

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills
Key Features

April 2017

Priority Topics and Key Features for the Assessment of Competence in Family Practice Anesthesia

This collection of priority topics and key features for assessment was developed by the College of Family Physicians of Canada (CFPC) Working Group on the Assessment of Competence in Family Practice Anesthesia from 2013 to 2016. It outlines what to assess to determine competence at the enhanced skills level, following the CFPC's traditional approach of developing priority topics, procedures, and their key features.

The goal of these priority topics and key features is to guide the assessment of competencies required for awarding Certificates of Added Competence (CAC), both for residents in enhanced skills programs and for practice-eligible candidates, and to inform the curriculum and training development.

When using this document, it is critical to remember that the priority topics and key features listed are not meant to be an exhaustive scope of practice in family practice anesthesia, nor do they represent a checklist for the determination of competence. They represent a guide to focus the sampling of performance. When trainees consistently demonstrate most of the key features across a good sample of the priority topics, it can be inferred that they have competence in family practice anesthesia.

It is also important to bear in mind that, because there is a great overlap between crucial competencies that are required for different priority topics, the tendency was to avoid repetition and list key features selectively. For example, when providing anesthetic for a child, you should follow the same guidelines as when providing anesthetic to an adult. To avoid repetition, the priority topic *Pediatric Anesthesia* only addresses situations/problems that are specific to children.

Successful candidates for a Certificate of Added Competence in Family Practice Anesthesia are expected to have demonstrated core competence in family medicine, including the [Six Essential Skills](#) and [Procedures](#).

The order of the appearance of the priority topics listed does not reflect the frequency in which the topics appeared in the validation of the topics, but rather a logical sequence in which they would be dealt with in a clinical environment.

Finally, this is a living document that will be regularly revisited and updated to ensure its relevance.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

How the priority topics and key features were developed

The Working Group on the Assessment of Competence in Family Practice Anesthesia (6 members) acted as the nominal group, generating an initial list of priority topics through an individual survey followed by group discussion and consensus. A survey to a larger group of family practitioners (196 recipients at a 22% response rate), representative of physicians from across the country, generated another independent list.

The lists of priority topics generated by the nominal group and the larger reference group were almost identical, both in the topics named and the priorities assigned, with a strong positive correlation of 0.87. A final list of 17 priority topics was identified.

Key features were developed and finalized for all topics using the nominal group technique, which included four iterations of individual comments, discussions and consensus building.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

How to use the priority topics and key features

It is important to note that materials in this booklet are intentionally selective and not comprehensive. It is most desirable and useful to assess what will best discriminate between competent and less competent individuals. Priority topics do not represent an extensive list of topics that should be covered in training, but rather a selective list of areas for assessment that can help teachers/assessors to infer overall competence in family practice anesthesia. Key features represent the critical or essential steps in the resolution of a clinical situation or problem, so the achievement of underlying competencies can be inferred. All key features refer to observable actions, not knowledge. They do not cover all necessary steps (e.g., history, physical examination, diagnosis, management), but only those that are critical and most likely to be missed.

As such, the priority topics and their features are not meant to be used in a checklist approach when assessing competence. They are best used for guiding assessment efforts (sampling, observation, reflection) over time to build a case for overall competence or the lack thereof. They may also be useful in the following situations:

For trainees:

- Use as a guide for self-reflection on competence and development of a learning plan, particularly prior to and during clinical experiences
- Use as a guide for soliciting feedback from teachers/assessors

For teachers/assessors:

- Compare and contrast materials in this document with your assessment strategies and adjust as necessary
- Use as a guide assessment of your trainees, including soliciting feedback, developing questions to ask trainees, and completing field notes
- Use as a guide to help develop learning plans for your trainees
- Use as a self reflection guide to assess your teaching

For programs:

- Use as assessment standards when making decisions about residents' successful completion of training
- Use as a guide to develop assessment strategies
- Use as a guide to plan curriculum that can adequately expose trainees to the priority topics and procedures

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills
Key Features

April 2017

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Special thanks to Dr. Tim Allen, past Director of Certification and Assessment, for his guidance and invaluable contribution to this project.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills
Key Features

April 2017

Priority Topics:

1. [General anesthesia](#)
2. [Pre-anesthetic assessment](#)
3. [Anesthesia equipment](#)
4. [Vascular access](#)
5. [The complex airway](#)
6. [Procedural sedation](#)
7. [Neuraxial anesthesia](#)
8. [Obstetrical anesthesia](#)
9. [Pediatric anesthesia](#)
10. [Acutely ill or injured](#)
11. [OR emergencies and complications](#)
12. [Acute pain management](#)
13. [Post-operative care](#)
14. [Know and apply limits of capacity \(own and institutional\)](#)
15. [Crisis management](#)
16. [Self-directed learning](#)
17. [Team](#)

[Appendix: Procedure Skills in Family Medicine](#)

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 1: General anesthesia

1. For any patient undergoing routine, scheduled general anesthesia, develop a safe anesthesia plan by:
 - Performing a comprehensive preoperative assessment to identify patient- and procedure-specific considerations
 - Optimizing preoperative patient care
 - Anticipating and planning for common and serious complications
2. When performing general anesthesia, advocate for patient safety by following practices such as:
 - Participating actively in the completion of a recognized surgical safety checklist
 - Ensuring all equipment is in proper working order
 - Being attentive to patient comfort and taking measures to avoid injury during technical procedures
 - Checking patient positioning to avoid injuries
3. For all patients under general anesthetic, maintain vigilance (e.g., even with low-risk procedures in healthy patients) and adapt the anesthetic according to changing circumstances.
4. For any patient undergoing general anesthesia, execute efficient, safe, and smooth emergence and extubation.
5. For patients undergoing general anesthesia, develop a comprehensive post-operative plan that is specific to the patient and the procedure, including a plan for pain relief and management of medical comorbidities.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 2: Pre-anesthetic assessment

1. Establish a rapport with the patient (and family, when pertinent) to facilitate all discussions (e.g., specific procedures, potential complications, consent, post-anesthesia care).
2. For any patient who requires anesthesia:
 - a) Identify issues that require further elucidation and perform a focused history and physical examination
 - b) Synthesize the available clinical information and generate a prioritized list of problems that need to be addressed
 - c) Pursue further investigation or optimize medical care as indicated
 - d) Delay or recommend changes as necessary to the planned anesthesia or procedure
3. When assessing a patient for anesthesia:
 - a) Gather relevant documentation (e.g., medications, allergies, consent) in a systematic way
 - b) Ensure all important data are collected (i.e., take ownership and do not assume someone else has done it)

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 3: Anesthesia equipment

1. Before any anesthetic procedure:
 - a) Check the equipment according to current published guidelines to ensure it is working properly
 - b) Identify and resolve problems before proceeding (e.g., ensure suction is functioning, ensure oxygen tank is filled)
2. When using an anesthetic machine, ensure appropriate settings have been selected and adjust accordingly to avoid iatrogenic injuries (e.g., barotrauma, anesthetic overdose, hyper/hypoventilation).
3. For a malignant hyperthermia-susceptible patient about to undergo anesthesia, prepare the machine for a trigger-free anesthetic.
4. When an alarm goes off while a patient is under anesthesia, differentiate between a patient, equipment, or surgical cause and use a systematic approach to identify and resolve the issue.
5. Identify standards of ongoing equipment maintenance according to the published guidelines; also ensure a compliance process is in place and that it is properly documented.
6. Maintain drugs and equipment to manage emergency situations (e.g., malignant hypothermia, local anesthetic toxicity, cardiac arrest).

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 4: Vascular access

1. When vascular access is required for a patient, first assess the urgency and type of access that is needed and then select an approach that will optimize the chances of success.
2. For a patient requiring vascular access in whom peripheral access is challenging (e.g., shock, trauma, hypothermia, obesity), deftly secure IV access using alternative methods, as necessary (e.g., internal jugular, femoral, ultrasound guided).
3. Following vascular access, ensure a stable fixation and assess to rule out complications (e.g., pneumothorax, arterial puncture, nerve injury, extravasation).
4. Secure vascular access using the general key features of procedure skills (see next page) for the following approaches (technical skills):
 - Central lines
 - Peripheral veins
 - Arterial puncture and cannulation

See also: Procedure Skills in Family Medicine ([Appendix](#))

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 5: The complex airway

1. When assessing a patient for anesthesia, identify the airway that may be difficult to manage and the stage(s) at which difficulties are expected (e.g. bag-mask ventilation, laryngoscopy, intubation, or extubation).
2. When performing bag-mask ventilation, use the appropriate manoeuvres to overcome difficulties.
3. For all patients who require airway management, use a planned and staged approach that is adapted to the individual patient by:
 - Preparing ahead of time the equipment necessary for alternative approaches
 - Communicating well with the team before and throughout the procedure to facilitate acceptance and assistance
 - Using a series of alternative approaches, as necessary, to manage the airway
 - Anticipating and preparing for an unexpected difficult airway
4. For a patient with a complex airway, safely secure an endotracheal tube using a technique appropriate to the situation (e.g., awake intubation, inhalation induction).
5. For patients in whom both intubation technique and adjuvant drugs may specifically aggravate the underlying condition, select the appropriate technique, monitors, and drugs to minimize risk (e.g., consider effects on hemodynamics in a patient who is hypovolemic and the effects on intracranial pressure on a patient with intracranial pathology).
6. For a patient who needs emergent airway management, when the airway cannot be secured in any other way be prepared to perform a surgical airway.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 6: Procedural sedation

1. When procedural sedation is requested, plan appropriate anesthetic management (e.g., location, depth of anesthesia, appropriate anesthetic modalities) by:
 - Assessing the patient
 - Clarifying the proposed procedure
 - Looking for and recognizing contraindications to sedation
2. For a patient undergoing procedural sedation, ensure the availability of and prepare the equipment and personnel necessary for monitoring the patient throughout the procedure and for intervening rapidly to support as necessary (i.e., same physician cannot provide sedation and do the procedure).
3. For a patient who has undergone procedural sedation, ensure appropriate monitoring and support until they have recovered fully.

See also: Procedure Skills in Family Medicine ([Appendix](#))

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 7: Neuraxial anesthesia

1. When considering neuraxial anesthesia, look for and recognize contraindications to this approach and avoid performing it where it would be inappropriate.
2. When performing neuraxial anesthesia:
 - a) Use a systematic and organized approach to landmarking before introducing the needle
 - b) Verify landmarks after a failed attempt, consider other possible causes of failure, and modify the approach for a subsequent attempt
 - c) Do not persist inappropriately if unsuccessful, and opt for an alternative choice of anesthesia, including consulting a colleague
3. When administering neuraxial anesthesia, select the appropriate medication and positioning for the level and degree of anesthesia required for the surgical procedure.
4. When planning neuraxial anesthesia, anticipate the potential for inadequate anesthesia and plan for supplemental techniques (e.g., sedation, local anesthesia, general anesthesia).
5. When providing neuraxial anesthesia, anticipate potential complications (e.g., hypotension, bradycardia, respiratory arrest, headache):
 - a) Look for signs and symptoms and manage them appropriately
 - b) Do not assume that a complication is simply due to the anesthetic

See also: Procedure Skills in Family Medicine ([Appendix](#))

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 8: Obstetrical anesthesia

1. For all pregnant patients requiring anesthesia for either obstetrical or non-obstetrical procedures, recognize the changes in physiology and anatomy that will influence the choice of anesthetic (e.g., difficult airway, quick desaturation, risk to baby) and adjust the approach and anesthetic plan accordingly, including advance planning with the team.
2. For a woman in labour who has an epidural catheter, look for and recognize the poorly functioning labour epidural and troubleshoot effectively to obtain optimal analgesia.
3. For a woman in labour who has an epidural catheter and needs a Cesarean section, decide whether the epidural is adequate or if you should consider an alternate approach.
4. During any Cesarean section, monitor for and recognize intraoperative complications (e.g., hemorrhage, uterine atony) and manage appropriately.
5. When an emergency Cesarean section is required:
 - a) Take the necessary time to assess the mother and the baby
 - b) Collaborate with the team and manage possible conflicting goals
 - c) Ensure the appropriate anesthetic is provided safely but expeditiously
6. Before and during any Cesarean section, identify high-risk situations and prepare for neonatal resuscitation.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 9: Pediatric anesthesia

1. During a pre-anesthetic assessment of a child:
 - a) Develop age-appropriate rapport with the child and caregiver
 - b) Look for age-appropriate conditions and comorbidities and adjust your assessment accordingly (e.g., loose teeth, upper respiratory tract infections, asthma, obesity, developmental delay, congenital anomalies)
 - c) Assess for the potential for a child to be uncooperative and plan accordingly
 - d) Assess your and your institution's capacity to provide anesthesia to a specific age group and any limitations (e.g., pronounced physiologic and anatomic differences in young patients), and refer/call for help accordingly
2. When developing an anesthetic plan for a child:
 - a) Modify the plan based on age-related differences in physiology, pharmacology, and anatomy (e.g., drug doses, ventilator settings, thermoregulation, airway device sizes)
 - b) Recognize and plan for the unique technical challenges in this age group (e.g., difficult IV, intubation)
3. When inducing anesthesia for an uncooperative child, use safe strategies to minimize risk (e.g., preoperative sedation, parental presence at induction, choice whether to proceed).
4. When inducing anesthesia in a child, recognize that a child can decompensate quickly. Act expeditiously with your team to safely:
 - Manage the airway
 - Secure intravenous access
 - Apply monitors
5. In a pediatric patient who is emerging from anesthesia, anticipate and manage complications that are common in the age group (e.g., emergence delirium, laryngospasm, hypothermia).

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 10: Acutely ill or injured

1. In a patient who requires an anesthetic at the time of an acute illness or injury, assess the patient and optimize their pathophysiology (e.g., hypovolemia, sepsis, respiratory disease) before proceeding, but without undue delay.
2. When planning and administering an anesthetic to an acutely injured or ill patient, develop a plan (e.g., choices and doses of medications, use of invasive monitors, approach to airway management, IV access, availability of blood products) that accounts for:
 - Altered physiological responses of the patient due to their specific illness or injury
 - Multiple and potentially conflicting management goals
3. When planning and administering an anesthetic for emergency surgery, consider and look for subtle symptoms and signs that suggest an unsuspected or underestimated injury or illness (e.g., sepsis in a patient with appendicitis, splenic rupture with occult hypovolemia).
4. For an acutely ill or injured patient outside the operating room, act as a resource for other physicians by providing support, such as:
 - Identifying the need for, and providing, airway management and ventilation
 - Securing vascular access
 - Assisting with hemodynamic support
 - Assisting with sedation
5. When preparing an acutely ill or injured patient for transport to another facility:
 - a) Collaborate with the transport team and the receiving physician
 - b) Anticipate the possible complications that may occur during transport, and manage before transport when appropriate (e.g., airway, chest tube, IV fluids, antibiotics)

Note: Skill with ATLS and ACLS is assumed as a basic requirement.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 11: OR emergencies and complications

(See also Topic 15: [Crisis management](#))

1. During anesthesia:
 - a) Anticipate both likely and unlikely complications
 - b) Monitor the vital signs and other parameters carefully to ensure early detection of any complication
 - c) React promptly should a complication arise

2. When an emergency or complication (e.g., high airway pressure, hypotension) is detected, use an individualized approach to management by:
 - a) Communicating with the surgeon and the team
 - b) Initiating supportive steps promptly while continuing to assess the situation (i.e., concurrent assessment and management)
 - c) Generating a prioritized differential diagnosis to direct management
 - d) Reassessing and re-evaluating the differential diagnosis frequently to avoid fixation error
 - e) Using algorithms wisely, adjusting for the patient-specific pathophysiology (e.g., malignant hyperthermia, local anesthesia toxicity, cardiac arrest)

3. Following any major complication or critical incident, assess the impact this may have had on your own psychological preparedness for upcoming activities and adjust your activities appropriately.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 12: Acute pain management

1. For a patient undergoing an intervention that is likely to be painful:
 - a) Address patient concerns and establish mutual expectations for pain management
 - b) Plan for all phases of pain management, including before, during, and after the procedure
2. When managing a patient experiencing pain with a diagnosed cause, implement an appropriate pain management strategy based on the source of pain, severity, and patient-specific comorbidities to optimize relief and minimize side effects (e.g., opioid and non-opioid analgesics, regional anesthesia, non-pharmacologic therapies).
3. When a patient's pain is poorly controlled or the pattern changes:
 - a) Reassess the patient to confirm the etiology (e.g., rule out myocardial ischemia, compartment syndrome, bowel perforation)
 - b) Avoid the assumption that the pain is related to the initial pain diagnosis
4. For a patient with a painful condition, periodically assess the severity of pain and its impact on the patient to titrate treatment, optimize the therapeutic effect, and minimize complications.
5. When treating pain in a patient:
 - a) Look for and recognize complications of your treatment (e.g., respiratory depression, urinary retention, nerve injury)
 - b) Manage accordingly

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 13: Post-operative care

1. For all patients who undergo anesthesia, develop a comprehensive post-operative plan based on a preoperative assessment, patient- and procedure-specific issues, and an intraoperative course.
2. For a patient arriving in the post-anesthesia care unit (PACU), provide a detailed, comprehensive handover to the PACU staff that includes salient details about the patient's comorbidities, intraoperative events, and post-operative plans.
3. For a patient in the PACU with an acute undifferentiated medical issue:
 - a) Prioritize and respond based on the urgency of the situation
 - b) Generate a differential diagnosis and manage concurrently
 - c) Manage resources and call for assistance when necessary
4. For a patient in the PACU, decide on disposition (e.g., ward, home) based on patient factors, surgical factors, and available resources.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills
Key Features

April 2017

Priority Topic 14: **Know and apply limits of capacity (own and institutional)**

1. For any patient with perioperative risk that may exceed your own or your institution's capacity for management, perform a systematic risk/benefit analysis to make an informed decision about whether to proceed. Include:
 - Assessing the patient's underlying conditions, the planned procedure, and possible complications
 - Assessing the capacity and preparedness of the team and the local resources to deal with the worst possible outcomes
 - Considering possible alternatives, including transfer, and the associated risks/benefits
 - Understanding the patient's and family's preferences, as well as those of the team providing care

2. For a patient for whom risks exceed the capacity to manage or the likely benefits, and for whom there is a feasible safer option:
 - a) Do not proceed with anesthesia and maintain this decision, regardless of pressure from other team members (i.e., always act in the best interests of the patient)
 - b) Remain prepared to reconsider if conditions and/or situations change

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 15: Crisis management

(Was: Is vigilant, decisive, methodical, and calm in difficult situations)

1. For all patients who are undergoing anesthesia, maintain vigilance, avoid distractions, and be proactive to minimize potential crises.
2. For a patient in medical crisis, manage the situation effectively by:
 - Maintaining a calm and appropriately assertive demeanour
 - Engaging the team through clear communication and effective delegation of duties
 - Recognizing the need to call for help
 - Acting promptly and decisively
 - Assuming leadership of the situation if such action is indicated
 - Setting priorities dynamically (i.e., maintain situational awareness and adjust priorities as conditions change)
3. When the medical management of a patient is not producing expected results, consider alternative diagnoses and regularly re-evaluate the situation in collaboration with your team (i.e., avoid fixation error).

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 16: Self-directed learning

1. Self-assess, reflect, and identify gaps in personal knowledge or skills on a regular basis and undertake activities to fill these gaps in an appropriate manner.
2. Following a challenging clinical experience, self-reflect, and identify and address educational needs.
3. Seek external sources (e.g., courses, tests, peer review, audits) of personal performance review on a regular basis to better identify gaps in knowledge and skills, and to meet specific learning needs.
4. Share clinical experiences and questions with colleagues regularly in a structured, collegial format to promote continuous quality improvement.
5. Plan and commit to a feasible, regular pattern of learning activities over the long and short term to meet both identified and general learning needs.
6. Identify personal and systemic barriers to ongoing learning and adopt strategies to mitigate their influence.

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Priority Topic 17: Team

1. When working in a team:
 - a) Maintain clear and effective communication and actively seek input from other team members
 - b) Ensure each person's role is clear, including your own
 - c) Remain flexible and adapt to changing circumstances (e.g., different personnel or resources in different situations)
2. During a crisis situation:
 - a) Assume a greater leadership role when appropriate
 - b) Recognize your own skill set and limitations and the roles of other team members
 - c) Include team members in a thoughtful and effective way (e.g., know skill sets, avoid overburdening)
 - d) Deal with disruptive or unhelpful behaviour in a respectful and professional manner
 - e) Recognize the need for post-crisis debriefing and the potential need for follow-up care (e.g., addressing psychological trauma of team members)

FAMILY PRACTICE ANESTHESIA

Priority Topics for the Assessment of Competence: Enhanced Skills Key Features

April 2017

Appendix

Procedure Skills in Family Medicine*

Certification for independent practice requires a certain level of experiential competence: this includes the technical skills to perform a certain number of procedures. It should be remembered that it is not only the technical aspects of the individual procedures that are important. The higher levels of competence must also be assessed, as always, in the context of family medicine—the key features describe this aspect.

The General Key Features of Procedure Skills

(Apply to all procedures. These can be used to guide the development of specific evaluation tools for specific procedures.)

1. In order to decide whether or not you are going to do a procedure, consider the following:
 - a) The indications and contraindications to the procedure
 - b) Your own skills and readiness to do the procedure (e.g., your level of fatigue and any personal distractions)
 - c) The context of the procedure, including the patient involved, the complexity of the task, the time needed, the need for assistance, and location
2. Before deciding to go ahead with the procedure:
 - a) Discuss the procedure with the patient, including a description of the procedure and possible outcomes, both positive and negative, as part of obtaining their consent.
 - a) Prepare for the procedure by ensuring the appropriate equipment is ready.
 - b) Mentally rehearse the following:
 - i. The anatomic landmarks necessary for procedure performance.
 - ii. The technical steps necessary in sequential fashion, including any preliminary examination.
 - iii. The potential complications and their management.
3. During performance of the procedure:
 - i. Keep the patient informed to reduce anxiety.
 - ii. Ensure patient comfort and safety always.
4. When the procedure is not going as expected, re-evaluate the situation, and stop and/or seek assistance as required.
5. Develop a plan with your patient for after care and follow-up after completion of a procedure.

*Wetmore S, Laughlin T, Lawrence K, Donoff M, Allen T, Brailovsky C, et al. Defining competency-based evaluation objectives in family medicine: Procedure skills. *Can Fam Physician*. 2012;58(7):775-780.