Why patient safety is relevant to surgery and invasive procedures

There is now plenty of evidence to show that patients who undergo a surgical or an invasive procedure are at increased risk of suffering an adverse event [1-3]. This is not because the surgeons and proceduralists are careless or incompetent, rather it is because we now know about the many opportunities for things to go wrong because of the many steps involved in surgical procedures. In addition, there are the problems caused by surgical site infections that account for a significant proportion of all health care-associated infections. This topic will assist students to understand how patient safety principles can assist in minimizing adverse events associated with invasive procedures. There are many validated guidelines now available to assist the health-care team deliver safe surgical care. There may not be many opportunities for students to implement many of these steps to improve surgical outcomes. Nonetheless they can observe how the health professionals communicate with one another and what techniques they use to make sure they are operating on the correct person or doing the procedure on the correct body part. They can also observe what happens when health-care professionals appear not to follow a protocol. Does this make their job harder or easier?

Keywords
Surgical and procedural site infections, surgical/procedural errors, guidelines, communication failures, verification processes, teamwork.

Learning objective
The objective of this topic is to understand the main causes of adverse events in surgical and invasive procedural care and how the use of guidelines and verification processes can facilitate the correct patient receiving the correct procedure at the appropriate time and place.

Although the principles described in this topic are important for both surgical and invasive procedures, most of the evidence in the literature relates to surgical care.

Learning outcomes: knowledge and performance

What does a student need to know (knowledge requirements):

- the main types of adverse events associated with surgical and invasive procedures care;
- the verification processes for improving surgical and invasive procedures care.

What a student needs to do (performance requirements):

- follow a verification process to eliminate wrong patient, wrong side and wrong procedure;
- practise operating room techniques that reduce risks and errors (time-out, briefings, debriefings, stating concerns);
- participate in an educational process for reviewing surgical and invasive procedures mortality and morbidity.

WHAT STUDENTS NEED TO KNOW (KNOWLEDGE REQUIREMENTS)

The main types of adverse events associated with surgical and invasive procedural care

The traditional way of explaining adverse events associated with surgery and invasive procedures is usually related to the skills of the surgeons and the age and physical conditions of the patients. Vincent and colleagues [1] believed that adverse surgical (and other procedural) outcomes are associated with many other factors such as quality of the design-interface, teamwork and organizational culture. Students should have...
learnt about a system approach in topic 3 as well as the topics on teamwork and infection control all of which is particularly relevant to this topic.

A systems approach to surgical and procedural adverse events requires us to examine both latent factors such as teamwork and inadequate leadership and sharp end factors such as communication during handoffs and poor history taking.

The three main causes of adverse events in surgical care are: (Infection control)

1. Poor infection control methods
   The Harvard Medical Practice Study II [2] found that surgical-wound infections constituted the second-largest category of adverse events and confirmed the long-held belief that hospital-based staphylococcal infections constituted a great risk for hospitalized patients, particularly those receiving surgical care. The implementation of safer infection control practices such as the appropriate administration of prophylactic antibiotics has reduced postoperative infections. In addition, increased attention to the risks of transmission show health-care workers how they as individuals and members of teams can minimize the risks of cross-infection.

   Everyone has a responsibility to decrease the opportunities for contamination of clothing, hands and equipment that have been associated with transmission routes. Infection control is studied in more detail in topic 9. Students during their training will be present during an operation or invasive procedure. They must at all times comply with the infection control guidelines and practise universal precautions.

2. Inadequate patient management
   The operating room and environment involves intensely complex activities that may explain why there are more adverse events associated with surgery when compared to other hospital departments.

   The main adverse events associated with surgical care include:
   - infections and postoperative sepsis;
   - cardiovascular complications;
   - respiratory complications;
   - thromboembolic complications.

   When these events have been analysed, a range of pre-existing conditions (latent factors) have been identified. Some of these are:
   - inadequate implementation of protocols or guidelines;
   - poor leadership;
   - poor teamwork;
   - conflict between the different departments and the organization;
   - inadequate training and preparation of staff;
   - inadequate resources;
   - lack of evidenced-based practice;
   - poor work culture;
   - overwork;
   - lack of a system for managing performance.

   In addition to latent factors, individuals working at the sharp end of peri-operative care are prone to the following types of errors known to cause adverse events, including:
   - communication failures:
     - information is provided too late to be effective;
     - information is inconsistent or inaccurate;
     - key people are excluded from the information;
     - there are unresolved issues in the team;
   - failure to take precautions to prevent accidental injury;
   - wound infections, other wound problems, technical problems and bleeding;
• avoidable delays in treatment;
• failure to take adequate history or physical examination;
• failure to employ indicated tests;
• failure to act upon the results of findings or tests;
• practising outside an area of expertise (failure to consult, refer, seek assistance, transfer).

3. Failure by health-care providers to communicate effectively before, during and after operative procedures.

One of the biggest problems in the operating environment is miscommunication. Miscommunication has been responsible for the wrong patients having surgery, patients having operations on the wrong side or site and having the wrong procedure performed. Failure to communicate changes in the patient’s condition and failure to administer prophylactic antibiotics have also resulted in adverse events. In addition, disagreements about stopping procedures or failing to report errors have been documented.

Health professionals are often required to deal with many competing tasks in the operating room. A surgical term is viewed by most trainees and students as a very busy term. In addition to high workloads, the peri-operative environment is characterized by staff with varying levels of experience and abilities. This combination of factors can seriously impact on the team’s ability to communicate accurately and timely. Communication problems occur at all stages—but particularly when patients are transferred from one phase of care to another.

The extent of adverse surgical events involving wrong site surgery [3] led The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) [4] to include wrong site surgery in its national database of “sentinel events”. Many countries now collect data about wrong patient/invasive procedures because it is recognized that one of the best ways to reduce errors caused by misidentification involves implementing best-practice guidelines for ensuring the correct patient receives the correct treatment. The evidence convincingly demonstrates that when health-care professionals follow endorsed guidelines and are familiar with the underlying principles supporting a uniform approach to treating and caring for patients, patient outcomes significantly improve.

The complexity of the surgical environment is a major factor underpinning communication errors and they occur at all levels. A study by Lingard and colleagues [5] described the types of communication failures that are set out in Table 17.

For a real example of how errors can occur in surgical procedures see http://www.gapscenter.va.gov/stories/WillieDesc.asp (accessed January 2009).

In the Lingard study [5], 36% of communication failures resulted in a visible effect such as team tension, inefficiency, waste of resources and inconvenience to patients or procedural error.
The verification processes for improving surgical care

Guidelines
One of the most effective methods for improving patient care is to implement an evidenced-based guideline especially developed to manage a particular condition or situation. Many terms are used to describe a medical guideline such as protocol, clinical guideline, clinical protocol and clinical practice guideline. They all mean the same thing. A guideline is usually an electronic or written document designed to guide decision-making in a specific area of health care. Guidelines are usually developed by a group of experts using the latest evidence. Evidence-based practice guidelines are normally endorsed at a national or international level by the relevant professional body and include summarized statements about the latest knowledge and preferred ways to treat.

Good guidelines are easily disseminated and designed to influence clinical practice on a broad scale.

Table 17. Types of communication failure with illustrative examples and notes

<table>
<thead>
<tr>
<th>Type of Failure</th>
<th>Definition</th>
<th>Illustrative example and analytical note (in italics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occasion</td>
<td>Problems in the situation or context of the communication event</td>
<td>The staff surgeon asks the anaesthetist whether the antibiotics have been administered. At this point, the procedure has been under way for over an hour. Since antibiotics are optimally given within 30 minutes of incision, the timing of this inquiry is ineffective both as a prompt and as a safety redundancy measure.</td>
</tr>
<tr>
<td>Content</td>
<td>Insufficiency or inaccuracy apparent in the information being transferred</td>
<td>As the case is set up, the anaesthesia fellow asks the staff surgeon if the patient has an ICU bed reserved. The staff surgeon replies that the “bed is probably not needed, and there is not likely one available anyway, so we’ll just go ahead”. Relevant information is missing and questions are left unresolved: Has an ICU bed been requested, and what will the plan be if the patient does need critical care and an ICU bed is not available? (Note: this example was classified as both a content and a purpose failure.)</td>
</tr>
<tr>
<td>Audience</td>
<td>Gaps in the composition of the group engaged in the communication</td>
<td>The nurses and the anaesthetist discuss how the patient should be positioned for surgery without the participation of a surgical representative. Surgeons have particular positioning needs so they should be participants in this discussion. Decisions made in the absence of the surgeon may lead to the need for re-positioning.</td>
</tr>
<tr>
<td>Purpose</td>
<td>Communication events in which purpose is unclear, not achieved or inappropriate</td>
<td>During a living donor liver resection, the nurses discuss whether ice is needed in the basin they are preparing for the liver. Neither knows. No further discussion ensues. The purpose of this communication—to find out if ice is required—is not achieved. No plan to achieve it is articulated.</td>
</tr>
</tbody>
</table>

The verification processes for improving surgical care

Guidelines
One of the most effective methods for improving patient care is to implement an evidenced-based guideline especially developed to manage a particular condition or situation. Many terms are used to describe a medical guideline such as protocol, clinical guideline, clinical protocol and clinical practice guideline. They all mean the same thing. A guideline is usually an electronic or written document designed to guide decision-making in a specific area of health care. Guidelines are usually developed by a group of experts using the latest evidence. Evidence-based practice guidelines are normally endorsed at a national or international level by the relevant professional body and include summarized statements about the latest knowledge and preferred ways to treat.

Good guidelines are easily disseminated and designed to influence clinical practice on a broad scale.
Good guidelines share the following characteristics:

- they define the most important questions relating to clinical practice in a particular field;
- they attempt to identify all possible decision options and the known consequences of those decisions;
- they identify each decision point followed by the respective courses of action according to the clinical judgement and experience of the health professionals.

The extent of variation of practice in health care has been identified as a major problem. Institute of Medicine [6]. Variation caused by overuse, underuse and misuse of medical care can be addressed by evidence-based practice, which uses the best evidence available with the goal of lessening variation and reducing risks to patients. Health professionals working in hospitals and clinics do not have the time, resources or the available experts to each produce their own set of guidelines. Instead, clinicians are encouraged to adapt already established guidelines and then modify them to suit their local practice and environment.

Guidelines are necessary because the complexity of health care plus the level of specialization has made personal opinion or professional and organizational subjective preferences redundant and unsafe. There are now hundreds of validated guidelines to assist clinicians practise safe surgery such as preventing wrong site, wrong procedure, wrong person surgery and prevention of surgical site infections.

Medical students are not always told about the guidelines that are used in a particular area of medicine. Nonetheless, they should be aware that in many areas of clinical practice, particularly that associated with the management of chronic illness, there are established guidelines that identify the best way to treat patients. Often guidelines may not be accessible to the team who is required to use them; they may not even be aware of them. It is not unusual for a health-care organization to publish a guideline but then not make sure that everyone knows about it. Sometimes there are so many guidelines to follow that people turn off and do not see the relevance or importance of them. Being aware of the importance of using appropriate guidelines is a first step to students asking about them and then using them.

Safe care requires that all the staff know what is expected of them in relation to implementing a guideline. The guidelines need to be accessible (are they in a written form or are they online?) and applicable to the workplace where they are to be used. (Do the guidelines acknowledge the differences in resources and the readily available health professionals?) For a guideline to be effective the staff must know about it, trust it, be able to access it easily and be able to implement it.

For various reasons to do with resources, locality and type of patients it may be that some steps in a guideline are impractical or inappropriate. In such cases, the team may need to change the guideline to fit the environment or circumstances. When this occurs everyone needs to know about the changes so they can apply them.

If a guideline is not followed consistently by all the team, if people routinely skip steps, the guideline will not be effective in protecting patients from adverse events. It is important that everybody, including medical students, abides by the protocol. Commitment of the whole team is necessary for successful implementation of guidelines or protocols.

Some physicians may question the value of a guideline particularly when they think their
autonomy is being compromised and questioned. They may feel their clinical discretion is being removed with a team approach. Sharing knowledge and information with others in the team is absolutely necessary for continuity of care and achieving the best outcomes for the patients.

Guidelines in surgical care
The main protocols in surgical care are about improved communication to ensure that the right person is having the right procedure in the right place and by the right health-care team. A quick review of the processes involved in surgery show the many steps requiring active face-to-face conversations particularly for consent, marking and or identifying the appropriate drugs and equipment to be used. The operating team—surgeons, assistants, anaesthetists, scrub nurses, circulating nurses (scout nurses) and others in the operating room—all have to know the nature of the planned procedure, so that everyone is aware of the management plans, expectations of the different staff and anticipated outcomes for the patients. For this reason, many sites now schedule “time out” that takes place in the operating room where the procedure will be performed, just before the procedure is to commence.

Safe surgery requires that every member of the surgical team knows the main protocols used in an area of practice. It would be very unusual for no protocols to be in place. If this is the case, then a member of the team should request discussion about whether a protocol is required at a team meeting.

There is universal agreement that the best approach to minimizing errors caused by misidentification of patients is the implementation of best-practice guidelines for ensuring the correct patient receives the correct treatment. There are many guidelines addressing this issue.

The JCAHO Universal Protocol™ for preventing wrong site, wrong procedure, wrong person surgery in 2003 is one example and sets out the process and approach for including every member of the team as well as the patient. The WHO recently released guidelines for surgical care advocating the use of a checklist to enhance safety [7].

WHAT STUDENTS NEED TO DO (PERFORMANCE REQUIREMENTS)

Follow a verification process to eliminate wrong patient, wrong side and wrong procedure
Most medical students will have an opportunity to visit operating rooms and observe how surgical teams work together. They will also observe how the team manages the processes involved—before, during and after the surgery. During a surgical rotation students should:

- locate the main protocols used in a particular surgical unit;
- understand how the guideline was developed and whether the processes align with evidenced-based practice;
- read and understand why the guideline is necessary;
- be able to identify the steps in the verification process including selection of the right patient, right site and right procedure;
- identify how conflicts are resolved in the team.

Practise operating room techniques that reduce risks and errors (time-out, briefings, debriefings, stating concerns)
Topic 4 on teamwork provides a detailed analysis of how effective teams work and the actions that team members can take to effectively contribute to improved performance and safety. In the surgical environment there are particular
attributes and actions known to improve surgical care teamwork. If students are not able to participate on the team, then they can observe how the team functions. Students should actively try to become part of the team. They can respectfully ask the leader of the team if they can be a part of the team even if they do not have any specific function or role. Being included allows the students to better see and hear how the team members communicate with one another. If possible students should practise:

- participating in team briefings and debriefings:
  - students should observe and record how health-care professionals participate in the processes designed to keep the patient safe—do they use checklists, briefs, debriefs?
  - students should evaluate their own contributions to the team discussions about the status of the patient, including identity, site of surgery, condition of the patient and plans for recovery;
- how to appropriately share information:
  - students should verbally share information with all health-care members of the team that relates to the assessment and treatment of the patient;
  - students should know the main characteristics of the procedure and plans for managing the patient, including knowing relevant protocols and their role in implementation;
- asking questions:
  - students should actively question members of the team in an appropriate and respectful manner;
  - students should assess when it is appropriate to ask questions;
  - students should participate in and take the opportunity to ask questions during the period in which the team meets to go over the planned procedure;
- asserting oneself appropriately:
  - students should be able to express an opinion or ask for an opinion from any member of the team through questions or statements of opinion during critical times;
  - students should understand that assertion does not include routine statements or questions about a patient’s heart rate, tone, colour and respirations (these form part of information sharing or inquiry);
- stating or sharing intentions:
  - students should practise sharing information about intentions with team members and seek feedback before deviating from the norm—this is important because it alerts the rest of the team about planned actions that are not routine;
- teaching:
  - students should be aware that teaching is an integral part of surgical care;
  - teaching can be in a variety of formats—short or informal information exchanges as well as guided hands-on learning by doing;
  - students should be receptive to learning from any of the providers (for example, nurses can teach medical students);
- managing workload:
  - students should appreciate that workload is distributed among those according to level of knowledge and skill.

**Participate in an educational process for reviewing surgical mortality and morbidity**

Most hospitals where surgery is performed will have a peer review system for discussing cases so that lessons can be learnt and shared among the group. Many hospitals call surgical review meetings a “mortality and morbidity meeting”. These are well-established forums for discussing incidents and difficult cases and are the main peer review method for improving future patient care. Such meetings usually provide a
confidential forum for auditing surgical complications and are necessary for improving practice in a surgical department. The meetings may be held weekly, fortnightly or monthly and provide a good opportunity for learning about errors in surgery. Because patient safety is a relatively new discipline, many of these meetings are yet to adopt a systems approach (blame free) for discussions about errors. Instead, some remain focused on the person who made an error and use a punitive approach to discussing adverse events. When meetings adopt a “person approach” to discussions about errors they are often closed to other members of the operating team, junior doctors and medical students and only include the surgeons.

Notwithstanding some of the problems associated with the past, mortality and morbidity meetings are excellent places to learn about errors and discuss ways to prevent them in the future. Medical students should find out if the hospital has such meetings and ask the appropriate senior surgeon if they can attend. If this is possible, students should observe to see if the following basic patient safety principles are demonstrated:

- Is the meeting structured so that the underlying issues and factors associated with the adverse event are the focus, rather than the individuals involved?
- Is there an emphasis on education and understanding, rather than apportioning blame to individuals?
- Is the goal of the discussion prevention of similar things occurring again? This requires a timely discussion of the event when memories are still fresh.
- Are these meetings considered a core activity for the entire surgical team, including the technicians and managers as well as the clinicians (medical, nursing, pharmacy, allied health)?
- Does everyone who had any involvement with the incident/area have the ability to report?
- Are juniors, including students, encouraged to attend and participate in mortality and morbidity meetings? These sessions provide an excellent opportunity for students to learn about errors and the processes for improving particular treatments and procedures.
- Are all deaths involving a surgical procedure at the site identified and discussed?
- Is a written summary of the discussions kept, including any recommendations made for improvement or review?

Summary

This topic outlines the value of guidelines in reducing errors and minimizing adverse events. But a guideline is only useful if the people using the guideline trust them and understand why using a guideline is better for patient care. Protocols can prevent the wrong patient receiving the wrong treatment as well as facilitate better communication among the team.

HOW TO TEACH THIS TOPIC

Teaching strategies/formats

- **An interactive/didactic lecture**
  Use the accompanying slides as a guide covering the whole topic. The slides can be PowerPoint or converted to overhead slides for a projector. Start the session with the case study and get the students to identify some of the issues presented in the story.

- **Panel discussions:**
  Invite a panel of surgeons and theatre nurses to give a summary of their efforts to improve patient safety and to talk about their roles and responsibilities. This can help students appreciate the role of teamwork in surgery and invasive procedures. Students could also have a pre-prepared list questions about adverse event
prevention and management and have time scheduled for their questions.

**A small group discussion session**
The class can be divided up into small groups and three students in each group be asked to lead a discussion about one category of adverse events associated with surgery. Another student can focus on the tools and techniques available to minimize opportunities for errors and another could look at the role of mortality and morbidity meetings.

The tutor facilitating this session should also be familiar with the content so information can be added about the local health system and clinical environment.

**Simulation exercises**
Different scenarios could be developed about adverse events in surgery and the techniques for minimizing the opportunities for errors. These could mainly involve junior staff having to speak up to more senior staff to avert an incident such as the wrong patient being operated on or the wrong limb being prepared.

Different scenarios could be developed for the students:
- practising the techniques of briefs, debriefs and assertiveness to improve communication in theatres;
- role play using a “person approach” and then a “system approach” in a mortality and morbidity meetings;
- role play a situation in theatre where a medical student notices something is wrong and needs to speak up.

**Operating room and ward activities**
This topic offers many opportunities for integrated activities during the time when students are assigned to a surgical ward. This will often be in the later years of the programme. Nevertheless there is no reason why students could not be exposed to them from the very first year of study.

- Students could attend a surgical procedure and observe and record the activities undertaken by the team to ensure that the patient being operated on is the right patient, that they are having the right procedure and at the right time.
- Students could observe a surgical team, identifying who is on the team, how they functioned and how they interacted with the patient.
- Students can attend a mortality and morbidity meeting and write a brief report as to whether the basic patient safety principles were applied during the meeting.
- Students could follow a patient through the peri-operative process and observe the activities or tasks that focused on the patient’s safety.
- Students should examine and critique the protocol used for the patient verification process including observations of the team’s knowledge and adherence of it.
- Students should observe how patient information is communicated from the wards to the operating rooms and back to the wards.

**CASE STUDIES**

**Arthroscopy performed on wrong knee**
This demonstrates the role of the team in ensuring the correct procedure is performed and how
hierarchies are a barrier to safe care.

Brian injured his left knee while exercising and was referred by his general practitioner to an orthopaedic surgeon. The orthopaedic surgeon obtained consent to perform an examination of the left knee under anaesthetic as a day surgery procedure. Two registered nurses confirmed as part of the ordinary preoperative processes that his signature appeared on the consent form for his left knee.

The surgeon talked to Brian before he entered the operating theatre, but did not confirm which knee was to be operated on. Brian was taken into the operating theatre and anaesthetized. The anaesthetic nurse saw a tourniquet draped over his right leg and applied it. The enrolled nurse checked the intended side on the operating list so she could set up and when she saw the orthopaedic surgeon preparing the right leg, she told him that she thought the other leg was the intended operative site. The doctor was heard by both the enrolled nurse and scrub nurse to disagree and the right (incorrect) knee was operated on.

Reference

A routine operation. The case illustrates the risks of anaesthetics.

A 37-year-old woman in good health was scheduled for non-emergency sinus surgery under general anaesthesia. The consultant anaesthetist had 16 years of experience; the ear, nose and throat surgeon had 30 years experience, and three of the four nurses in theatre were also very experienced. The operating room was very well equipped.

Anaesthesia was induced at 08:35 but it was not possible to insert the laryngeal mask airway. Two minutes later, the patient’s oxygenation began to deteriorate and she looked cyanosed (turning blue). Her oxygen saturation at this time was 75% (anything less than 90% is significantly low) and her heart rate was raised.

At 08:39, her oxygen saturation continued to deteriorate to a very low level (40%). Attempts to ventilate the lungs with 100% oxygen using a face mask and oral airway proved extremely difficult. The anaesthetist, who was joined by a consultant colleague tried unsuccessfully to achieve tracheal intubation to overcome the problems with the airway. By 08:45, there was still no airway access and the situation had become “cannot intubate, cannot ventilate”, a recognized emergency in anaesthetic practice for which guidelines are available. The nurses present appear to have recognized the severity of the situation, one fetching a tracheotomy tray, another going to arrange a bed in ICU.

The doctors’ intubation attempts continued using different laryngoscopes, but these were also unsuccessful and the procedure was abandoned with the patient transferred to the recovery room. Her oxygen saturation had remained at less than 40% for 20 minutes. Despite being subsequently transferred to ICU, she never regained consciousness and died 13 days later as a result of severe brain damage.

Reference
Wrong kidney removed despite a student’s warning
This case demonstrates the relevance of using a protocol to ensure correct patient correct site correct procedure.

A male patient aged 69 was admitted for removal of his chronically diseased right kidney (nephrectomy). Due to a clerical error, the admission slip stated “left”. The operating list was transcribed from the admission slips. The patient was not woken from sleep to check the correct side on the preoperative ward round. The side was not checked in from the notes or the consent form. The error was compounded in the operating theatre when the patient was positioned for a left nephrectomy and the consultant surgeon put the correctly labelled X-rays on the viewing box back to front. The senior registrar surgeon began to remove the left kidney.

A medical student observing the operation suggested to the surgeon that he was removing the wrong kidney but was ignored. The mistake was not discovered until two hours after the operation when the patient had not produced any urine. He later died.

Reference

A failure to administer preoperative antibiotic prophylaxis in a timely manner according to protocol
This case illustrates the importance of preplanning and checking prior to a procedure and how protocols can minimize the risk of infection.

The anaesthetist and the surgeon discussed the preoperative antibiotics required for the laparoscopic cholecystectomy that was about to begin. The anaesthetist informed the surgeon of the patient’s allergy to penicillin and the surgeon suggested clindamycin as an alternative preoperative antibiotic. The anaesthetist went into the sterile corridor to retrieve the antibiotics but returned and explained to the circulating nurse that he could not find any suitable antibiotics in the sterile corridor. The circulating nurse got on the phone to request the preoperative antibiotics. The anaesthetist explained that he could not order them because there were no order forms (he looked through a file folder of forms). The circulating nurse confirmed that the requested antibiotics “were coming”.

The surgical incision was performed. Six minutes later the antibiotics were delivered to the operating room and immediately injected into the patient. This injection happened after the time of incision, which was counter to protocol that requires antibiotics to be administered prior to the surgical incision in order to avoid surgical site infections. Subsequently a nurse raised a patient concern and effected a change in operative planning.

Case from the WHO Patient Safety Curriculum Guide for Medical Schools working group. Supplied by Lorelei Lingard, University of Toronto, Toronto, Canada.

TOOLS AND RESOURCES


Resources


HOW TO ASSESS THIS TOPIC

A range of assessment methods are suitable for this topic including observational reports, reflective statements about surgical errors, essays, MCQ, SBA, case-based discussion and self-assessment. Students can be encouraged to develop a portfolio approach to patient safety learning. The benefit of a portfolio approach is that at the end of the student’s medical training they will have a collection of all their patient safety activities. Students will be able to use this to assist job applications and their future careers.

The assessment of knowledge about surgical care and the potential harm to patients, about system approach to improving surgical outcomes and the techniques for minimizing opportunities for surgical errors are all assessable using any of the following methods:

- portfolio;
- case-based in discussion;
- OSCE station;
- written observations about the perioperative environment (in general) and the potential for error;
- reflective statements (in particular) about:
  - theatres and the role of teamwork in minimizing errors;
  - the role of hierarchy in the theatre and the impact on patient safety;
  - the systems in place for reporting surgical errors;
  - the role of surgeons in learning from errors and making improvements;
  - role of patients in the surgical process;
  - the effectiveness or otherwise of mortality and morbidity meetings.

The assessment can be either formative or summative; rankings can range from unsatisfactory to giving a mark. See the forms in Appendix 2.
HOW TO EVALUATE THIS TOPIC
Evaluation is important in reviewing how a teaching session went and how improvements can be made. See the Teacher’s Guide (Part A) for a summary of important evaluation principles.

References

SLIDES FOR TOPIC 10: PATIENT SAFETY AND INVASIVE PROCEDURES
Didactic lectures are not usually the best way to teach students about patient safety. If a lecture is being considered, it is a good idea to plan for student interaction and discussion during the lecture. Using a case study is one way to generate group discussion. Another way is to ask the students questions about different aspects of health care that will bring out the issues contained in this topic such as the blame culture, nature of error and how errors are managed in other industries.

The slides for topic 10 are designed to assist the teacher deliver the content of this topic. The slides can be changed to fit the local environment and culture. Teachers do not have to use all of the slides and it is best to tailor the slides to the areas being covered in the teaching session.