>

APH antepartum haemorrhage
CTG cardiotocography
FGR fetal growth restriction
GDM gestation diabetes mellitus
GPH gestational proteinuric hypertension
LSCS lower segment caesarean section
PROM prelabour rupture of membranes
PTL preterm labour
ROM rupture of membranes
SGA small for gestational age
VBAC vaginal birth after caesarean
PPROM preterm prelabour rupture of membranes

ASSESSMENT

Year 6 assessment has four components:

1 **Clinical Supervisor Report** - your clinical performance and attitude-approach to learning as assessed by your clinical supervisor report (electronic CSR). This is completed by your Clinical Site Supervisor. You will receive a copy of an Individual Clinician Contribution form (ICCF) in your pack. You are encouraged to provide hard copies of the ICCF to other doctors with whom you have worked, who can then submit them to your supervisor. Ideally you will find time in the last week of your attachment to meet with your supervisor to discuss your assessment.

2 **SUMMATIVE Mini-CEX** – you are encouraged to perform one or more formative mini-CEX assessments with Registrars or Consultants early in the attachment to get as much feedback as possible on your history, exam, clinical reasoning and professionalism. The summative mini-CEX must be done by a Consultant (does not need to be your Supervisor). Trying to complete the summative assessment in your 3rd week will allow time to repeat, should there be difficulties with that min-CEX.

3 **Quality Improvement Project** - oral presentation and written report.

4 **Log Book** - details of experience assessed from your Log Book – must be complete and submitted in order to pass the attachment. **Please review your logbook with your local Year 6 Clinical Site Supervisor for sign-off in the final week of the attachment prior to submission.**

Assessments for the clinical attachment in O&G are clearly outlined in the Phase 3 (Year 6) Guidebook. Please refer to this.

Quality Improvement Project (QIP)
Year 6

Instruction Guide

A resource written by Dr Sue Wells, Dr Bridget Kool, Prof Peter Stone & A/Prof John Buchanan
Revised in 2018 by Drs Vanessa Selak, Michelle Wise, Roshini John-Peris, Lynn Sadler and A/Prof Bridget Kool

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TABLE OF CONTENTS

1.0 INTRODUCTION

Welcome to quality improvement (QI) in the real world! Quality improvement is all about learning from data for the purpose of improving care. These notes have been prepared to assist you to undertake a QI project during Year 6.

The QI project is a joint undertaking of the Department of Obstetrics and Gynaecology (O&G) and the Section of Epidemiology and Biostatistics, School of Population Health. Our goal is to provide a project that maximizes learning objectives but can be feasibly completed by students over a four-week attachment. QI is a team-based ongoing process of improving the delivery of healthcare so that it is family-, whānau- and patient-centred, as well as safe, timely, effective, equitable and efficient.

In Year 5, the online QI course introduced the fundamentals of improving quality in health care through the following resources:

- course document (The Easy Guide to Clinical Practice Improvement: A guide for healthcare professionals. NSW Health 2002)
- video presentations by Dr Robert Lloyd from the Institute for Health Innovation (the Model for Improvement; data collection and understanding variation; run and control charts)
- video presentation by Dr Vanessa Thornton who described a quality improvement project she led to reduce the door to PCI (percutaneous coronary intervention) time for patients presenting to the Emergency Department of Middlemore Hospital with acute myocardial infarction.

Year 6 provides an opportunity to take this a step further and put the principles into practice in a more formal way.

The Year 6 student learning outcomes are:

- To be able to view a health service through the lens of QI dimensions (STEEEP: safe, timely, equitable, effective, efficient and patient/family/whānau-centred) and the concepts of harm, waste and variation, and identify an area for improvement

- To understand the basic approaches to measurement in QI, including identifying appropriate measures, sampling methods, collecting, analysing, interpreting and describing and displaying variation
- To set standards of care (criterion, target and allowable exceptions) based on review of the evidence
- Conduct part of a simple clinical QI cycle also known as a clinical audit (Figure 1) to measure and improve an aspect of performance in a specific area of healthcare

This project is a QI initiative, it is **not primary research**. QI initiatives and research have many similarities. They start with a question, expect to change clinical practice, require data collection on patients and depend on using an appropriate method. One of the major distinctions is that research investigates what should be done, whereas audit or other QI projects investigate whether it is being done (and if not, why not?). Furthermore, unlike research, the QI project is simply asking "what is happening here?" and there is no intention to generalise the results beyond the local setting. In addition, a clinical audit is **not** an incidence or prevalence study. For example:

✓ Quality Improvement question:

For women who sustain a postpartum haemorrhage what proportion were treated according to our hospital protocol and does care vary by age and ethnicity? (Audit of PPH care and disparities in care)

✗ Primary Research question: What is the incidence of postpartum haemorrhage in our unit and how does this vary by age and ethnicity? (Epidemiological study of PPH incidence)

2.0 KEY CONTACTS

Role in Department of Obstetrics & Gynaecology	Person	Contact details
Head of Department	Prof Larry Chamley	l.chamley@auckland.ac.nz
Overall Year 6 Course Coordinator	Dr Michelle Wise	m.wise@auckland.ac.nz
Practicum Placement Coordinator	Michelle Carvalho	(09) 923 9822 m.carvalho@auckland.ac.nz

3.0 ROLES AND RESPONSIBILITIES

Role	Responsibilities
Student	• Read and follow the Instruction Guide • Agree on specific audit project with Project Supervisor • Sign the Topic Selection and Sign off Form • Adhere to University and DHB policies around patient confidentiality and privacy • Store identifiable data only on memory stick provided, delete identifiers prior to data analysis, and present only deidentified and aggregated data in report and presentation • Prior to clinical conversations, check with DHB staff that they are aware of audit project and happy to discuss audit findings • Advise Project Supervisor (or Overall Year 6 Course Coordinator or Phase 3 Director, or Head of Medical Programme Directorate) if any concerns about the audit or its findings
Project Supervisor	• Be familiar with the learning outcomes of the O&G Audit Project and what is expected of students as outlined in the Instruction Guide • Confirm that the audit topic is within scope and sign the Topic Selection and Sign off Form • Assist students with obtaining sign off from local Year 6 O&G Site Supervisors and sending Form to Michelle Carvalho • If the audit topic is out of scope, obtain separate ethics approval

	• If required by the DHB, register the audit with the DHB research office and/or clinical records department or other • Recommend to the student(s) with other DHB staff can assist with data extraction and with whom they can discuss the audit findings, and advise those staff about the audit • Respond appropriately to any student concerns about the auditor its findings
Year 6 O&G Local Clinical Site Supervisor	• Be familiar with the Instruction Guide • At the start of each year, email O&G staff regarding theO&G audit programme and its scope • At the start of each clinical attachment, confirm that each audit project is in scope and co-sign the Topic Selection and Signoff Form (or email Michelle Carvalho directly) • Respond appropriately to any student concerns about the auditor its findings
Overall Year 6 Course Coordinator	• Respond appropriately to any student concerns about the audit or its findings • Maintain Instruction Guide • Maintain University of Auckland Human Participants Ethics Committee (UAHPEC) approval • If the O&G local Site Supervisor is absent: confirm that individual audits are in scope and co-sign the Topic Selection and Signoff Form
Head of Department of O&G	• Respond appropriately to any student concerns about the auditor its findings
Practicum Placement Coordinator, O&G	• Retain signed copies of Topic Selection and Sign off Forms
Phase 3 Director, Medical Programme Directorate	• Respond appropriately to any student concerns about the audit or its findings
Head of Medical Programme Directorate	• Respond appropriately to any student concerns about the auditor its findings

4.0 ETHICAL CONSIDERATIONS

4.1 Ethical approval

Ethical approval of an audit undertaken specifically for the formal Year 6 medical student QI Project during the O&G attachment has approval of the University of Auckland Human Participants Ethics Committee (Protocol number 021825). This is required because although Year 6 medical students are on the cusp of medical registration and formal entry to the medical workforce, they are not yet employed by DHBs and are still students of the University of Auckland.

4.2 Scope of activity

The scope of activity for which ethical approval has been obtained is limited to the project specified on the Topic Selection and Sign off Form completed by the students and signed off by each student, their Project Supervisor, and the Year 6 O&G Site Supervisor before an audit can commence. Any activity outside of this scope undertaken as part of the Year 6 medical student QI Project during the O&G attachment is not covered and may require additional ethics approval. If there is any doubt as to whether the activity is within scope or not, please discuss with the Overall Year 6 Course Coordinator.

Please note that the project must meet all of the following criteria for 'audit' (not research), otherwise it is out of scope for the QI project:

- Investigates what is being done (not what should be done)
- No intention to generalize the results beyond the local setting
- Only involves recording, classifying, counting and/or analyzing data already collected as part of patient care

Please also note that an audit with any of the following elements of increased risk are out of scope for the QI project:

- Contact with patients/consumers, their family or whānau or members of the public
- Data collected beyond that which is normally collected in routine clinical care
- Involves a change in standard of care for patients/consumers and/or their family/whānau
- The data will be used, stored, transported, or available (including in written outputs) in such a way that may identify individuals
- Analysis of data by individual clinician

4.3 Professional, legislative and DHB responsibilities

These are outlined in Appendix 12.1, 12.2 and 12.3.7

4.4 Patient confidentiality and privacy measures

Patients trust that their information will be used for their care and to enable the health services they receive to be of good quality. They expect their information to be treated with care and accessed only for the purposes for which it was provided. It is imperative that patient trust is honoured and that students adhere to the terms of access to patient records set in the Health Information Privacy Code 1994 and in DHB guidelines.

Data types

1. Identifiable data = identifiers are in the dataset (e.g. NHI, name, DOB, address)

Examples:

First name	Surname	DOB	NHI	Date of admission	Test done
Mary	Jones	3/03/1927	ABC1234	25/10/2018	Y
John	Smith	4/03/1972	DEF5678	25/10/2018	Y
Jane	Brown	5/03/1972	FHI9101	25/10/2018	N
Mark	Jones	6/03/1927	JKL1121	25/10/2018	N

2. Non-identifiable data = all identifiers have been permanently removed

Examples:

Study ID	Age at admission	Date of admission	Test done
1	92	25/10/2018	Y
2	47	25/10/2018	Y
3	47	25/10/2018	N
4	92	25/10/2018	N

Number of study participants: 4

Number (%) female: 2 (50%)

Mean age at admission: 69 years

Number (%) who had the test done: 2 (50%)

Steps

Protect data using the following measures:

1. DHB staff will remove any unnecessary identifiers (e.g. name, address and DOB if not required) before providing it to student(s)
2. Dataset to be provided to student(s) on password-protected and encrypted memory stick
3. Dataset to remain on password-protected and encrypted memory stick while being used by student(s)
4. Dataset containing identifiable data to be viewed by student(s) only on DHB computers
5. The dataset may be supplemented with data from additional data sources (and hence may need some identifiers)
6. Once the dataset has been finalised:
    a. A copy of the modified dataset should be provided (via memory stick, not via email) to the Project Supervisor (or their DHB delegate) so that the service can retain it for ongoing QI activity
    b. After the copy has been provided to the Project Supervisor (or their DHB delegate), all identifiers should be removed
7. At the end of the project, student(s) are to:
    a. Delete all data from the password-protected memory stick, AND
    b. Return the password-protected memory stick to the O&G department

District Health Board (DHB) audit systems are monitoring those accessing patient notes and misuse is taken very seriously. Please remember that the Year 6 Guidebook declaration that you have signed includes policies which require strict protection of patient confidentiality. Under no circumstances are identifiable patient data to be divulged in any report, publication or presentation.

4.5 Hospital staff confidentiality and privacy measures

- No data are to be analysed at the level of individual staff.
- Individual staff can choose whether or not to participate in discussions with students about the findings of the audits.
- No individual staff are to be named in any written or verbal reports of the findings of the audit by the students.

5.0 GENERAL INSTRUCTIONS

Base your QI project on the "The Quality Cycle" (see Section 6.0), published by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG).[2]

Watch the video explaining the QI project. If you haven't been shown this by your academic co-ordinator in the first week, it is available on Canvas, go to MBCHB 551A/B > Files > Attachment Information > Obstetrics & Gynaecology > Quality Improvement Project > QIP Resources >4. QIP Video.pdf.

Select your topic and select your supervisor within the first week of your O&G attachment (see Section 8.1).

Complete the *Topic Selection and Sign off Form* (Appendix 12.4) and submit to your audit Project Supervisor by the end of the first week. They should return it to you with their comments and signature of the local Year 6 O&G Site Supervisor by the beginning of the second week of the run. Ensure the signed Form is sent to Michelle Carvalho.

Base the topic on:

- An area of interest to you, ask "Can it be improved – how are we doing?"
- An existing policy or protocol or guideline
- An issue of clinical importance identified by your supervisor
- A previous audit where changes in care have been identified and implemented

Make the topic small, discrete, achievable

Work in a group of two to three students. Each student will need to have some data to analyse and will be expected to contribute to the oral presentation and written report. In some locations where there are small student numbers, projects can be done individually.

Use two of the "seven tools" of quality described in "Learning from Data" (MBCHB 551A/B > Files > Attachment Information > Obstetrics & Gynaecology > Quality Improvement Project > QIP Resources > Resources > 1. Learning from Data.pdf).

Do not contact patients: contacting patients or their families directly requires additional ethics approval

Contact with staff: Your Project Supervisor will recommend which other DHB staff you should approach to discuss the findings of your audit, to inform the interpretation of your findings and to help develop appropriate recommendations for improving the service. These conversations will have been preceded by an email to the DHB staff by your Project Supervisor advising them about

the audit and its scope. At the start of your conversation with DHB staff about the audit, check that they are familiar with the audit programme and are happy to discuss the audit findings with you. Reiterate that staff will not be named in the Report or Presentation.

Collaboration: The most helpful resource for the QI project that you are about to undertake is likely to be your O&G supervisors, members of the clinical team in the service, and other hospital staff. QI is generally undertaken by teams of health professionals. Focussing all members of the team on key areas in a co-ordinated way will generally lead to greater improvements. Team ownership of the audit process makes improvements easier to identify and implement in all aspects of care.[3] Please invite your team members to your oral presentation.

Time commitment: maximum of 4 hours per week. The project should not interfere with your O&G clinical experience.

Resources:

Refer to your Year 4 notes on CATS.

Refer to your Year 5 resources on QI:

- The Easy Guide to Clinical Practice Improvement: A guide for healthcare professionals. NSW Health 2002 (http://www.cec.health.nsw.gov.au/ data/assets/pdf_file/0005/286052/cpi-Easyguide.pdf)
- Videos on a QI framework (the Model for Improvement) and measurement for QI. The videos are presented by Dr Robert Lloyd from the Institute for Health Innovation:
    - Introduction to the Model for Improvement (http://www.ihi.org/education/WebTraining/OnDemand/ImprovementModelIntro/Pages/default.aspx)
    - Data collection and understanding variation (http://www.ihi.org/education/WebTraining/OnDemand/DataCollection_Variation/Pages/default.aspx)
    - Run and control charts (http://www.ihi.org/education/WebTraining/OnDemand/Run_ControlCharts/Pages/default.aspx)

You might also be interested in the Clinical Excellence Commission's 2016 Clinician's Guide to Quality and Safety (http://www.cec.health.nsw.gov.au/ data/assets/pdf_file/0009/327564/CEC-Guide-to-Quality-and-Safety.pdf)

The following resources are appended to this document and are available on Canvas:

To locate resources on Canvas, go to MBCHB 551A/B > Files > Attachment Information > Obstetrics & Gynaecology > Quality Improvement Project.

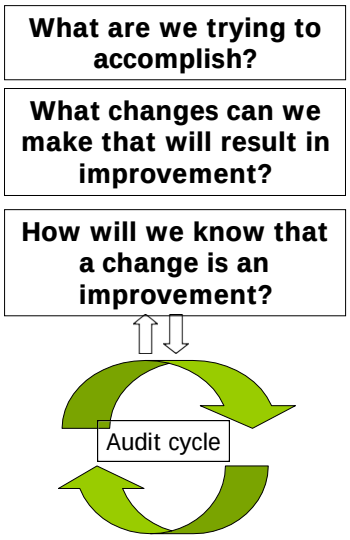
1. QIP Resources:
    1. QIP Topic Selection and Sign Off Form (Appendix)
    2. QIP Written Report Template (Appendix)
    3. QIP Marking Frame (Appendix)
    4. QIP Orientation Video
    - Other Resources
        1. Learning from Data
        2. Clinical Audit – Quality Improvement cycle
        3. QI Measurement & Tools, including cause and effect diagram template
2. QIP Previous Written Reports
    - An index of titles of previous audits conducted
    - Previous audit reports from other students, arranged by year
3. QIP Exemplar Reports
    - Some exemplars of previous audit reports

6.0 QUALITY IMPROVEMENT CYCLE

The QI process that is outlined in the "Quality Cycle" that RANZCOG has published (see next page) is used as a framework for the QI project during the O&G attachment.[2] The process that is described is generic and can be applied in any discipline. The team with whom you work in O&G will be familiar with the cycle. RANZCOG led the way in the promotion of practice-based learning and improvement among the professional medical colleges in Australia and NZ.

Fellows of RANZCOG and other Colleges are obligated to continue to engage in QI throughout their professional lives and have long recognised that "continual review and development of their clinical practices, and the healthcare systems in which they work, are fundamental to minimising risk and ensuring safe and optimal management of patients." Doctors in NZ are also obligated to engage in QI in order to keep up their MCNZ practicing certificate.

There are three key questions for any quality cycle:



You will note that the Quality Cycle published by RANZCOG has six steps. There are many other versions of the quality cycle (also called clinical audit cycle or QI cycle) in the literature. Some show fewer steps and others more. Please do not be confused by the different names and minor variations in the cycles – they are not important.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists

"Excellence in Women's Health"

www.ranzcog.edu.au

THE QUALITY CYCLE

Effective PR&CRM requires you to engage in a number of steps, creating a cycle of quality.

IDENTIFY an issue or area for review/improvement
EVALUATE your current performance
SET GOALS that would improve your performance
ACT on your goals
EVALUATE the effectiveness of your action
IDENTIFY... and on it goes

Quality Cycle Stage	Quality Improvement Process	Questions to Answer	Example
IDENTIFY an issue or area for review/ improvement	• Clinical experience • Literature review • Data collection	• Which area in your clinical practice requires improvement? • What is the rational behind this?	Inconsistent follow-up of pathology reports. Reports missing from histories or follow-up action not clearly documented.
EVALUATE your current performance	• Guidelines • Literature review • Collecting data • Comparing results against standards • Audit N.B extra PR&CRM Points can be claimed for doing a Clinical Audit. Please see the audit template.	• How did you evaluate the situation or processes? • What forms the basis to the standard that you would like to achieve in this area? • How did you collect the data to support the need for this improvement? • How long did it take?	Review previous 6 months data in comparison with NH&MRC based standard.
SET GOALS that would improve your performance	• Discussing the problem with all staff involved • Holding brainstorming sessions • Documenting plans to bring current practice into line with clinical standards	• What goals would you like to achieve? • How are you going to set out to achieve these goals? • What methods did you use? • How long did it take?	To develop a new tracking and documentation system in consultation with pathology laboratory, medical, nursing and reception staff.
ACT on your goals	• Implement change	• What changes have been made?	New tracking system implemented.
EVALUATE the effectiveness of your action	• Re-audit to assess impact of changes • Compare outcomes with standards	• How did you re-evaluate this area? • What was the result of the implemented changes to your practice?	Re-audit process to ensure that improved follow-up of Pap smears has occurred.
IDENTIFY and on it goes	• Refine the problem and continue to follow the quality cycle.	• How do you plan to monitor these changes?	Conduct random audit every 12 months to ensure compliance. Should any problems be identified then start the process again.

Please keep a summary of your activity as verification documentation

To claim points in the Practice Review & Clinical Risk Management category, enter the title of the activity and the amount of points on your Annual Points Claim form.

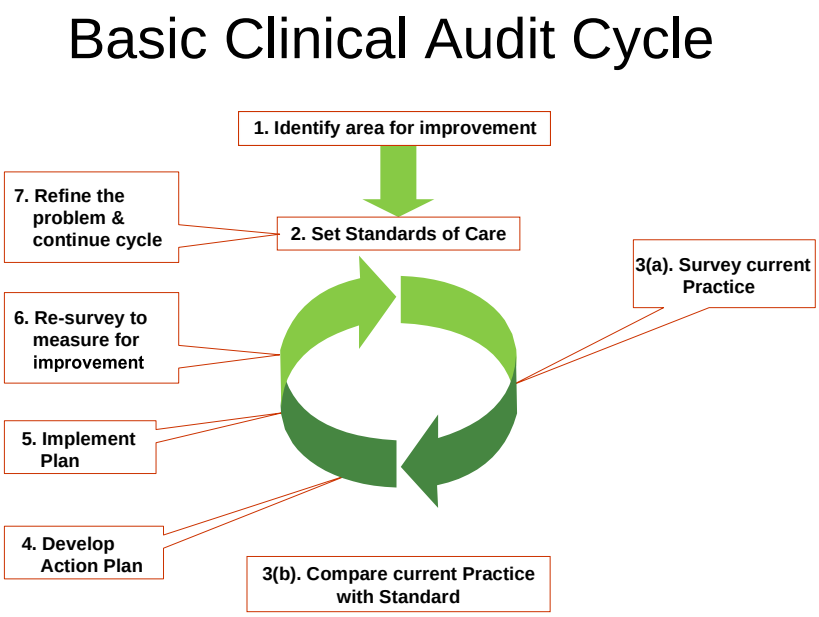
For queries, contact PR&CRM staff on +61 3 9417 1699 or prcrm@ranzcog.edu.au

Updated 01/06/10

Practice Review & Clinical Risk Management Activity

7.0 THE QI PROJECT IN O&G

It is envisaged that you will spend about four hours/week on a QI project during your O&G attachment. During that limited time, it is unlikely that you will be able to do all steps of the RANZCOG cycle. You may be able to do the first three (see *New Audit* below). Or you may *complete* an audit cycle on a topic where the Service has already implemented change and wishes to re-audit to check that the changes have resulted in an improvement (see *Complete the Audit Cycle* below). Your Project Supervisor will advise you of opportunities.



You must select which **steps of the cycle** your project is focusing on and indicate that in your oral presentation. Your presentation will also vary in content according to which project you choose.

Steps for "New Audit" project (or old topic where supervisor wishes you to start afresh)

1) Identify area for improvement
2) Set standard/s of care
3) Identify measures and plan sampling method
4) Collect data
5) Use two of the "seven tools" (see "Learning from Data")
6) Begin to develop Action Plan and next steps

Steps for "Complete the Audit cycle" project

1) Identify area for improvement from past audit and check standard is still current
2) Identify measures used and sampling frame
3) An action plan was developed and a change or changes have been implemented. What was implemented? How was it implemented? Who did it? When and where was it implemented? Discuss with staff/stakeholders any issues with implementation.
4) Develop a sampling frame and repeat measurement
5) Evaluate performance and suggest refinements

Your project must include the use of data and at least two of the other "seven tools" of quality to display or interpret the data (see "Learning from Data").

8.0 THE AUDIT STEPS IN MORE DETAIL

8.1 Step 1: Identify an area for improvement

Pick a problem worth solving. QI projects usually fall under three categories: harm, waste of resources, or variation in care. You may notice something on the ward in your first week. Some ideas include;

- High cost or high-volume procedure or condition
- High levels of complications or adverse events
- Documented patient dissatisfaction

You may find it helpful to think of your project in terms of a **question** you want to answer. This might be:

- Are we applying best practice in the management of (e.g. pre-labour rupture of membranes)?
- Are patient case notes being maintained to an acceptable standard?
- Are patients with a certain condition (e.g. pelvic inflammatory disease) receiving timely and effective treatment?

Ideally there is evidence available relating to best practice, that you can measure the gap between evidence and current practice (and providers can change the systems of care).

The aims and objectives of your project should flow naturally from this question.

Aims are broad statements of intent (e.g. "To improve...").

Objectives break down aims into component parts i.e. they are detailed and specific.

8.2 Step 2: Set standard of care

A standard is something established for use as a rule or basis of comparison; a reference point against which other things can be evaluated (Webster e-Dictionary accessed 2009). It is an explicit statement describing the quality of care to be achieved, which is definable and measurable. Do you have to write them yourself? Not always. National Standards may be available. Standards may also be incorporated into an evidence-based guideline i.e. the standards make up the measurable bits of the guideline.

Standards should be based on evidence, for which there is a generally accepted hierarchy.
In selecting a standard, you will be aiming for best practice such as;

- Evidence syntheses (Cochrane Library or other published systematic reviews)
- Evidence-based summaries or synopses (e.g. BMJ Clinical Evidence)
- Evidence-based guidelines (RCOG green top guidelines www.rcog.org.uk, RANZCOG statements www.ranzcog.edu.au, and Ministry of Health www.health.govt.nz)
- DHB clinical guidelines on local intranet
- Expert opinion
- If these do not have the evidence you are looking for, do a MEDLINE Search (OVIDor PubMed) and use MeSH terms

In an ideal world, standards are based on evidence-based guidelines, synopses or the systematic reviews of research findings. In practice, local standards are likely to draw on a combination of research evidence and local experience/opinion (depending on the topic, published research may be very thin on the ground).

Structure of a standard

A standard includes a **criterion**, **target** and **allowable exceptions**.
(e.g. chlamydia screening in pregnancy)

Criterion: The percentage of women who gave birth at the hospital who underwent chlamydia screening during pregnancy *(NZ MOH chlamydia management guidelines 2009)*

Target: 95% of pregnant women *(why not 100%? Some women may have been offered screening and declined)*

Allowable exceptions: women whose antenatal care was not in that DHB *(information on antenatal care would not be available to audit)*

Any well written standard must be SMART:

Specific (clear, unambiguous)

Measurable

Achievable

Related to the aims and objectives of the project

Theoretically sound (ideally based on evidence about best practice)

Audit projects often contain a whole set of standards, but there are time constraints for this project. **Keep it simple** – use one or two standards only. Don't try to do more than can reasonably be accomplished in the limited time available.

8.3 Step 3a: Survey current practice

You will first want to identify measures or clinical indicators of care.

When identifying measures, think about structure, process and outcomes (see "Learning from Data" and see Appendix 12.9). For example, if you were conducting a hand-washing audit, measures could include all or some of the following:

- The number of functional alcohol dispensers available in a ward (Structure)
- The volume of alcohol rub used per shift in a ward (Process)
- Compliance with guidelines for hand-washing e.g. cleaning hands before and after seeing a patient, after touching anything in patients' room (Process)
- Incidence of Hospital acquired MRSA per 1000 bed-days (Outcome)

Sampling methods

To select your sample, you will need to carefully define your study patients and your sampling frame. For example; you are interested in antibiotic prophylaxis to reduce wound infection rates in women after Caesarean. So, you might define your participant group as *"all women who underwent a Caesarean Section at Tauranga Hospital from 1 January to 30 June 2015 according to ICD-10 discharge codes."* Here the population of interest is all women who underwent a Caesarean Section, the sampling frame is the BOPDHB Hospital Discharges electronic database, and the sampling method is a six-month consecutive block sample.

Bias can occur if:

- Selection is via convenience sampling which chooses the easiest patients to access e.g. those patients on the ward right now

- You use a flawed sampling frame e.g. some departmental databases that are not systematically completed for all patients
- If there are changes in background environment e.g. doctor's strike, swine flu
- If you take shortcuts on your sampling plan or substitute one person for another

The critical question when sampling is this; **Is this sampling method able to describe the current practice and variability over time, season, and clinical staff so that the team is comfortable to accept the findings and act upon them?**

The aim is to choose a sample that reflects the care delivered. If there is a concern regarding winter vs. summer, staff turnover (e.g. new registrars), timing (e.g. weekends or afterhours), etc. then ideally the sampling strategy should take that into account. If you think that the first 6 months of the year is unlikely to truly represent this process, then do a random sample over the whole year. Or to detect variability or stability of the process, audit a small random number of records (e.g. 15-20 records) every month aiming for at least 12 months of data. The three main strategies are: block periods of time, random sampling, or systematic sampling. What you choose depends on the question and the process of care you are examining.

Simple sampling strategies

- Systematic or purposive – every 10th patient, or at set time of the day, set day of the week. This sampling focuses on getting just enough data to demonstrate variation in a process (e.g. for display in a run chart) and then to demonstrate a pattern of change following an intervention. A small sample over longer period of time will provide more information than large sample over short period of time. However, to avoid sampling bias, the start point should be random. That is; if choosing every 10th patient, randomly choose the start point between one and ten. If '3' is chosen then start at the 3rd patient, then the 13th, then the 23rd patient etc.
- Block sampling - select a straight sequence in a single time frame (consecutive patients)
- Random sampling (e.g. random numbers table) over longer time periods - especially when there may be major variation e.g. seasonal/night/day/weekends/change of house staff

Sample size

Often when students critique their methods when presenting their audits to us, they say the sample size was too small and wish to repeat the audit with bigger sample size.

To conduct audits with large sample sizes is inefficient and in reality, usually unnecessary. If you were doing a randomised controlled trial where you would often be looking for a modest relative improvement of ~20-30% with an intervention, you would need to power the study accordingly (and therefore need a big study population). In audits, the absolute gap in best practice and current practice is usually large - so the sample size required is actually very small. So, without going to see a statistician, the (rule of thumb) minimum sample size for a binomial variable (e.g. yes or no; or a proportion) is about 100-150.

However, if the practice was excellent (absolute gap between current and best practice was small) it would take a larger sample size to be able to say with confidence that practice is excellent, i.e. to be confident that you haven't simply missed the cases where things went wrong.

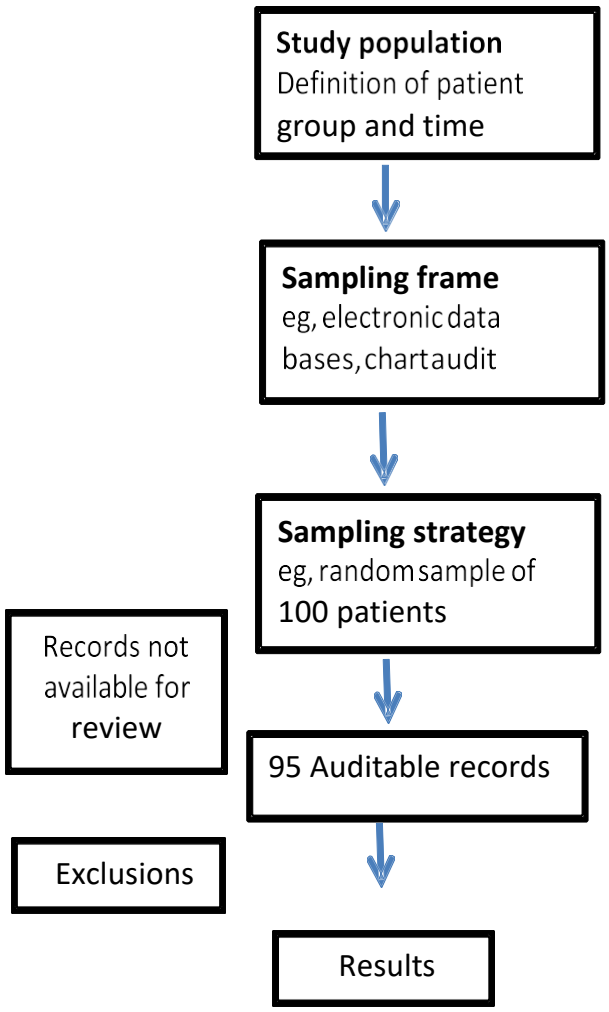
While it is not always necessary to calculate sample sizes, and you are not expected to do this for your QI project, below is a rule of thumb to guide you so that you conduct a 'do-able' audit within the time constraints. Appendix provides the formulae needed for calculating sample sizes for continuous data and discrete/count data should you wish to take this further.

Sample/purpose	**Type of data**	**Minimum sample size**
Proportion (pass/fail, yes/no)	Discrete- binomial	100-150
Errors (e.g. prescribing errors)	Discrete- count	Sample until 5 errors
Histogram Pareto Chart	Continuous discrete-attribute	50
Run/control chart	Could be either	15-20 to detect variability in the process Aim for 25-30 data points (minimum 12)
Estimating mean	continuous	5-10
Estimating standard deviation	continuous	25

Adapted from Thornley Group NZOQ Lean Six Sigma Green Belt Training 2010

For more information on sample size, see Appendix 12.8.

For your presentation it is recommended that you provide a flow chart of your study population, sampling frame, sampling strategy, and auditable records found (see example below)



8.4 Step 3b: Compare results against standards

Plot your findings over time using a **run chart** (see "Learning from Data"). Include older data (e.g. from an earlier audit) if available. Include a horizontal line for the median, and another horizontal line for the target. Describe whether or not the target is currently being met. Describe whether or not any of the four rules for special cause have been met. Consider whether your findings should be stratified by clinically relevant subgroups (e.g. ethnicity, age group, number of previous pregnancies).

8.5 Step 4: Action Plan

New topic audit (or old audit starting afresh)

If you have started a new audit topic and found that there was not a sizeable gap between current and best practice, then perhaps your recommendations may be to focus on another area of healthcare to improve. However, most audits do find some discrepancies in the health care delivered.

It is reasonable to finish here with;

- Your own **cause and effect diagram** (Appendix 12.7, or in "Learning from Data")
- Where you think the major problems might lie (Pareto chart if you have collected the data) or some suggestions to collect data on this
- The outcome of discussion of your findings with your supervisor and other staff involved
- Suggestions to the clinical team or future students to continue with the next steps
- Evaluate your audit: the validity and reliability of your measures (Appendix 12.9), strengths and limitations of your audit

8.6 Complete an Audit Cycle Project

There may be an opportunity for you to *complete an audit cycle* on a topic where the unit has already made changes. Your supervisor will advise you of opportunities for this. For this project you will need to complete the following steps:

1) Download the relevant Audit project from Canvas.
2) Identify area for improvement from the past audit and check if standard is still current and valid. You may need to update the search for evidence.
3) Identify the measures used, the study population, the sampling frame and the sampling strategy. Do these need refinement, or are they able to be repeated?
4) Was an action plan was developed and a change or changes have been implemented. What was implemented? How was it implemented? Who did it? When and where was it implemented? Discuss with staff/stakeholders any issues with implementation.
5) Repeat measurement using the same or your refined sampling methodology
6) Evaluate performance - has the change resulted in an improvement? Have there been any unforeseen opportunity costs?
7) Finally evaluate your audit, the validity and reliability of your measures (Appendix 12.9), strengths and limitations of your audit and make suggestions for the future.

9.0 ASSESSMENT OF THE QI PROJECT

9.1 Oral presentation

Use the Marking Frame for QI Project (Appendix 12.5). You will have 15 minutes to present, and an extra five minutes of discussion at the end of each presentation.

Oral presentations will be held in your own hospital the last week of the attachment. Please check with your supervisor about the exact arrangements for your date/time/location.

9.2 Written Report

Use the **Template for Written Report** (Appendix 12.6). Maximum 3 pages. Can be Word document or pdf. Email the report to Michelle Carvalho (m.carvalho@auckland.ac.nz) two days before your oral presentation. See Marking Frame for QI Project (Appendix 12.5).

The report may be circulated and used by the clinical service in future and will be uploaded onto Canvas for future students to review (if you are not comfortable with this please indicate).

If you are interested in publishing your audit project, please contact your supervisor, or Dr Michelle Wise (m.wise@auckland.ac.nz) or Dr Roshini Peiris-John (r.peiris-john @auckland.ac.nz).

10.0 REFERENCES

1. Counties Manukau District Health Board. Guideline. Ethical Guideline for Quality Improvement. 2017. Available from http://koawatea.co.nz/wp-content/uploads/2017/08/Ethical-Guidelines-for-Quality-Improvement-Gulideline.pdf [Accessed 19 October 2018]
2. New South Wales Health Department. Easy guide to clinical practice improvement. A guide for health professionals. NSW Health Department; 2002.
3. Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG). CPD-PRCM-The Quality Cycle. Updated 2010. www.ranzcog.edu.au
4. Ministry of Health. Toward Clinical Excellence: An Introduction to Clinical Audit, Peer Review and Other Clinical Practice Improvements. MOH NZ; 2002. www.moh.govt.nz

11.0 ADDITIONAL RESOURCE MATERIALS

- Deverall EJ, Gilmore B, Illing S, Peiris-John R. Pertussis vaccination uptake in pregnancy: lessons to be learned from an integrated healthcare approach. *New Zeal Med J* 2018; 131(1473):42-7.
- Lin YS, Cole AM, Lyes S, Hunter EK. Taking the tube: Uptake of salpingectomy at the time of hysterectomy for benign indications. *Aust NZ J Obstet Gyn* 2017; 57(2):193-6.
- Wise MR, Sadler L, Ekeroma A. Chlamydia trachomatis screening in pregnancy in NZ: translation of national guidelines into practice. *J Prim Health Care* 2015; 7(1):65-70.
- Lilic N, Jayanatha K, Stone P. Routine postnatal use of K-B test for anti-D administration: a medical student quality improvement project. *Joint Comm J Qual Pat Safety* 2013; 39(7):324-7.
- Benjamin A. Audit - how to do it in practice. *BMJ* 2008;336:1241-5.
- Clinical Excellence Commission, 2016. Clinician's Guide to Quality and Safety. Sydney: Clinical Excellence Commission

12.0 APPENDICES

12.1 Professional responsibilities

Sources:

MBCHB Clinical Practice: guidelines, policies & legislation

MBCHB Phase 3 (Year 6) Guidebook

(available on MBChB Portal: www.mbchb.auckland.ac.nz)

An effective health care system needs a continuing supply of qualified staff. An essential requirement for training health professionals is access to practical experience that is well planned and properly supervised

Good quality practical experience for students is based on a four-way partnership with the **patient** who agrees to be part of the teaching/learning process; **teaching staff; other qualified staff; and the student.**

In this partnership, the paramount consideration must always be the welfare and interests of the patient. These Standard Operating Procedures address the issue of how to ensure such an ethical focus when students are interacting with patient information (not the patient directly) and the interaction is organised **primarily** for teaching purposes.

As a junior member of a medical team your ethical responsibilities include those of qualified doctors as described and published by the New Zealand Medical Council of New Zealand as Cole's Medical Practise in New Zealand. 2013 edition in electronic format available from:
https://www.mcnz.org.nz/news-and-publications/cole-s-medical-practice-in-new-zealand/

If you are concerned in any way about ethical aspects of your work on this audit, you should consult more senior members of your clinical team and/or the Head of the Academic Department concerned, the Phase Director, or the Head of the Medical Programme.

12.2 Legislative responsibilities

Sources:

MBCHB Clinical Practice: guidelines, policies & legislation

MBCHB Phase 3 (Year 6) Guidebook

(available on MBChB Portal: www.mbchb.auckland.ac.nz)

The Health Information Privacy Code 1994 (under the Privacy Act 1993)

- Updated 2003 and 2008

DHB audit systems monitor those accessing patient notes, including the electronic medical record, and misuse is taken very seriously.

Privacy Act – applies universally

The Privacy Act establishes that information concerning an identifiable individual should be collected, stored, used and destroyed in a manner which ensures that the individual concerned (and in certain circumstances their relatives) are not either actually, or potentially harmed.

Failure to comply with the 12 Information Privacy Principles in the Privacy Act (which became operative on 1st July 1993) can result in severe legal penalties for the individual and/or organisation breaching the principles.

Health Information Privacy Code

The following guidelines on the application of the Code to medical students are not exhaustive and do not replace the Code but indicate general approaches which should be adopted to comply with the Code and Directives from the DHBs.

The Privacy Act allows The Privacy Commissioner to promulgate Codes of Practise which tailor the Privacy Principles of the Act to a particular activity or occupation. Such a Code (The Health Information Privacy Code 1993 [Temporary]) came into force on 10th August 1993 and was replaced by a permanent Code on 28th June 1994. The reprinted 2007 Code incorporates 7 amendments made since 1994.

The Code applies to all "Health Agencies" (which include DHBs and General Practitioners) and individuals (including Students and Trainees) who use Health Information. Whilst under the supervision of a hospital or other health agency students must comply with the policies and regulations developed for staff of that agency and while under the supervision of the FMHS should comply with the School's regulations and policy. The Code covers, for example, information about an individual's medical and treatment history, any disabilities they may have or have had, their contact with any health or disability providers and information about donation of blood, organs etc. The Code does not apply to statistical or anonymous information which does not enable the identification of an individual.

Application of The Code and penalties for breaches

The Code does not supersede standards of Ethical and Professional Conduct of the Health Professions (which

may be “higher”) but sets minimum standards with which all individuals and organisations have to comply.

Failure to comply with the Code can result in severe legal penalties for both the organisation and the individual.

During your medical studies you must comply with the Code in all of your contacts with patients or patient information in all circumstances.

Contents of the Health Information Privacy Code 1994 The full Code is available for you to consult from: https://www.privacy.org.nz/the-privacy-act-and-codes/codes-of-practice/health-information- privacy-code/

The Code consists of 3 parts and an Appendix. Part 1: Introduction
Part 2: The 12 Rules of the Code
(based on the 12 Privacy Principles of the Privacy Act)
Part 3: Miscellaneous Provisions
(related to Charges for copies of Information, appointment of Institutional Privacy Officers, Complaints and Schedules)
Appendix: Excerpts from the Privacy Act

The following guidelines on the application of the Code to Medical Students are not exhaustive and do not replace the Code but indicate general approaches which you should adopt to comply with the Code and Directives from the DHBs. Only the rules specifically applying to medical students have been mentioned.

In case of **any doubt** consult the full Code and/or your immediate Supervisor for guidance.

The Components of the Health Information Privacy Code

Rules 1 – 3: Collection of health information

This section outlines the essential points from each rule that is relevant for a medical student. It is not an exact copy of the rules.

Most health information is collected in a situation of confidence and trust and the manner of collection should reflect that confidence and trust by:-

Rule 1

Ensuring that health information is only collected from a person if it is for a lawful purpose connected with a function or activity of the health agency and is necessary for that purpose (e.g. Care and Treatment, Administration, Training and Education, Quality Assurance).

Rule 2

Information shall be collected directly from the person concerned or from a person who he/she authorises or who is their legal representative. Non-compliance (under special circumstances) requires approval from your immediate supervisor and then specific explanation and consideration (this provision confirms the Informed

Consent Principle).

Rule 3

All reasonable steps must be taken to ensure that the person knows: - That the information is being collected.
The purpose for which the information is being collected. The intended recipients of the information.
The name and address of the agency collecting and holding the information.

Whether the supply of information is voluntary or mandatory, and if mandatory, the particular law under which it is required.
The consequences to that individual and/or representative if all or any part of the requested information is not provided. [e.g. that failure to provide information for education and training purposes will not prejudice treatment]
The rights of access to correction of health information

Rules 5 – 9: Storage, security, accessibility and retention of health information

Rule 5

The Health Agency shall ensure that the Patient Information is protected against loss, access, use, modification or disclosure or misuse, except with the authority of the agency. All efforts will be made to prevent unauthorised use or unauthorised disclosure of the information. Health information must be disposed of in a manner that preserves the privacy of the individual.
N.B. Patient notes/records must not be taken from the places specified for their secure storage.

Rule 6

The Health Agency shall provide to the patient on request confirmation of whether or not the Agency holds information about them and also provide access to that health information.

Rule 9

The Health Agency shall not keep information for longer than is required for the purpose for which the information may be lawfully used.

Rules 10 – 12: Use of health information

Rule 10

A health agency that holds health information obtained in connection with one purpose must not use the information for any other purpose unless the health agency believes there is reasonable grounds (See Health Information Privacy Code 1994)

Rule 11

A health agency that holds health information must not disclose the information unless the agency believes there is reasonable grounds (See Health Information Privacy Code 1994)

Rule 12

A health agency must not assign a unique identifier to an individual unless the assignment of that identifier is necessary to enable the health agency to carry out any one or more of its functions efficiently (See Health Information Privacy Code 1994)

Health Practitioners Competence Assurance Act 2003

Under the Health Practitioners Competence Assurance Act 2003, the New Zealand Medical Council has no jurisdiction over medical students. Nevertheless, the conduct and health of students prior to graduation may have a significant bearing on future eligibility for registration as a medical practitioner.

This Act provides a framework for the regulation of all health practitioners where there is a risk of harm to the public.

Purpose of the Act

To protect the health and safety of members of the public by providing for mechanisms to ensure that health practitioners are competent and fit to practise their professions.

The Act provides a framework for the regulation of all health practitioners where there is a risk of harm to the public. There will be consistent processes for the registration and ongoing competence of practitioners who are currently regulated and a process for the inclusion of new health professions if appropriate. Registration authorities will certify that practitioners are qualified and competent to practise within a certain scope specifying conditions and time.

Scopes of practice

Each registration authority will develop scopes of practise describing the activities practitioners are qualified to perform, the conditions under which the activities may be performed and a date for review.

Restricted activities

Some activities, where there is a risk of serious or permanent harm, will be restricted to those who are competent to perform the activity according to their scope of practise.

Ongoing competence

Registration authorities will be required to put processes in place to ensure that practitioners maintain their competence throughout their careers.

Complaints and discipline

There will be consistent processes across the professions for handling complaints against health practitioners that are fair to both the complainant and the health practitioner.

Protected Quality Assurance Activities (QAA)

QAAs facilitate practitioners learning from patient outcomes, improving their competence and reducing adverse outcomes. By declaring a QAA, the Minister of Health provides both confidentiality to information that becomes known as a result of the activity and immunity from civil liability to people who engage in the activity of good faith.

It is important that you keep yourself informed of this Act and its implications for your ongoing

professional development and competence.

12.3 Responsibilities to DHBs

Under the terms of the agreement between the Faculty of Medical and Health Sciences (FMHS) and the District Health Boards (DHBs), you are responsible, through the senior clinical staff, to the CEO for the quality of your work with respect to its impact on standards of patient care and for all other aspects of your duties while on clinical attachments. DHBs require appropriate standards of personal conduct, professional behaviour and clinical competence and manage these matters on a daily basis. If concerns about your personal conduct, professional behaviour or competence are raised, this will be discussed initially between the head of the academic department and the DHB concerned.

DHB records (electronic and paper-based)

The hospital case records of patients are confidential documents whose custody and security is the responsibility of the DHB. DHB audit systems monitor those accessing patient notes, including the electronic medical record, and misuse is taken very seriously. The University, DHBs and all hospitals consider that it is a serious breach of confidentiality if you access patient information that is unrelated to your clinical responsibilities, including as part of conducting this audit. For example, you must not access your own personal records or those of any acquaintances, including staff. While the system allows users to access any patient record, all access is logged and can be tracked, so you must be able to completely justify every access transaction that you make through Concerto or equivalent electronic patient management systems. Any access that is not authorised under the DHB policy and which you cannot adequately justify will be treated very seriously under the Fitness to Practise policy.

Own records (electronic and paper-based)

When preparing your own notes, students who have permission to access a patient file as part of undertaking the audit need to be particularly careful that they safeguard the patient information and do not contravene DHB patient privacy codes. In particular, no information that identifies the patient (including NHI numbers and/or date of birth) can be printed out or copied and stored to any personal device such as a memory stick or laptop computer.

'Open access' approach

The DHBs have adopted an 'open access' approach to security. This means the system does not limit access. Confidentiality is achieved by users only accessing patient's information appropriate to their clinical responsibility. This means you must be able to justify every access transaction you make through hospital patient management systems such as Concerto. Any access not authorised by DHB policy, that you cannot justify, will be treated very seriously. Similarly, it is a very serious breach of patient confidentiality to allow anyone else access to your personal ID/ Log on. Logging off is essential. Please read 'Patient Health Information' in Clinical Practice: guidelines, policies & legislation of the Policy Guides for protocols on the appropriate use of electronic clinical information.

12.4 Topic Selection and Sign off Form

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

MEDICAL AND HEALTH SCIENCES
SCHOOL OF MEDICINE

Topic Selection and Sign off Form for O&G Quality Improvement Project

Part A: Student(s) details

_____ _____
Hospital Date

By signing below, I confirm that:

- I have read and agree to follow the Instruction Guide for the Year 6 O&G QI Project
- The scope of my audit is limited to the project details stated below
- I will adhere to University and DHB policies around patient confidentiality and privacy
- Any identifiable data will be stored only on the password-protected and encrypted memory stick and will be deleted at the end of the project
- Only de-identified and aggregated data will be used for the report and presentation

Name_____Signature _____

Name_____Signature _____

Name_____Signature _____

Part B: Project details

Audit topic_____

_____

Standard _____

Sampling strategy_____

Sampling frame dates, from_____to_____

Inclusion criteria_____

Exclusion criteria_____

What variables do you plan to collect? (e.g. age, parity) _____

_____

Where will you identify your cases to audit? (*tick* as appropriate) o From existing database o From log books or other manual sources	How will you collect your data? (*tick* as many as apply) o Case note review (hard copy or electronic) o Data from existing database o Other (specify) …….

Please arrange for the form to be completed by the Project Supervisor (section C) and co-signed by your local Year 6 Clinical Site Supervisor (or Overall Year 6 Course Coordinator if they are absent) (section D) by the end of the 1st week. Please ensure that the completed form is scanned/emailed to Michelle Carvalho (m.carvalho@auckland.ac.nz).

Part C: Project Supervisor

By signing below, I confirm that:

- I am familiar with the learning outcomes of the audit project and what is expected of students
- The scope of this audit is limited to the project details stated above
- This audit meets criteria for 'audit' not research (see Box below)
- This audit does not involve any of the elements of increased risk (see Box below)
- If required by my DHB, I have registered this audit with the necessary department(s) (e.g. research office, clinical records department, etc.)
- The dataset will be provided to students on a password-protected and encrypted memory stick
- I suggest the following DHB staff who students could approach to complete their project. I have informed the staff about the project:

1. Assistance with data extraction:

   _____

2. Discuss audit findings:

   _____

Name_____Signature_____Date_____

Part D: Year 6 Clinical Site Supervisor

By signing below, I confirm that:

- This audit meets criteria for 'audit' not research (see Box below)
- This audit does not involve any of the elements of increased risk (see Box below)

Name_____Signature_____Date_____

Criteria for audit not research*

- Investigates what is being done (not what should be done)
- No intentions to generalize the results beyond the local setting
- Only involves recording, classifying, counting and/or analyzing data already collected as part of patient care

Elements of increased risk for audit*

- Contact with patients/consumers, their family or whānau or members of the public
- Data collected beyond that which is normally collected in routine clinical care
- Involves a change in standard of care for patients/consumers and/or their family/whānau
- The data will be used, stored, transported, or available (including in written outputs) in such a way that may identify individuals
- Analysis of data by individual clinician

***If any of the audit criteria are NOT met, or if any of the elements of increased risk for audit ARE met, the activity is not covered by University of Auckland Human Participants Ethics Committee (UAHPEC) approval.** The Project+ would be responsible to obtain additional ethical approval if required.

12.5 *Marking frame for QI Project*

Name/s _____ **Date:** _____

Project Title: _____

Assessor: _____

(Marking guide: 0 = not satisfactory, 1 = satisfactory, 2 = very good, 3 = excellent)

ORAL PRESENTATION	0	1	2	3	Notes
Area for improvement identified					• Problem/ question clearly articulated • Clear explanation of why the issue was chosen • Significance of the issue clearly articulated • Aims /objectives identified
Explanation of the Standard					• Clear definition of the standard (criterion, target, allowable exceptions) • Discussion of quality of evidence standard is based on
Methods					• What type of indicator was the standard (structure, process, outcomes)? • How the sample was selected (study population, sampling frame, sampling strategy)? • What variables did you examine?
Results					• Clear explanation of main findings • Appropriate use of figures and graphs
Interpretation of findings					• Correct interpretation of findings • Significance of findings • Significant consideration of root causes of findings and possible solutions - consultation with team/experts
Strengths and limitations clearly explained					• Clear explanation of audit strengths • Clear explanation of audit limitations (including reliability and validity of variables examined)
Global assessment					• Quality of presentation • Understanding of QI process
Kept to 15 min time limit					
Deleted data; returned data stick					**TOTAL /26**

WRITTEN REPORT	0	1	2	3	Comments
Overall quality of Written Report					
• Clear standard					
• Methods covered key areas					
• Clearly presented results					
Applicability of findings to the clinical service					
• Limitations of audit articulated					
• Sound interpretation of results					
• Recommended service improvement/s					
• Recommended a future QI topic					
Kept to 3 page limit					**TOTAL /24**

Feedback to the students; what did they do well?

12.6 Written report template for QI Project

This report should be maximum 3 pages of A4 at 12 font (including key figures and tables, excluding references), and presented in bullet point format. The aim of this report is to provide feedback to the clinical service so they may use your work for quality improvement.

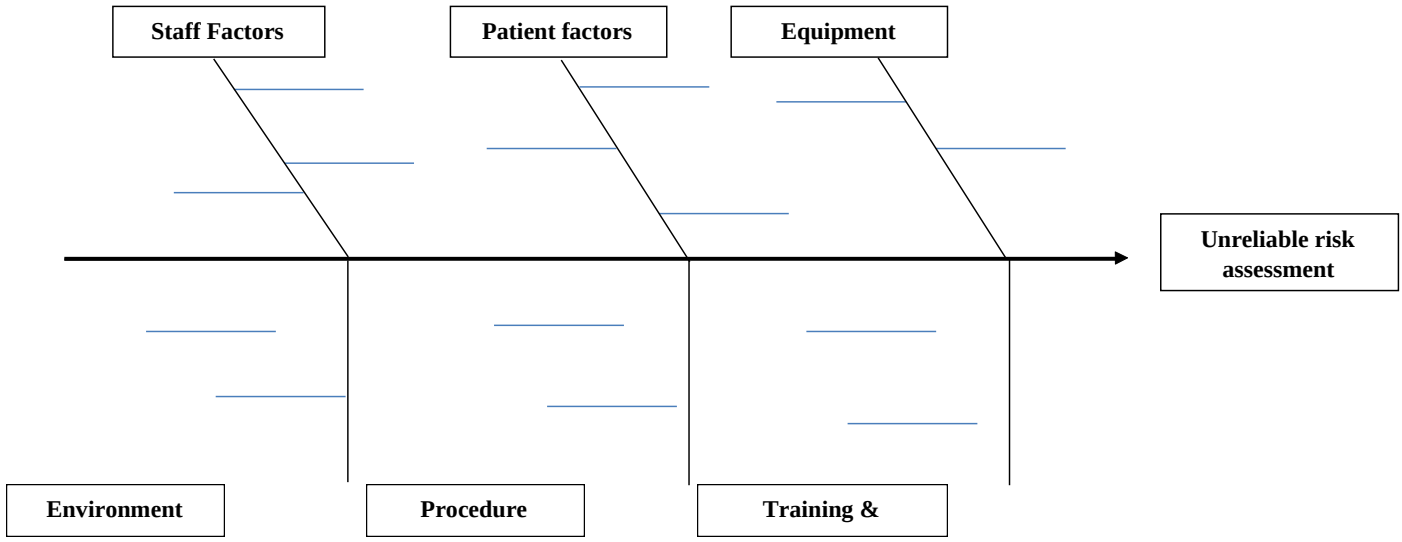
Please use the headings below. Please insert page numbers.

NB this is the official template for this part of the project - your report will be graded based on this template. Your report should NOT look like reports written before Aug 2013.

Visit the CANVAS O & G attachment page to access resources to assist with your project.

Title: *Provide a succinct and relevant title so that an interested clinician could search the index and find your project, e.g. "chlamydia screening in pregnancy"*
Student Names: **Date:**
Project Supervisor:
Index Category: **Maternity:** *Antenatal/ Intrapartum/ Postnatal/ Neonatal/ General* **Gynaecology:** *Oncology/ Colposcopy/ Infertility/ Urogynaecology/ Family planning/ General*
Hospital*: Auckland/ Hamilton/ Middlemore/ New Plymouth/ North Shore/ Rotorua/ Tauranga/ Waitakere/ Whakatane/ Whangarei*
Standard: *In 1-2 sentences describe the standard/criterion, target, e.g. "100% of pregnant women should have chlamydia screening in pregnancy." Provide source of standard, e.g. MOH guidelines.*
Methods: P*rovide enough detail for someone to replicate the project at a later date, including:* • *description of the sample (including inclusion/exclusion criteria, sample size, sampling method)* • *data source(s)* • *definition of any derived data variables*
Results: *This section should include:* • *a table describing the sample* • *data and figures that directly address the standard* • *a run chart/Pareto chart/ Ishikawa diagram as appropriate to illustrate further analysis*
Limitations: *Describe briefly any limitations of your audit that are relevant to the service understanding the validity of the work you have done. For example, are the results generalisable beyond your sample? Were there a lot of missing data? Are the data contemporaneous?*
Interpretation of Findings: *Include relevant points on what the findings mean, how they fit in the context of the service, along with (1) one recommendation that you think the service could implement right away, and/or (2) an area for further audit (Not just a re-audit).*
Future QI Topic Recommendation: *Now that you have completed your own QI project, can you suggest a topic for another QI project that could be undertaken by future students*

12.7 Cause and effect (Fishbone / Ishikawa) diagram template



Cut & paste line and text box below to add lines / text to your fishbone diagram

Enter text here & drag to appropriate place

12.8 Sample size calculations

Continuous data minimum sample size

- To calculate sample size need to know the standard deviation (from the mean).
- Options for estimating standard deviation include using existing data, collect a small sample, or use experience (often wrong!)

$$n = \left(\frac{2s}{\Delta}\right)^2$$

- For example, if we wish to estimate the mean current waiting time for ED patients within +/- 0.25hr
  - Have no current data so estimate standard deviation(s) to be 1hr
  - $\Delta = 0.25$

    N=64 patients

Discrete data minimum sample size

The formula is as below.

$$n = \left(\frac{2}{\Delta}\right)^2 p(1-p)$$

For example, if we wanted to know how many prescriptions we would need to sample if the proportion not meeting the standard (pass/fail) was estimated at about 5% +/- 2%.

P= 0.05
Δ= 0.02
N= 475 prescriptions

12.9 Key attributes of a good measure (or indicator)

Attribute	Description
Valid	Does the indicator measure what is intended and point to issues of quality?
Reliable	Is there demonstrated reliability (reproducibility) of data? Reliability depends upon standardised definitions and rigour of data collection.
Relevance	Does the indicator measure aspects of care which are relevant and significant and under provider control?
Clear Intent	Is the intent of the indicator easily understood and interpretable by all users?
Definable	Can the indicator be clearly defined?
Accessible	Are data easily accessible?
Event Identified	Can events be readily identified through diagnoses and/or frequency of occurrence, e.g. major complication or commonly treated?
Responsive	Is the indicator responsive with a potential for action and quality improvement?
Useful	Does the indicator provide useful information to inform quality programs and stakeholders?
Practical Benefit	Does the indicator have a strong cost: utility ratio?