

SURGICAL SKILLS AND CLINICAL PROCEDURES CURRICULUM

First Edition

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SASKATCHEWAN

Department of
Academic Family Medicine



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First Edition

First edition published 2022
by the Department of Academic Family Medicine
University of Saskatchewan, Regina, SK

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978-0-88880-702-1 (print-pbk)
978-0-88880-703-8 (ebook)

How to cite this document

Vasquez Camargo A, Rocha Michaels C. Surgical Skills and Clinical Procedures Curriculum. Regina (SK): Department of Academic Family Medicine, University of Saskatchewan; 2022.142 p.

Acknowledgements

We want to give thanks to God for all the blessings He has given us.

We are grateful to Nicole Jacobson, our editor, for her assistance in reviewing and editing our work.

We are thankful to Dr. Kathy Lawrence for her support and encouragement to complete this work and to Dr. Vivian Ramsden for her input and orientation in developing this book. These thanks are extended to all reviewers for their observations that improved the content of this book.

We are also thankful to the Family Medicine Unit in Regina, the Department of Academic Family Medicine, University of Saskatchewan and the Dilawri Simulation Center in Regina because without the time and space the implementation of this curriculum would have not been possible.

A special mention goes to all the Family Medicine Residents at the University of Saskatchewan, Regina site, for their participation in the procedural skills sessions. Their feedback and enthusiasm motivated us to persevere in this rewarding commitment.

Finally, we want to express our deepest thanks to our family and friends, for all their patience, encouragement, and love.

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Preface

Office-based clinical procedures are an important aspect of family medicine practice. Ensuring that our residents are adequately exposed to these procedures during training depends on the opportunities available during their hospital, community-based and rural rotations.

The College of Family Physicians of Canada (CFPC) has developed a list of 158 core clinical procedures—with accompanying competency standards—necessary for family physicians to practice in diverse settings. As preceptors, we found that there were significant variations in procedure exposure among residents, which made it difficult to ensure that they equally-acquired the expected competencies in procedural skills during their residencies.

In order to standardize exposure among residents, we looked for a guide to assist faculty in providing equal exposure and training to clinical procedures, as required by the CFPC. Although, there are many resources describing clinical procedures, including textbooks, websites, videos, and medical journals, these are dispersed across specialties and formalized approaches to instruction. In addition, it was time-consuming to find appropriate and reliable resources to teach each one of the 158 procedures.

To address this gap, we developed this eBook with the intention of assisting faculty in teaching clinical procedures to family medicine residents using a systematic and standardized approach to instruction. Furthermore, this eBook can be used by residents as a guide to prepare and review the procedures prior to their clinical skills sessions and acquire the expected competencies across different learning settings.

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Background

Clinical procedures are an important aspect of Family Medicine practice that requires family physicians to apply their knowledge and skills learned throughout their residency training. Over the years, Family Medicine residents have been exposed to these procedures through opportunities in their required and elective rotations, and across different clinics and hospitals. This inconsistent exposure, however, leads to the problem of ensuring that all Family Medicine residents receive similar and equitable training to learn the minimal required knowledge and skills for practice.

In an attempt to create a standard approach as to which procedures should be taught to residents, the College of Family Physicians of Canada (CFPC) created a list of core clinical procedures^{1,2} necessary to practice in different settings, from urban to rural areas across Canada. The CFPC also developed a list of competencies³ common to all procedures to guide assessment and feedback.

Goal

The goal of this curriculum is to ensure that residents in the Family Medicine Residency Program - Regina have exposure to all the core clinical procedures required by the CFPC during training and deemed necessary to practice family medicine in all settings across Canada

Objectives

- To identify the main areas where residents have significant gaps in their clinical procedure skills to ensure an accepted teaching approach in those areas.
- To enhance residents' perception and confidence performing procedures relevant to their practice as family physicians.
- To design teaching strategies applicable to the different types of clinical procedures utilizing the capability and available resources of the College of Medicine and the Department of Academic Family Medicine at the University of Saskatchewan.
- To develop a standard assessment for the evaluation of clinical procedural skills by faculty supervising procedures among Family Medicine residents.

CanMEDs-Family Medicine Competencies for Clinical Procedures

This section includes an overview of the CanMEDs-Family Medicine 2017³ competencies, as they relate to the core clinical procedures detailed in the CFPC’s list of procedural skills,^{1,2} to ensure all procedures are taken into consideration. This includes women’s health, musculoskeletal disorders, and general surgical skills.

Objective 1

General principles of surgical management. Demonstrate the knowledge and skills regarding general principles of surgical management.

Key Competencies	CanMEDs-FM Role
1.1 List indications and contraindications for the procedure that will be performed.	Family Medicine Expert
1.2 Consent. Explain the procedure including complications and follow up.	Family Medicine Expert Communicator
1.3 Aware of strengths and personal limitations to perform clinical procedures.	Family Medicine Expert Professional
1.4 Pre-operative assessment. Conducts a comprehensive pre-operative assessment and identifies important perioperative issues. This includes knowledge of testing required and indications for anesthesia consultation and medication adjustment if necessary.	Family Medicine Expert Manager Collaborator
1.5 Postoperative healing. Demonstrates knowledge of normal postoperative healing.	Family Medicine Expert
1.6 Endocarditis prophylaxis. List indications and appropriate antibiotic prophylaxis when required.	Family Medicine Expert
1.7 Procedure knowledge. List the anatomic landmarks, technical steps, potential complications and necessary equipment for each procedure) 1.7.1. Give direction to staff and other members of the health care team in order to organize and facilitate the procedure. 1.7.2. Procedure resource allocation. Consider the resources (including time) required for the procedure. Identify the best context for the procedure, the need for assistance and the procedure’s urgency.	Family Medicine Expert Manager
1.8 Patient comfort and safety. Keep patient comfortable and informed of what is happening through-out the procedure. Do not delay calling for help when needed.	Family Medicine Expert Communicator
1.9 Ensure that after care instructions and follow-up are clearly explained to patient.	Family Medicine Expert Communicator Manager
1.10 Surgical assistant.	Family Medicine Expert Collaborator

1. 10. 1 Works in collaboration with surgeons in perioperative, in hospital and post-operative care for major surgical procedures.	
1.10.2 Acts effectively as surgical assistant for major surgical procedures.	

Objective 2

Perform procedural skills relevant to a family physician.

Key Competencies	CanMEDs-FM Role
2.1 Skin. Perform skin and adnexal procedures.	
2.1.1 Anesthetic: Choose local and regional anesthetic (with or without epinephrine) for minor procedures and performs proper local anesthetic infiltration technique including digital blocks.	Family Medicine Expert
2.1.2 Skin biopsies and excisions. Able to recognize malignant vs benign skin lesions () by physical exam, and adequate timely referral to specialist when indicated. Perform skin biopsies using different techniques (shave, punch and excisional biopsies) and excise cystic and solid lesions (e.g., epidermoid cysts and lipomas).	Family Medicine Expert
2.1.3 Wound care. Demonstrate knowledge of basic wound / ulcer / burn care (e.g., Debridement and dressing).	Family Medicine Expert
2.1.4 Laceration repair and suturing. Demonstrates knowledge of different options for laceration repair and demonstrate correct application of sutures (including simple interrupted, vertical mattress, horizontal mattress, subcuticular), glue, and suture alternatives (e.g., application of reinforced adhesive skin closures).	Family Medicine Expert
2.1.5 Cryotherapy, electrocautery. List indications for cryotherapy and electrocautery, and effectively perform this procedure.	Family Medicine Expert
2.1.6 Foreign bodies. Performs removal of foreign body in the skin e.g., fishhook, splinter, or glass	Family Medicine Expert
2.1.7 Toenail procedures. Demonstrate partial toenail removal, wedge excision for ingrown toenail, Have awareness of Vandenbos procedure.	Family Medicine Expert Collaborator Health Advocate

Enabling Competencies	CanMEDs-FM Role
2.2 Eye, ear, nose and throat procedural skills.	
2.2.1 Eye procedures. Demonstrate ability to perform the following procedures: instillation of fluorescein, slit lamp examination, and removal of corneal or conjunctival foreign body and application of eye patch (only if indicated).	Family Medicine Expert
2.2.2 Ear procedures. Demonstrate ability to perform the following procedures: removal of cerumen and ear foreign bodies.	Family Medicine Expert
2.2.3 Nose procedures. Perform cautery for anterior epistaxis, and lists indications and contraindications for anterior vs posterior nasal packing	Family Medicine Expert
2.3 Gastrointestinal procedural skills	

2.3.1 Gastrointestinal procedures. Perform gastrointestinal procedures, including: anoscopy/proctoscopy, nasogastric tube insertion, fecal occult blood testing, incision and drainage of thrombosed external hemorrhoid.	Family Medicine Expert
2.4 Urinary tract procedures Perform genitourinary procedural skills including urinary catheter insertion/removal in males/females.	Family Medicine Expert
2.5 Gynecological procedures.	
2.5.1 Performs gynecological procedures adequately for specific conditions as follows: 2.5.1.1. Screening and prevention (Pap smear), contraception (insertion and removal of IUD). 2.5.1.2. Diagnosis and management. Endometrial aspiration biopsy, diaphragm/pessary fitting, cryotherapy/chemical therapy of genital warts. 2.5.1.3. Use of sexual assault kit.	Family Medicine Expert
2.5.2. Breast cyst aspiration. Aspirate a breast cyst as required.	Family Medicine Expert
2.6. Demonstrate obstetrical procedural skills.	Family Medicine Expert
2.6.1 Vaginal delivery. Perform normal vaginal deliveries.	Family Medicine Expert
2.6.2 Fetal monitor. Apply fetal scalp monitor.	Family Medicine Expert
2.6.3. Episiotomy and perineal tear: List indications for episiotomy and perform this procedure with subsequent adequate repair. Recognize and repair of 1st and second-degree perineal tear and the need for specialist consultation when indicated.	Family Medicine Expert
2.6.4. Vacuum assisted delivery. Apply vacuum as needed to assist delivery.	Family Medicine Expert
2.6.5 Artificial rupture of membranes. Describe the indications, risk (e.g., cord prolapse) and complications for artificial rupture of membranes. Correctly performs the procedure and manage the complications adequately.	Family Medicine Expert
2.7 Demonstrate musculoskeletal procedural skills.	Family Medicine Expert
2.7.1 Splinting/Sling/Casting. Demonstrate musculoskeletal injury management including splinting/ application of sling to injured extremities, reduction of minor dislocations/subluxations and application of simple cast (Forearm, ulnar gutter splint, scaphoid and below knee cast).	Family Medicine Expert
2.7.2 Aspiration and injection. 2.7.2.1. Demonstrate appropriate technique for the aspiration and injection of shoulder (Subacromial), knee, ankle, Lateral epicondyle 2.7.2.2. Demonstrate appropriate technique for injection for planta fasciitis and De Quervain's tendonitis. 2.7.2.3. Demonstrate appropriate technique for injection of patellar, subacromial and subtrochanteric bursae.	Family Medicine Expert
2.8 Demonstrate injections, cannulations, and resuscitation procedural skills.	Family Medicine Expert
2.8.1. Injections. Demonstrate adequate indications and technique intramuscular, subcutaneous and intradermal injections.	Family Medicine Expert

<p>2.8.2 Cannulations.</p> <p>2.8.2.1. Demonstrates adequate cannulation of peripheral intravenous line (in an adult and child).</p> <p>2.8.2.2. Demonstrates adequate technique for arterial blood gas (ABG) in adults.</p>	<p>Family Medicine Expert</p>
<p>2.8.3 Defibrillation. Demonstrate advanced cardiac life support skills including cardiac defibrillation and application of automated external defibrillator.</p>	<p>Family Medicine Expert</p>
<p>2.8.4 Airway. Describe the indications for different types of artificial airway. Demonstrates adequate insertion of an oral airway, bag-and-mask ventilation and endotracheal intubation.</p>	<p>Family Medicine Expert</p>
<p>2.8.5 Lumbar puncture. List indications and contraindications for lumbar puncture. Perform lumbar puncture correctly (in adults) and interpret results.</p>	<p>Family Medicine Expert</p>

Curriculum Overview: Modules and Sessions

Module 1. Skin and Adnexa Procedures

Session	System	Procedure(s)	Description
Session 1.1	Local anesthesia	Digital blocks	Indications Contraindications Equipment Anatomic landmarks Technique
		Field blocks	Indications Contraindications Equipment Anatomic landmarks Technique
	Suturing and laceration repair	Principles Surgical knots Simple Mattress Subcuticular Gluing	Indications Contraindications Equipment Anatomic landmarks Technique
Session 1.2	Skin biopsies	Shave Punch Excisional Cyst	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
	Skin lesions	Incision and drainage of abscesses Cryotherapy Electrotherapy	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
	Fungal infections	Use of Wood's lamp Pare skin calluses Skin scraping	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up

Session 1.3	Wound care	Wound assessment Debridement Wound dressing Saskatchewan wound care pathways	Wound assessment
Session 1.4	Fingernails	Subungual hematoma evacuation Paronychia drainage	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
	Toenails	Partial/wedge toenail removal Vandenbos procedure	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up

Module 2. Injections and Cannulations

Session	System	Procedure(s)	Description
Session 2.1	Injections	Intramuscular Subcutaneous Intradermal	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
	Cannulations	Venipuncture Peripheral intravenous line Central venous catheter insertion Intraosseous vascular access	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up

Module 3. Eye and ENT Procedures

Session	System	Procedure(s)	Description
Session 3.1	Eye	Instillation of fluorescein Slit lamp exam Corneal foreign body removal Eye irrigation (chemical exposure) Application of eye patch	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
	Nose	Foreign body removal from nose Cautery for epistaxis Indirect laryngoscopy	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
	Ear	Cerumen removal Foreign body removal from ear	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up

Module 4. Gastrointestinal Procedures

Session	System	Procedure(s)	Description
Session 4.1	Gastrointestinal	Nasogastric tube insertion Anoscopy Incision and drainage of thrombosed hemorrhoids	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up

Module 5. Breast and Urinary Procedures

Session	System	Procedure(s)	Description
Session 5.1	Breast	Breast cyst aspiration	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
	Urinary	Urinary catheterization	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up

Module 6. Obstetrical and Gynecological Procedures

Session	System	Procedure(s)	Description
Session 6.1	Obstetrics and labour	Prenatal exam Mechanical induction of labour Artificial rupture of membranes	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
Session 6.2	Operative obstetrics	Repair of first- and second-degree perineal lacerations	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
	Obstetrics and delivery	Intrapartum fetal monitoring Normal vaginal delivery Post-partum hemorrhage management	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
Session 6.3	Delivery complications	Shoulder dystocia	Indications Contraindications Equipment

			Anatomic landmarks Technique Complications Follow-up
	Operative obstetrics	Vacuum-assisted vaginal delivery Episiotomy	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
Session 6.4	Delivery complications	Umbilical cord prolapse Surgical assist at c-section Retained placenta Uterine inversion	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
Session 6.5	Gynecology	Pelvic exam Cervical polypectomy Chemical therapy for treatment of genital warts Diaphragm and pessary fitting Dilatation and curettage Endometrial biopsy Insertion and removal of IUD Marsupialization of Bartholin's cyst Pap smear Paracervical blocks Use of sexual assault kit	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up

Module 7. Musculoskeletal Procedures

Session	System	Procedure(s)	Description
Session 7.1	Casting	Below knee Arm Scaphoid Ulnar gutter splint Cast removal	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
Session 7.2	Joint injection and aspiration	Ankle Elbow Plantar fasciitis Knee Pes anserine bursitis Bicipital tendonitis Shoulder	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
	Bursa injection	Subacromial Subtrochanteric	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
Session 7.3	Dislocation reduction	Finger Radial head Shoulder	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
Session 7.4	Splinting	Injured extremities	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up

Module 8. Resuscitation and Simulation Scenarios

Session	System	Procedure	Description
Session 8.1	Airway and ventilation management	Oral airway Bag-mask ventilation Endotracheal intubation	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
Session 8.2	Circulation	Cardiac defibrillation	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up
Session 8.3	Medical emergencies	Anaphylaxis and allergic reactions Asthma attacks COPD exacerbations Seizures Cardiac arrest	Indications Contraindications Equipment Anatomic landmarks Technique Complications Follow-up

Resident Responsibilities

It is the responsibility of residents to prepare prior to each session by reading the assigned module and reviewing the linked materials. Preparation will ensure that sessions are interactive and that residents are able to demonstrate knowledge of the principles behind each procedure and to perform the practical aspects of each procedure. This is also applicable for to procedure booked at and attended in the clinic.

Addendum

We want to highlight that there are some procedures not included in this first edition, because the book was completed prior to the College of Family Physicians of Canada released of its new document in 2021 - *Residency Training Profile for Family Medicine and Enhanced Skills Programs Leading to Certificates of Added Competence*⁴. This document aims to adapt the scope of procedures that all family physicians are expected to perform (List A) and those additional procedures that require further specialized training (List B).

Based on this document, the following procedures are not included in this first edition but will be reviewed and added to the second edition.

- *Procedural sedation, analgesia and anesthesia
- *Fecal disimpaction
- *Reduction of displaced fractures in extremities
- **Needle thoracentesis and paracentesis
- **Needle thoracostomy
- **Chest tube insertion
- *Lumbar puncture (adult and child)

It is important to mention that residents may have the opportunity to perform some of these procedures in different settings:

- *During off-service hospital rotations
- ** During courses taken (e.g., ATLS).

References

1. College of Family Physicians of Canada (CFPC). Defining competence for the purposes of certification by the College of Family Physicians of Canada: the evaluation objectives in family medicine procedural skills [Internet]. CFPC; Mississauga (ON); 2010. 2 p. Available from: <https://www.cfpc.ca/uploadedFiles/Education/Procedure%20Skills.pdf>.
2. Wetmore SW, Rivet C, Tepper J, Tatemichi S, Donoff M, Rainsberry P. Defining core procedure skills for Canadian family medicine training. *Can Fam Physician*. 2005 Oct;51(10):1364-5.
3. Shaw E, Oandasan I, Fowler N. CanMEDS-Family Medicine 2017: a competency framework for family physicians across the continuum [Internet]. CFPC: Mississauga (ON); 2017. 21 p. Available from: https://www.cfpc.ca/uploadedFiles/Resources/Resource_Items/Health_Professionals/CanMEDS-Family-Medicine-2017-ENG.pdf.
4. Fowler N, Wyman R, eds. *Residency Training Profile for Family Medicine and Enhanced Skills Programs Leading to Certificates of Added Competence*. Mississauga, ON: College of Family Physicians of Canada; 2021.



MODULE 1

Skin and Adnexa Procedures

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Session 1.1

Local Anesthesia and Skin Lacerations

1.1.1. Digital and Field Blocks

Objectives

1. Identify indications and contraindications of digital and field blocks.
2. Identify appropriate local anesthetic based on its physiological effects.
3. List necessary equipment to perform digital and field blocks.
4. Perform a digital and a field block adequately.
5. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Anesthetic solution(s)

Table 1. Anesthetic solutions					
Agent	Concentration	Onset*	Duration*	mg per kg	mL
Amides				<i>Maximum dose</i>	
Lidocaine (Xylocaine)	0.5%, 1%, or 2% [†]	Rapid: < 2 minutes	30 to 60 minutes	4 (up to 300 mg per dose)	0.5%: 60 1%: 30 2%: 15
Lidocaine with epinephrine‡	1% or 2%	Rapid: < 2 minutes§	1 to 4 hours	7 (up to 500 mg per dose)	1%: 50 2%: 25
Bupivacaine (Marcaine)	0.25% or 0.5%	Slow: 5 minutes	2 to 4 hours	2 (up to 175 mg per dose)	0.25%: 70 0.5%: 35
Esters				<i>Maximum dose</i>	
Procaine (Novocain)	1% or 2%	Moderate: 2 to 5 minutes	15 to 60 minutes	7 (up to 600 mg per dose)	1%: 60 2%: 30
Tetracaine (Pontocaine)	0.5%	Slow: 5 to 10 minutes	2 to 3 hours	1.4 (up to 120 mg per dose)	24
*—Similar for all concentrations of each agent.					
†—Higher concentrations provide no additional anesthetic effects.					
‡—Epinephrine concentration may be 1:100,000 or 1:200,000.					
§—May take up to 5 minutes for epinephrine to be effective.					

Table adapted from Latham JL, Martin SN. Infiltrative anesthesia in office practice. Am Fam Physician. 2014 Jun;89(12):956-62. Table 2, Commonly used infiltrative anesthetic agents; p. 958.

- 18-gauge needle, to draw solution
- 25- to 30-gauge needle
- 1-10 mL syringe
- Alcohol, to clean vial top and field area

Session Steps

1. Review the neurovascular anatomy for a digital and a field block.
2. Explain how to perform digital and field blocks, including adequate patient preparation and consent.
3. Demonstrate block techniques.

Residents will be expected to perform each block appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.1, residents should review the following materials:

- Achar S, Chan J. [Topical anesthesia](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 22-6.
- Amunsden GA. [Local anesthesia](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 27-31.
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- Chandrasoma J, Harrison TK, Ching H, Vokach-Brodsky L, Chu LF. Peripheral nerve blocks for hand procedures. N Engl J Med [Internet]. 2018 Sep 6 [cited 2021 May 6];379:[5 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm1400191>.

1.1.2. Suturing and Laceration Repair

Objectives

1. Identify indications and contraindications of suturing and laceration repair.
2. Perform adequate wound assessment, including: wound type, wound preparation, cleansing and debridement, and indicated repair.
3. List necessary equipment to perform suturing and/or laceration repair.
4. Perform suturing and laceration repair adequately.
5. List possible complications and appropriate post-procedure care instructions.
6. Assess need for tetanus vaccination.

Necessary Equipment

- Cleaning materials, for surgical sterilization*
 - Iodophors, such as povidone-iodine
 - Chlorhexidine gluconate/stanhexidine
 - Alcohol
- Anesthetic solution(s) (see [Table 1](#))
- 18- gauge needle, to draw solution
- 25- to 30-gauge needle
- 1-10 mL syringe
- Sterile suturing kit
 - 1-2 drape(s)
 - 2x2 gauze(s)
 - 4x4 gauze(s)
 - 2 oz medicine cup
 - Scalpel handle
 - 5-inch needle driver
 - Two curved hemostats
 - Material scissors
 - Tooth or non-tooth forceps
- Electrosurgical unit
- Suture material (see Forsch et al, [Table 1](#))
- Dressing

*If using electrocautery for hemostasis, use saline solution for sterilization.

Session Steps

1. Review the neurovascular anatomy for different types of lacerations.
2. Review the different suture techniques, considering: type and anatomic location of wound; thickness of skin; degree of tension; and desired cosmetics results.
3. Review both absorbable and non-absorbable suture materials.
4. Review timing of suture or staple removal.

Wound Location	Suture Size	Timing of Removal
Face	5-0, 6-0	5 days
Scalp	3-0, 4-0	7-10 days
Arms	4-0	7-10 days
Trunk	3-0, 4-0	10-14 days
Hands	4-0, 5-0	10-14 days
Feet	3-0, 4-0	10-14 days
Palms/Soles	3-0, 4-0	10-14 days
Legs	3-0, 4-0	10-14 days

5. Explain how to perform suturing and laceration repair, including adequate patient preparation and consent.
6. Demonstrate suturing and laceration repair technique.

Residents will be expected to perform suturing and laceration repair appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.1, residents should review the following materials:

- Williams JK. [Eight common suture techniques for skin closure](#) [video]. USF Health, producers. Tampa (FL): USF Health; 2012. 34 min., sound, color.
- Forsch RT, Little SH, Williams C. [Laceration repair: a practical approach](#). Am Fam Physician. 2017 Jun;95(10):628-36A.
- Sicilia JM. [Incisions: Planning the direction of the incision](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 131-5.
- Usatine RP, Coates WC. [Laceration and incision repair](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 136-48.
- Epperson WJ. [Laceration and incision repair: needle selection](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 149-51.
- Epperson WJ. [Laceration and incision repair: suture selection](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 152-4.
- Reynolds RD. [Laceration and incision repair: suture tying](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 155-9.
- Thomsen TW, Barclay DA, Setnik GS. Basic laceration repair. N Engl J Med [Internet]. 2006 Oct 26 [cited 2021 May 6];355:[5 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm064238>.

Session 1.2

Skin Biopsies and Skin Lesions Treatment

1.2.1. Shave, Punch, and Excisional Biopsies

Objectives

1. Identify indications and contraindications for each type of skin biopsy, considering: type of skin lesion, location, and main purpose of procedure (diagnostic, cosmetic, or curative).
2. List necessary equipment to perform shave, punch, and/or excisional biopsies.
3. Perform shave, punch, and excisional biopsies adequately.
4. List possible complications and appropriate post-procedure care instructions.

Lesion Suspected	Where to Biopsy
Basal cell carcinoma	Raised, nonulcerated area
Squamous cell carcinoma	Central, thickened area
Melanoma	Darkest, raised portion
Vesiculobullous disease	Fresh lesion at the margin; include some normal tissue
Rashes	Primary lesion without secondary excoriation or infection

Location	Comments
Breast	Punch or shave
Cervix	Mini-Townsend or baby Tischler forceps
Eyelid	Sharp tissue scissors for shave removal
Gingiva	Shave; consider radiofrequency unit to limit bleeding if lesion is elevated
Intra-anal	Cervical biopsy forceps or flexible sigmoidoscopy biopsy forceps
Lip	Punch (bloody; heals quickly) or shave
Nail bed	Remove portion of nail; use small punch
Penis	Thin skin; use shave technique; stay superficial; scissors or sharp curette works best
Perianal	Sharp tissue scissors
Pinna	Shave; superficial punch; curette
Tongue	Punch; bloody; use suture; curette
Trunk	Any method
Vagina	Cervical biopsy forceps
Vulva	Hair-bearing area: use punch for depth Non-hair-bearing area: shave biopsy

Tables adapted from Pfenninger JL. Skin biopsy. In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 219-26. Tables 32-1 and 32-2, Selection of biopsy site based on lesion type and Site-specific biopsy guidelines; p. 221.

Necessary Equipment

- Gloves
- Ruler and surgical pen
- Alcohol wipes
- Anesthetic solution(s) (see [Table 1](#))
- 18- gauge needle, to draw anesthetic solution
- 25- to 30-gauge needle
- 1-10 mL syringe
- Chemical or electric hemostasis
 - Ferric sulfate, such as Monsel's solution
 - 10-15% silver nitrite
 - 20-70% aluminum chloride
 - Electrocautery
- Antiseptic solution, to clean vial top and field area
- Adhesive bandage
- Fine forceps
- Fine tissue scissors
- Suture kit or minor surgical tray, if appropriate, for **punch** or **excisional biopsy**
 - 1-2 drape(s)
 - 2x2 gauze(s)
 - 4x4 gauze(s)
 - 2 oz medicine cup
 - Scalpel handle
 - 5-inch needle driver
 - Two curved hemostats
 - Two material scissors
 - Tooth or non-tooth forceps
- 1. Single-edge flexible razorblade or no. 15 scalpel blade, for **shave biopsy**
- 2. Suture material, as indicated by location and type of biopsy performed (see Forsch et al, [Table 1](#))
- 3. Electrosurgical unit
- 4. Specimen jar, for pathology

Session Steps

1. Review different types of skin biopsies.
2. Explain how to perform each type of biopsy, including adequate patient preparation and consent.
3. Demonstrate procedure technique for each type of biopsy.

Residents will be expected to perform each procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.2, residents should review the following materials:

- Pfenninger JL. [Skin biopsy](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 179-85.
- Forsch RT, Little SH, Williams C. [Laceration repair: a practical approach](#). Am Fam Physician. 2017 Jun;95(10):628-36A.
- Levitt J, Bernardo S, Whang T. How to perform a punch biopsy of the skin. N Engl J Med [Internet]. 2013 Sep 12 [cited 2019 Oct 7];369:[5 p.]. Available from: <https://library.usask.ca/scripts/remote?URL=https://www.nejm.org/doi/full/10.1056/NEJMvcm1105849>.
- Saun TJ, Truong J, Dev SP, Wanzel K. How to perform a n elliptical excision of the skin. N Engl Med [Internet]. 2019 May [cited 2021 Apr 12];380:[4 p.]. Available from: <https://library.usask.ca/scripts/remote?URL=https://www.nejm.org/doi/full/10.1056/NEJMvcm1404883>.

1.2.2. Incision and Drainage of Cutaneous Abscesses

Objectives

1. Describe assessment and diagnosis of cutaneous abscesses.
2. Identify indications and contraindications of incision and drainage of cutaneous abscesses.
3. List necessary equipment for incision and drainage of cutaneous abscesses.
4. Perform incision and drainage adequately.
5. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Anesthetic solution(s) (see [Table 1](#))
- 19-gauge needle, to withdraw anesthetic
- 27- to 30-gauge needle, for injection
- 1-10 mL syringe
- Alcohol or povidone-iodine wipes
- 4x4-inch gauze
- No. 11 scalpel
- Curved hemostats
- Culture materials, if appropriate
- Bandage scissors
- Dressing

Session Steps

1. Review indications and contraindications of abscess drainage.
2. Explain how to perform incision and drainage, including adequate patient preparation and consent.
3. Demonstrate incision and drainage technique.

Residents will be expected to perform incision and drainage appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.2, residents should review the following materials:

- Derksen DJ. [Incision and drainage of an abscess](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 1307-10.
- Fitch MT, Manthey DE, McGinnis HD, Nicks BA, Pariadath M. How to perform a n elliptical excision of the skin. N Engl Med [Internet]. 2007 Nov [cited 2019 Oct 7];357:[4 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm071319>.

1.2.3. Cryotherapy

Objectives

1. Identify indications and contraindications of cryotherapy.
2. List necessary equipment for using cryotherapy as part of treatment.
3. Perform cryotherapy adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

1. Cryogen spray unit
2. Cryogenic Storage Dewar
3. Assorted various-sized nozzles
4. Protective plastic shield with different-sized openings
5. Styrofoam cups, if thermos canister not available

Session Steps

1. Review indications and contraindications of cryotherapy.
2. Explain how to perform cryotherapy, including adequate patient preparation and consent.
3. Demonstrate cryotherapy technique.

Residents will be expected to perform cryotherapy appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.2, residents should review the following materials:

- McNabb JW, Pfenninger JL. [Cryosurgery](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 89-101.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2021. Wart treatment; 2010 May 10 [cited 2021 May 6];[2 screens]. Available from: https://www-clinicalkey-com.cyber.usask.ca/#!/content/video/23-s2.0-mm_9780323624671_0012?indexOverride=GLOBAL.

1.2.4. Electrotherapy

Objectives

1. Identify indications and contraindications of electrotherapy.
2. List necessary equipment for using electrotherapy as part of treatment.
3. Perform electrotherapy adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Alcohol wipes, to clean the anesthetic solution vial top*
- Anesthetic solution(s) (see [Table 1](#))
- 19-gauge needle, to draw anesthetic
- 27-gauge needle, for injection
- 1 mL syringe
- Non-sterile gloves
- Electrode tips, if appropriate
- Handpiece for electrode tips, if appropriate
- Band aids
- Patient education handout on moist healing

*Do not use on patient's skin for cleaning purposes.

Session Steps

1. Review indications and contraindications of electrotherapy.
2. Explain how to perform electrotherapy, including adequate patient preparation and consent.
3. Demonstrate electrotherapy technique.

Residents will be expected to perform electrotherapy appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.2, residents should review the following materials:

- Pfenninger JL. [Radiofrequency surgery \(modern electrosurgery\)](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 1170-8.
- Ninewells Hospital and Medical School. Electrosurgery principles [Internet]. 2011 Feb 6 [cited 2021 May 6];[about 3 screens]. Available from: <https://www.youtube.com/watch?v=7LW78y0aEe0>.

1.2.5. Treatment of Fungal Infections, Calluses and Other Skin Lesions

Objectives

1. Identify the differences between plantar warts, plantar corns, and calluses, and the appropriate management of each.
2. Identify the types of skin and adnexal fungal infections where the use of a Wood's lamp may assist with diagnosis.
3. Perform each procedure adequately, including: Wood's light examination, callous debridement, and skin and/or nail scrapping.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Wood's lamp
- Alcohol wipes
- No. 15 scalpel
- Toothbrush
- Nail clippers
- Dermatophyte
- Specimen collection kit

Session Steps

1. Review the indications and contraindications of each procedure.
2. Explain how to perform each procedure, including adequate patient preparation and consent.
3. Demonstrate technique for each procedure.

Residents will be expected to perform each procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.2, residents should review the following materials:

- Babel DE. [Fungal studies and scabies: collection procedures and tests](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 126-30.
- Gebhard RE. [Wood's light examination](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 213-5.
- Ellis D. [Mycology specimen collection](#) [video]. University of Adelaide, producers. Adelaide (SA): University of Adelaide; 2016. 14 min., sound, color.

Session 1.3

Wound Care

1.3.1. Chronic Wound Care

The four stages of wound healing are hemostats, inflammation, proliferation, and regeneration. Wound healing is affected by both TIME and patient factors. TIME factors include non-viable *tissue* in the wound, *infection* or *inflammation*, imbalance in wound *moisture*, and changes in wound *edge*, while patient factors include nutrition, oxygenation, and blood supply to the wound.

Wound assessment should be undertaken regularly (q. 1-2 weeks) and should take into account wound location and measurement(s), amount and quality of exudate, appearance of wound bed, presence of pain and undermining, wound edge conditions, odor, evidence of infection, and in lower extremities, the color and presence of edema.

The ABCs of wound care are:

- A – Assessment – TIME factors, measure and location, odor, signs of infection, limb exam
- B – Wound Bed – +/- antibacterial dressing, +/- coat (Coloplast)
- C – Contour – Protect borders/skin of wound edges
- D – Dressing to Cover – Dependent on drainage
- E – Re-examine the Wound – Aim is >50% reduction of surface area over 4 weeks

Other important aspects of wound care to consider are:

- Early identification of wound infection and the need for antimicrobial dressing and/or antibiotics.
- Packing, when necessary, and changing packing (q. 2-3 days). Packing should only be used until wound depth is shallower than width distance around.
- Adequate management of the factors affecting wound healing, as well as patient comorbidities.

Risk stratification of pressure ulcers (stages I-IV, unstageable, and suspect tissue injury) depends on the amount of tissue involvement (depth) and the presence of non-viable tissue. The main goal of treatment is to release wound pressure, in addition to meeting the ABCs of wound care.

1.3.2. Lower Extremity Ulcers

Lower extremity ulcers are classified as either arterial, venous, neuropathic, or stasis ulcers. Treatment is dictated by pathophysiology.

Wound Dressing		Characteristics	Indication(s)
Sealant or barrier	Cavilon	Prevent peri-wound maceration	Diabetic wounds Pressure ulcers
	Non-stick skin prep	No problems when sensation absent	Peri-wound skincare protection
Alginate (Made from brown seaweed)	Biatain	Wound pads	Wounds with moderate to heavy exudate
	Algisite	Packing	
Hydrofibre	Aquacel	Sodium hydroxymethylcellulose	Highly exudative wounds and cavities
	Aquacel extra		Acute wounds
Foam dressings	Mesorb	Very absorbent	Highly exudative venous ulcers
	Mepilex foam	Cover dressings	
	Mextra		
Compression dressings	Coban 2	Same application, but different degrees of compression For treatment of venous ulcers to closure prior to maintenance	Venous and stasis ulcers
	Coban 2 lite		
Antimicrobial dressings	Acticoat Flex 3	Based on status of wound and expected drainage	Evidence of infection Difficult blood supply to wound Diabetic ulcers Pressure ulcers Venous ulcers
	Iodosorb		
	Silvercel Ag (Alginate)		
	Aquacel Ag (Hydrofibre)		
	Bactigras	Open-wave gauze 0.5% chlorhexidine acetate	Minor burns Lacerations and abrasions Leg ulcers Skin graft sites Donor recipients
Transparent films	Opsite	Flat surfaces	Superficial wounds Light exudate
	Tegaderm	Covers blisters Protects from feces and urine	
Barrier creams	Coloplast		Pressure ulcers Stomas
Betadine		Iodine-based solution	Dry wounds Arterial ulcers Non-healing wounds

	Arterial Ulcer	Venous Ulcer	Neuropathic Ulcer
Site	Ankle Toes Fingers	Medial malleolus Ankle	Foot (pressure points) Any part
Edema	Localized	Generalized	Localized
Discolouration	Never	Present	Never
Therapy	Dry wound	Compression (ABI >0.7) Wound management	Exudate Wound management

Materials to Review

Prior to attending Session 1.3, residents should review the following materials:

- Saskatchewan Surgical Initiative [Internet]. Regina (SK): Government of Saskatchewan; c2019. Lower extremity wound pathway; [cited 2019 Oct 11];[2 screens]. Available from: <http://www.sasksurgery.ca/provider/lowerextremitywound.html>.
- Wounds Canada [Internet]. North York (ON): Wounds Canada; c2019 [cited 2019 Oct 11]. Available from: <https://www.woundscanada.ca/>.
- Chilcott M. [Wound dressing](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 216-23.

Session 1.4

Finger- and Toenails

1.4.1. Subungual Hematoma Evacuation

Objectives

1. Identify indications and contraindications of subungual hematoma evacuation.
2. List necessary equipment to perform the procedure.
3. Perform procedure adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Alcohol lamp or Bunsen burner
- Metal paperclip
- Forceps or hemostat

Alternatively, the procedure may require the use of one of the following:

- Battery-operated cautery unit
- 18-gauge needle
- No. 11 scalpel
- Automatic drill device
- Radiofrequency or electrocautery unit with needle or pointed electrode

Session Steps

1. Review the indications and contraindications of subungual hematoma evacuation.
2. Explain how to perform evacuation, including adequate patient preparation and consent.
3. Demonstrate evacuation technique.

Residents will be expected to perform evacuation appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.4, residents should review the following materials:

- Roskos SE. [Nail plate, nail bed and nail matrix biopsy](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 160-3.
- Eckhold J. [Nail bed repair](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 164-9.

1.4.2. Paronychia Drainage

Objectives

1. Name and define the different classifications of paronychia.
2. Understand the physiopathology and diagnosis of paronychia.
3. Develop an adequate treatment and follow-up plan, including potential complications and management of these complications.

Necessary Equipment

- Anesthetic solution(s) (see [Table 1](#))
- 19-gauge needle, to withdraw anesthetic
- 27-gauge needle, for injection
- 3 or 6 mL syringe
- No. 15 scalpel
- Dressing material

Session Steps

1. Review the anatomy of the nail and the physiopathology of paronychia.
2. Explain how to perform drainage, including adequate patient preparation and consent.
3. Demonstrate drainage technique.

Residents will be expected to perform drainage appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.4, residents should review the following materials:

- [Pfenninger JL. Approach to various skin lesions.](#) In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 73-88.
 - **Note:** It is only necessary to review the section on [paronychia](#).

1.4.3. Finger- and Toenail Partial/Wedge and Total Removal

Objectives

1. Identify indications and contraindications of partial/wedge toenail removal.
2. List necessary equipment to perform procedure.
3. Perform procedure adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- 5 or 10 mL syringe
- 25 to 27-gauge needle, 1 ½-inch
- Narrow Locke periosteal elevator
- Sterile scissors with straight blades
- Any of the following: wide rubber band, small Penrose drain, donut digital tourniquet, or portable flood pressure cuff
- Two straight hemostats
- Silver nitrate sticks, for cauterization of granulation tissue
- Alcohol swabs
- Povidone-iodine solution
- Monsel's solution, to control any bleeding after the tourniquet is removed
- Sterile gauze and tubular gauze dressing
- Antibiotic ointment
- Phenol solution and isopropyl alcohol, for permanent ablation of the nail (if desired)

Session Steps

1. Review the anatomy of the nail and the physiopathology of ingrown toenails.
2. Explain how to perform the procedure, including adequate patient preparation and consent.
3. Demonstrate procedure technique.

Residents will be expected to perform the procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.4, residents should review the following material:

- Snyder GL, Fowler GC. [Podiatric procedures](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 1263-72.
- Pollock M. [Ingrown toenails](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 1314-9.

1.4.4. Vandenbos Procedure

Objectives

1. Identify indications and contraindications of the Vandenbos procedure.
2. List necessary equipment to perform the procedure.
3. Perform the procedure adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Anesthetic solution(s) (see [Table 1](#))
- 19-gauge needle, to withdraw anesthetic
- 27-gauge needle, for injection
- 3 or 6 mL syringe
- Penrose tourniquet
- No. 15 scalpel
- Electrocautery unit
- Dressing material

Session Steps

1. Review the anatomy of the nail and the physiopathology of ingrown toenails.
2. Explain how to perform the procedure, including adequate patient preparation and consent.
3. Demonstrate procedure technique.

Residents will be expected to perform the procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 1.4, residents should review the following materials:

- Chapeskie H. [Ingrown toenail or overgrown toe skin?](#) Can Fam Physician. 2008 Nov;54(11):1561-2.
- [Overgrowntoeskin.ca](#) [Internet]. Thornedale (ON): Thorndale Lion's Medical Centre; c2019. Videos of Vandenbos procedure; [cited 2019 Oct 11];[about 2 screens]. Available from: <https://www.youtube.com/watch?v=-ZDGEHkr3M8&t=2s>.

MODULE 2

Injections and Canulations

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Session 2.1

Injections and Cannulations

2.1.1. Intramuscular, Subcutaneous, and Intradermal Injections

Objectives

1. Identify indications and contraindications for intramuscular, subcutaneous, and intradermal injections.
2. List necessary equipment for each type of injection, including: type of syringe, needle, and size for each injection.
3. Perform each injection adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- 1 mL (tuberculin and insulin syringes), 3 mL, 5 mL, and 10 mL syringes
- Needles
 - Gauge sizes will be based on route of administration and viscosity of medication
 - Needle lengths will be based on route of administration, location of injection, and size of patient

Gauge of needle	Needle length	Viscosity of medication	Route	Examples
19-20	5/8", if thin adipose tissue or 1" to 1/2", if more adipose tissue	Thicker or oil-based	Intramuscular	Hormones, steroids, penicillin, and certain vitamin preparations
21-23	Gluteal area, 1 1/4" to 1 1/2" or 2" to 3", if large amount of adipose tissue	Aqueous or water-based	Intramuscular	Immunizations and other water-based medications
23-25	3/8" to 1/2" or 1/2" to 5/8", if more adipose tissue	Aqueous or water-based	Subcutaneous	Immunizations and allergy medications
26-27	3/8" to 1/2"	Aqueous or water-based	Intradermal	Allergy testing extracts and purified protein derivative (PPD) extract for TB skin test.
30 (ultrafine)	3/8" to 1/2" or 1/2" to 5/8", if more adipose tissue	Aqueous or water-based	Subcutaneous	When repeat injections are given, such as insulin

Tables adapted from Heller M. Administration of parenteral medications. In: Heller M, Veach LM, editors. Clinical medical assisting: a professional, field smart approach to the workplace. 2nd ed. Boston (MA): Cengage Learning; 2017. p. 835-82. Tables 34-3 and 34-4, Common gauge sizes based upon the route of administration and viscosity of the medication and Common needle lengths based upon the route of administration, location of the injection, and size of the patient (adult); p. 839-40.

- Ampules
- Cartridge units
- Vials
- Alcohol swabs, to clean vial tops
- Chlorhexidine swabs, to clean skin
- Cotton balls
- Small rounded band-aid(s)

Session Steps

1. Review the indications and contraindications of each type of injection and their appropriate anatomic landmark(s).
2. Explain how to perform each type of injection, including adequate patient preparation and consent.
3. Demonstrate injection techniques.

Residents will be expected to perform each injection appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 2.1, residents should review the following material:

- Doyle GR, McCutcheon JA. [Parenteral medication administration](#). In: Doyle GR, McCutcheon JA, editors. Clinical procedures for safer patient care. 1st ed. Victoria (BC): British Columbia Institute of Technology; 2015. p. 369-464.
- Heller M. [Administration of parenteral medications](#). In: Heller M, Veach LM, editors. Clinical medical assisting: a professional, field smart approach to the workplace. 2nd ed. Boston (MA): Cengage Learning; 2017. p. 835-82.

2.1.2. Peripheral Intravenous Line Insertion

Objectives

1. Identify indications and contraindications for intravenous therapy.
2. List necessary equipment for administering intravenous therapy.
3. Perform the procedure adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Intra-catheter and needle for intravenous use

Catheter size	Flow rate	Examples
14 G	240 mL/min	Trauma, rapid blood transfusion, surgery
16 G	180 mL/min	Trauma, rapid fluid replacement, rapid blood transfusion
18 G	90 mL/min	
20 G	60 mL/min	Most blood transfusions, rapid fluid replacement, routine blood transfusion
22 G	36 mL/min	Most blood transfusions (neonate, pediatric, older adult), routine blood transfusion
24 G	20 mL/min	
26 G	13 mL/min	Most blood transfusions (neonate, pediatric)

- 14- to 20-gauge needle, depending on clinical situation
- Administration tubing set
- 10 cc saline flush syringe
- Ampules
- IV fluids, including:
 - 0.9% normal saline
 - 5% dextrose in water
 - Dextrose-saline
 - Ringer's lactate
- Alcohol swabs, to clean the vial tops
- Chlorhexidine swabs, to clean skin
- Tourniquet
- Cotton balls
- Small rounded band-aid(s)

Session Steps

1. Review the indications and contraindications for intravenous therapy and the appropriate anatomic landmark(s).
2. Explain how to perform the cannulation for intravenous therapy including adequate patient preparation and consent.
3. Demonstrate cannulation techniques.

Residents will be expected to perform the cannulation technique appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 2.1, residents should review the following material:

- Heller M. [Administration of parenteral medications](#). In: Heller M, Veach LM, editors. Clinical medical assisting: a professional, field smart approach to the workplace. 2nd ed. Boston (MA): Cengage Learning; 2017. p. 835-82.

2.1.3. Central Venous Catheter Insertion

Objectives

1. Identify absolute and relative indications and contraindications for central venous catheter insertion and each placement area.
2. List necessary equipment for central venous catheter insertion, including: preparation, central venous catheter insertion kits, and different types of catheters.
3. Know anatomical landmark for each type of central venous catheter insertion and placement area, including: subclavian venipuncture, internal jugular vein, and femoral vein.
4. Demonstrate appropriate use of ultrasound for localization and placement of central venous catheter.
5. Perform the Seldinger technique for central venous catheter insertion adequately.
6. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Universal precautions, including:
 - Sterile gown
 - Sterile gloves
 - Goggles and/or face shield
 - Mask
- Cleaning materials, for surgical sterilization*
 - Iodophors, such povidone-iodine
 - Chlorhexidine gluconate/stanhexidine
 - Alcohol
- Anesthetic solution(s) (see [Table 1](#))
- Sterile 4x4 gauzes
- Central venous catheter insertion kit, including:
 - Central venous catheter
 - 5 to 8 Fr
 - 15 to 20 cm
 - Guide wire
 - Skin-vessel dilator
 - Introducer needle
 - 5 mL and 10 mL syringes, for localization of vein and introduction of guidewire
 - Blue introducer syringe
 - Disposable syringe, with injection needle
 - 1 to 3 attachment clips and closures, depending on lumen
 - Surgical scalpel
 - Tray
 - 3-0 silk suture, to suture catheter in place
- Suture scissors
- Saline flushes
- IV solution and connector tubing, flushed and ready to use
- Ultrasound machine, if necessary

- Pulse oximeter
- Cardiac monitor
- Blood pressure monitor
- Code cart and defibrillator

*If using electrocautery for hemostasis, use saline solution for sterilization.

Session Steps

1. Review indications and contraindications of each route for catheter insertion, the types of central catheters and the appropriate anatomical landmark(s):
 - Internal jugular vein
 - Subclavian vein
 - Femoral vein
2. Explain how to perform each type of insertion, including adequate patient preparation and consent.
3. Demonstrate insertion techniques.

Residents will be expected to perform each insertion appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 2.1, residents should review the following materials:

- James D. [Central venous catheter insertion](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1443-50.
- Graham AS, Ozment C, Tegtmeyer K, Lai S, Braner DAV. Central venous catheterization. N Engl J Med [Internet]. 2007 May 24 [cited 2019 Oct 15];356:[3 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm055053>.
- Ortega R, Song M, Hansen CH, Barash P. Ultrasound-guided internal jugular vein cannulation. N Engl J Med [Internet]. 2010 Apr 22 [cited 2019 Oct 15];362:[4 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm0810156>.

2.1.4. Intraosseous Vascular Access

Objectives

1. Identify indications and contraindications for intraosseous vascular access.
2. List necessary equipment for intraosseous vascular access.
3. Perform procedure adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- 16 to 20-gauge disposable rigid needle, preferably with stylet
 - Options include: kit with small, portable battery-powered drill; intraosseous needle; integrated stylet that doubles as a drill bit (EZ-IO AD for patients ≥ 40 kg, EZ-IO PD for patients >6 kg but <40 kg); or, spring-loaded needle
- Disposable bone injection gun (BIG Adult or BIG Pedi) or disposable need with built-in handle
 - If neither option is available, spinal needles (with stylet) or bone marrow aspiration needles (i.e., Jamshidi) have been used to perform this procedure in children
- Sterile latex gloves
- Goggles
- Sterile drapes
- Cleaning materials, for surgical sterilization*
 - Iodophors, such as povidone-iodine
 - Chlorhexidine gluconate/stanhexidine
 - Alcohol
- Anesthetic solution(s) (see [Table 1](#))
- 3 or 5 mL syringe
- 25- or 27-gauge/58-inch needle
- 18-gauge needle, to draw anesthetic solution
- Two 10 mL syringes, for aspiration medullary contents and flushing with normal saline
- 2x2 gauze pads
- 4x4 gauze pads
- Tape
- IV solution, such as isotonic crystalloid or colloid, tubing, and pressure infuser bag or infusion pump
- Extremity or torso restraints, if necessary
- Plastic or Styrofoam cup

*If using electrocautery for hemostasis, use saline solution for sterilization.

Session Steps

1. Review indications and contraindications of intraosseous vascular access.
2. Explain how to perform the procedure, including adequate patient preparation and consent.
3. Demonstrate procedure technique.

Residents will be expected to perform the procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 2.1, residents should review the following materials:

- Jarris RF Jr, Fowler GC. [Intraosseous vascular access](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 1355-9.
- Nagler J, Krauss B. Intraosseous catheter placement in children. N Engl J Med [Internet]. 2011 Feb 24 [2019 Oct 15];364:[5 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm0900916>.
- Dev SP, Stefan RA, Saun T, Lee S. Insertion of an intraosseous needle in adults. N Engl J Med [Internet]. 2014 Jun 12 [cited 2019 Oct 15];370:[5 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm1211371>.

MODULE 3

Eye and ENT Procedures

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3.1.3 Foreign Body Removal from Nose and Ear	55

Session 3.1

Eye and ENT Procedures

3.1.1. Corneal Foreign Body Removal

Objectives

1. Identify indications and contraindications of corneal foreign body removal.
2. List necessary equipment for performing corneal foreign body removal.
3. Perform procedure adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Topical ophthalmic anesthetic, such as tetracaine
- Topical antibiotic, such as erythromycin
- Magnification device
- Wood's light
- Fluorescein strips
- Cotton-tipped applicators
- 26-gauge hypodermic needle
- Sterile water
- Ophthalmoscope

Session Steps

1. Review anatomy of eye and indications and contraindications of corneal foreign body removal.
2. Explain how to perform the procedure, including adequate patient preparation and consent.
3. Demonstrate procedure technique.

Residents will be expected to perform the procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 3.1, residents should review the following material:

- Wipperman JL, Dorsch JN. [Evaluation and management of corneal abrasions](#). Am Fam Physician. 2013 Jan;87(2):114-20.

3.1.2. Anterior Nasal Packing

Objectives

1. Know arterial anatomy of nasal septum.
2. List the indications and five contraindications of anterior nasal packing.
3. List necessary equipment to perform anterior nasal packing.
4. Perform procedure adequately.
5. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Personal protective equipment, including:
 - Sterile gown
 - Sterile gloves
 - Goggles and/or face shield
 - Mask
- Hands-free light source
- Nasal speculum
- Cotton-tipped applicators
- Frazier suction tip connected to continuous suction
- Bayonet forceps
- Materials to tamponade bleeding, depending on availability and/or preference:
 - Cotton pledgets
 - Gel-foam packs
 - Surgicel and Merocel nasal sponges
- ½" wide to 72" long petroleum impregnated gauze
- Silver nitrate sticks
- Topical antibiotic ointment, if using Merocel nasal sponge
- Local agent for vasoconstriction:
 - 4% cocaine
 - 2% phenylephrine
 - 0.05% oxymetazoline
- Anesthetic solution(s) for topical use:
 - 2-5% lidocaine
 - 14% benzocaine spray
 - 2% tetracaine
- Emesis (kidney) basin

Session Steps

1. Review arterial anatomy of nasal septum.
2. Explain how to perform the procedure, including adequate patient preparation and consent.
3. Demonstrate procedure technique.

Residents will be expected to perform the procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 3.1, residents should review the following material:

- Kucik CJ, Clenney T. [Management of epistaxis](#). Am Fam Physician. 2005 Jan;71(2):305-11.

3.1.3 Foreign Body Removal from Nose and Ear

Objectives

1. Know anatomy of nose and ear.
2. Understand fragility of nasal mucosae and cutaneous lining of ear.
3. List indications and five contraindications of foreign body removal from nose and ear.
4. List necessary equipment to perform foreign body removal from nose and ear.
5. Perform procedure adequately.
6. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Hands-free light source
- Otoscope
- Nasal speculum
- Frazier suction tip connected to continuous suction
- Alligator forceps
- Bayonet forceps

Session Steps

1. Review anatomy of nose and ear.
2. Explain how to perform the procedure, including adequate patient preparation and consent.
3. Demonstrate procedure technique.

Residents will be expected to perform the procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 3.1, residents should review the following material:

- Friedman EM. Removal of foreign bodies from the ear and nose. N Engl J Med [Internet]. 2016 Feb 18 [cited 2019 Oct 16];374:[3 p.]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMvcm1207469>.

MODULE 4

Gastrointestinal Procedures

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Session 4.1

Gastrointestinal Procedures

4.1.1. Nasogastric Tube Insertion

Objectives

1. Identify the indications and contraindications of nasogastric tube insertion.
2. List necessary equipment to perform nasogastric tube insertion.
3. Perform insertion adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Personal protective equipment including:
 - Sterile gown
 - Sterile gloves
 - Goggles and/or face shield
 - Mask
- Nasogastric tube
- 60 mL catheter tip syringe
- Water-soluble lubricant, preferably 2% xylocaine jelly
- Adhesive tape
- Low-powered suction device or drainage bag
- Stethoscope
- Water and ice chips, if necessary
- Emesis (kidney) basin

Session Steps

1. Review vascular anatomy of the nasal cavity.
2. Explain how to perform insertion, including adequate patient preparation and consent.
3. Demonstrate insertion technique.

Residents will be expected to perform insertion appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 4.1, residents should review the following material:

- Thomsen TW, Shaffer RW, Setnik GS. Nasogastric intubation. N Engl J Med [Internet]. 2006 Apr 27 [cited 2019 Oct 16];354:[2 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm050183>.

4.1.2. Anoscopy and Incision and Drainage of Thrombosed Hemorrhoids

Objectives

1. Know anatomy of anal canal.
2. Identify five indications and three contraindications of anoscopy and in what instances incision and drainage of thrombosed external hemorrhoids is indicated.
3. Know proper patient positioning to perform perianal examination and digital rectal examination.
4. List necessary equipment to perform anoscopy and incision and drainage of thrombosed external hemorrhoids.
5. Perform each procedure adequately.
6. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

Anoscopy

- Anoscope
- Light source
- Personal protective equipment, including:
 - Sterile gown
 - Sterile gloves
 - Goggles and/or face shield
 - Mask
- Lubricant
- Large-tip cotton swabs

Incision and Drainage

- Light source
- Personal protective equipment, including:
 - Sterile gown
 - Sterile gloves
 - Goggles and/or face shield
 - Mask
- Cleaning materials, for surgical sterilization*
 - Iodophors, such as povidone-iodine
 - Chlorhexidine gluconate/stanhexidine
 - Alcohol
- Anesthetic solution(s) (see [Table 1](#))
- 3 mL syringe
- 27-gauge needle, 1 ½-inch
- No. 11 or no. 15 scalpel
- Mosquito hemostats
- Fine tissue forceps

*If using electrocautery for hemostasis, use saline solution for sterilization.

Session Steps

1. Review anatomy of the anal canal.
2. Explain how to perform each procedure, including adequate patient preparation and consent.
3. Demonstrate each procedure technique.

Residents will be expected to perform each procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 4.1, residents should review the following materials:

- Fargo MV, Latimer KM. Evaluation and management of common anorectal conditions. Am Fam Physician. 2012 Mar;85(6):624-30.
- Zuber TJ. Hemorrhoidectomy for thrombosed external hemorrhoids. Am Fam Physician. 2002 Apr;65(8):1629-32.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: anoscopy; 2016 Dec 12 [cited 2019 Oct 16];[12 screens]. Available from: https://www-clinicalkey-com.cyber.usask.ca/#!/content/medical_procedure/19-s2.0-mp_FM-045.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2010. Procedure videos: hemorrhoidectomy; 2016 Dec 14 [cited 2019 Oct 16];[12 screens]. Available from: https://www-clinicalkey-com.cyber.usask.ca/#!/content/medical_procedure/19-s2.0-mp_FM-046.
- Rajab TK, Bordeuanou LG, vonKeudell A, Rajab H, Zhou H. Digital rectal examination and anoscopy. N Engl J Med [Internet]. 2018 May 31 [cited 2020 Feb 8];378:[3 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm1510280>.



MODULE 5

Breast and Urinary Procedures

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Session 5.1

Breast and Urinary Procedures

5.1.1. Breast Cyst Aspiration

Objectives

1. Know common breast pathology and the characteristics of breast cysts.
2. Identify indications and contraindications of breast cyst aspiration.
3. List necessary equipment to perform breast cyst aspiration.
4. Perform aspiration adequately.
5. List possible complications and appropriate post-procedure care instructions.
6. Know when to refer patient to specialist.

Necessary Equipment

- Antiseptic solution, such as chlorhexidine or iodine solution
- Alcohol swabs
- Sterile drapes
- Sterile gloves
- 21-gauge needle
- 5 or 10 mL syringe
- Fluid container for cytopathology
- Cytopathology requisition to send with specimen

Session Steps

1. Review breast anatomy and the characteristics of benign breast cyst as compared to other breast conditions.
2. Explain how to perform aspiration, including adequate patient preparation and consent.
3. Demonstrate aspiration technique.

Residents will be expected to perform aspiration appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 5.1, residents should review the following materials:

- Lucas JH, Cone DL. [Breast cyst aspiration](#). Am Fam Physician. 2003 Nov;68(10):1983-7.
- Salzman B, Fleegle S, Tully AS. [Common breast problems](#). Am Fam Physician. 2012 Aug;86(4):343-9.

5.1.2. Urinary Catheterization

Objectives

1. Identify indications and contraindications of short- and long-term urinary catheterization.
2. List necessary equipment to perform urinary catheterization.
3. Perform procedure adequately.
4. List possible complications and appropriate post-procedure care instructions.
5. Review difficult catheterizations for men, women, and children.

Necessary Equipment

- Urethral catheters

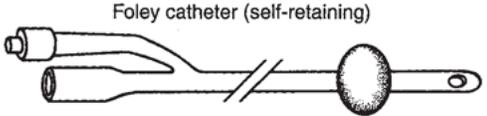
Catheter Type	Description	Sizes	Use
 <p>Robinson catheter (plain straight catheter with 2 eyes)</p>	Straight rounded (red catheter) No balloon	Pediatric 6 Fr 8 Fr 10 Fr	Short term catheterization In-out self- catheterization
 <p>Foley catheter (self-retaining)</p>	Straight self- retained (balloon) 2 or 3 lumens (one for balloon inflation)	Female Adult 12 Fr 14 Fr Male Adult 14 Fr to 18 Fr Clot Retention 20 Fr to 22 Fr	2 lumen Regular common use For short-term or long- term use 3 lumen For irrigation (ongoing gross hematuria)
 <p>Coudé catheter (elbow, self-retaining)</p>	Terminal 2 inches are upward	16 to 18 Fr	Used when passing a regular Foley catheter is difficult, such as in benign prostatic hyperplasia (BPH)

Table adapted from Solter M. Retrograde instrumentation of the urinary tract. In: McAninch JW, Lue TF, editors. Smith and Tanagho's general urology. 19th ed. New York (NY): McGraw-Hill; 2020. p. 117-28. Figure 8-1 Urethral catheters, metal stylet, catheter, and guidewire techniques for catheter insertion; p. 118

- Lubricant
- Sterile drapes
- Sterile gloves
- Cleaning materials, for surgical sterilization
 - Iodophors, such as povidone-iodine
 - Chlorhexidine gluconate/stanhexidine

- Alcohol
- Syringe with water, for balloon inflation
- Closed urinary drainage system or bag
- Tape or another securing device
- Viscous lidocaine, for male catheterization

Session Steps

1. Review urinary anatomy.
2. Review different types of catheters.
3. Explain how to perform catheterization, including adequate patient preparation and consent.
4. Demonstrate catheterization technique.

Residents will be expected to perform catheterization appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 5.1, residents should review the following materials:

- James RE, Fowler GC. [Bladder catheterization \(and urethral dilation\)](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 765-9.
- Thomsen TW, Setnik GS. Male urethral catheterization. N Engl J Med [Internet]. 2006 May 25 [cited 2019 Oct 17];354:[3 p.]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMvcm054648>.
- Ortega R, Ng L, Shekhar P, Song M. Female urethral catheterization. N Engl J Med [Internet]. 2008 Apr 3 [cited 2019 Oct 17];358:[4 p.]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMvcm0706671>.
- Manzano S, Vunda A, Schneider F, Vandertuin L, Lacroix LE. Catheterization of the urethra in girls. N Engl Med J [Internet]. 2014 Jul 14 [cited 2019 Oct 17];371:[3 p.]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMvcm1105612>.
- Lacroix LE, Vunda A, Bajwa NM, Galetto-Lacour A, Gervais A. Catheterization of the urethra in male children. N Engl J Med [Internet]. 2010 Sep 30 [cited 2019 Oct 17];363:[3 p.]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMvcm0808873>.



MODULE 6

Obstetrical and Gynecological Procedures

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Session 6.1

Obstetrics and Labour

6.1.1. Prenatal Exam (Any Stage)

Objectives

1. Know the components of a routine prenatal exam.
2. Perform an adequate prenatal exam, including focused physical examination and patient counselling.
3. Perform an adequate fetal position exam and identify fetal heart rate and fundal height measurement.

Necessary Equipment

- Fetal doppler, for identification of fetal heart rate
- Ultrasound gel
- Metric tape
- Blood pressure monitor and scale

Session Steps

1. Review the different stages of pregnancy and different fetal presentations.
2. Explain how to perform the exam, including adequate patient preparation and consent.
3. Demonstrate exam technique.

Residents will be expected to perform the exam appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 6.1, residents should review the following materials:

- Zolotor AJ, Carlough MC. [Update on prenatal care](#). Am Fam Physician. 2014 Feb;89(3):199-208.
- BC Perinatal Health Program. BCPHP obstetric guideline 19: maternity care pathway [Internet]. Vancouver (BC): BC Perinatal Health Program; 2010. 19 p. Available from: <http://www.perinatalervicesbc.ca/Documents/Guidelines-Standards/Maternal/MaternityCarePathway.pdf>.

6.1.2 Mechanical Induction of Labour and Artificial Rupture of Membranes

Objectives

1. Identify indications and contraindications of the different methods for inducing labour, including: mechanical, surgical, and medical induction.
2. Know the modified BISHOP scoring system for pre-induction assessment.
3. List necessary equipment to perform each type of induction.
4. Perform each type of induction adequately.
5. Describe the adequate procedure to perform the artificial rupture of membranes.
6. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Sterile gloves
- Lubricant
- Speculum (plastic or metal)
- Light source
- Balloon catheter or laminaria tent, for mechanical induction
- Amniotomy hook, for artificial rupture of membranes
- Fetal monitor

Session Steps

1. Review female perineum anatomy, stages of labour, fetal presentations, and modified BISHOP scoring system.
2. Explain how to perform each type of induction, including adequate patient preparation and consent.
3. Demonstrate induction techniques.

Residents will be expected to perform induction appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 6.1, residents should review the following material:

- Society of Obstetricians and Gynaecologists of Canada (SOGC). ALARM Course Manual. 27th ed. Ottawa (ON): SOGC; c2020-2021. Chapter 6, Induction of labour; p. 108-42.

6.1.3. Fetal Scalp Electrode Application

Objectives

1. Identify indications and contraindications of fetal scalp electrode application.
2. Know female perineum anatomy, stages of labour, and fetal presentation.
3. List necessary equipment to perform fetal scalp electrode application.
4. Perform procedure adequately.
5. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Sterile gloves
- Scalp electrode
- Fetal monitor
- Lubricant
- Cables, for connecting electrode to monitor

Session Steps

1. Review female perineum anatomy, stages of labour, and fetal presentations.
2. Explain how to perform the procedure, including adequate patient preparation and consent.
3. Demonstrate procedure technique.

Residents will be expected to perform the procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 6.1, residents should review the following materials:

- Choby BA. [Fetal scalp electrode application](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1141-4.
- Society of Obstetricians and Gynaecologists of Canada (SOGC). ALARM Course Manual. 27th ed. Ottawa (ON): SOGC; c2020-2021. Chapter 8, Fetal well-being during labour; p. 150-220.

Session 6.2

Obstetrics and Delivery

6.2.1 Repair of First- and Second-degree Perineal Lacerations

Objectives

1. Identify indications and contraindications of perineal repair.
2. Know female perineum anatomy and different types of perineal tear.
3. List necessary equipment to perform laceration repair.
4. Perform laceration repair adequately.
5. List possible complications and appropriate post-procedure care instructions.
6. Know when to refer a patient to a specialist.

Necessary Equipment

- Light source
- Suture pack, including:
 - Needle driver
 - Tooth forceps
 - Scissors
- Gloves
- Local anesthetic, such as 1% lidocaine
- Gauze
- Absorbable synthetic suture, such as 2-0 or 3-0 Vicryl suture with CT-1 needle

Session Steps

1. Review female perineum anatomy and perineal laceration classifications.
2. Explain how to perform laceration repair, including adequate patient preparation and consent.
3. Demonstrate repair technique.

Residents will be expected to perform laceration repair appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 6.2, residents should review the following materials:

- Duffy S. [How to perform perineal repair](#) [video]. MedNav, producers. London (UK): MedNav; 2018. 16 min., sound, color.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: first and second degree repair of the perineum; 2016 Dec 12 [cited 2019 Oct 18];[13 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-015?scrollTo=%2323-s2.0-FM-015-HS7210-V-640-0101.

- Leeman L, Spearman M, Rogers R. [Repair of obstetric perineal lacerations](#). Am Fam Physician. 2003 Oct;68(8):1585-90.

6.2.2. Intrapartum Fetal Monitoring

Objectives

1. Identify maternal and fetal factors that affect fetal wellbeing.
2. Be familiar with overall fetal health surveillance in labour, including: assessment of uterine activity, intermittent auscultation of fetal heart sounds, and electronic fetal monitoring (EFM).
3. Interpret EFM tracings and recognized patterns based on the Society of Obstetricians and Gynaecologists of Canada's classification of intrapartum EFM tracing.
4. Understand possible cause for each pattern and appropriate management.

Session Steps

1. Review principles of EFM and different clinical cases regarding EFM tracing.
2. Demonstrate systematic interpretation of EFM tracings.

Each resident will be expected to appropriately and adequately interpret EFM tracings.

Materials to Review

Prior to attending Session 6.2, residents should review the following material:

- Society of Obstetricians and Gynaecologists of Canada (SOGC). ALARM Course Manual. 27th ed. Ottawa (ON): SOGC; c2020-2021. Chapter 8, Fetal well-being during labour; p. 150-220.

6.2.3. Normal Vaginal Delivery

Objectives

1. Know female perineum anatomy and stages of labour in both primiparous and multiparous women.
2. Identify indications and contraindications of normal vaginal delivery.
3. List necessary equipment for normal vaginal delivery.
4. Perform delivery adequately.
5. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Oxygen with flowmeter, one for mother and one for infant
- Delivery bed
- Set-up for uterine contractions and fetal monitoring
 - Intrapartum fetal and uterus monitor
 - External fetal monitor (Doppler transducer)
 - Tocodynamometer, for monitoring of uterine contractions
- Set-up for neonate
 - Infant warmer
 - Oxygen with bag and mask
 - DeLee suction
 - Infant laryngoscope
 - Intubation equipment
 - Umbilical catheter
 - Emergency medication, found on resuscitation cart
 - Epinephrine
 - Naloxone
 - Sodium bicarbonate
 - Calcium gluconate
 - Glucose
 - Monitoring equipment, for resuscitation
- Sterile equipment tray or table
 - 10 mL tube, for cord blood
 - Two pairs of scissors
 - Bulb syringe
 - Plastic cord clamp
 - Two curved artery Kocher clamps
 - Needle holder
 - Two ring forceps clamps
 - Placenta basin
 - Towels
 - Sterile drapes
 - Sterile gown
 - Sterile gloves

Session Steps

1. Review stages of labour.
2. Explain how to perform delivery, including adequate patient preparation and consent.
3. Demonstrate delivery technique.

Residents will be expected to perform delivery appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 6.2, residents should review the following materials:

- Society of Obstetricians and Gynaecologists of Canada (SOGC). ALARM Course Manual. 27th ed. Ottawa (ON): SOGC; c2020-2021. Chapter 9, [Vaginal birth](#); p. 221-9.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: vaginal delivery; 2016 Dec 17 [cited 2019 Oct 19];[24 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-011?scrollTo=%2323-s2.0-FM-011-HS7210-V-640-0101.
- Patterson DA, Matus CD, Durtis J. [Vaginal delivery](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1187-97.
- Lee L, J Dy, Azzam H. [Management of spontaneous labour at term in healthy women](#). J Obstet Gynaecol Can. 2016 Sep;38(9):843-65.
- Dresang LT, Yonke N. [Management of spontaneous vaginal delivery](#). Am Fam Physician. 2015 Aug;92(3):202-8.

6.2.4. Post-partum Hemorrhage Management

Objectives

1. Identify indications and contraindications of post-partum hemorrhage (PPH).
2. Identify steps of active management of the third stage of delivery for the prevention of PPH.
3. List necessary equipment and utero-tonic agents for PPH management.
4. Perform adequate PPH management.
5. Know when to call for additional help.

Necessary Equipment

- Equipment for [normal vaginal delivery](#)
- Utero-tonic agents
 - Oxytocin
 - Misoprostol
 - Carbetocin
 - Ergonovine
- Adequate IV access, for fluid resuscitation

Session Steps

1. Review the definition, risk factors, and management of PPH.
2. Explain how to perform management, including adequate patient preparation and consent.
3. Demonstrate management technique.

Residents will be expected to perform management appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 6.2, residents should review the following materials:

- Society of Obstetricians and Gynaecologists of Canada (SOGC). ALARM Course Manual. 27th ed. Ottawa (ON): SOGC; c2020-2021. Chapter 15, Postpartum hemorrhage; p. 336-81.
- Anderson JM, Detches D. [Prevention and management of postpartum hemorrhage](#). Am Fam Physician. 2007 Mar;75(6):876-82.

Session 6.3

Delivery Complications

6.3.1. Shoulder Dystocia Management

Objectives

1. Demonstrate adequate knowledge of normal vaginal delivery and anatomical landmark of pelvis and perineum.
2. Define shoulder dystocia, risk factors, and associated maternal and fetal complications.
3. Identify signs of shoulder dystocia.
4. Follow appropriate protocol for management of shoulder dystocia and associated complications.

Necessary Equipment

- Equipment for [normal vaginal delivery](#)

Session Steps

1. Review normal vaginal delivery and signs of shoulder dystocia.
2. Explain how to perform management, including adequate patient preparation and consent.
3. Demonstrate management technique.

Residents will be expected to perform management appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 6.3, residents should review the following materials:

- Baxley EG, Robbo RW. [Shoulder dystocia](#). Am Fam Physician. 2004 Apr;69(7):1708-14.
- Society of Obstetricians and Gynaecologists of Canada (SOGC). ALARM Course Manual. 27th ed. Ottawa (ON): SOGC; c2020-2021. Chapter 13, Shoulder dystocia; p. 291-310.

6.3.2. Vacuum-assisted Vaginal Delivery

Objectives

1. Demonstrate adequate knowledge of normal vaginal delivery and anatomical landmark of pelvis and perineum.
2. Identify maternal and/or fetal indications and contraindications of vacuum-assisted vaginal delivery.
3. Determine the type of vaginal delivery assistance based on the position of the fetal head in the maternal pelvis.
4. List necessary equipment to perform vacuum application.
5. Perform delivery adequately.
6. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Equipment for [normal vaginal delivery](#)
- Hand-held vacuum device

Session Steps

1. Review normal vaginal delivery.
2. Review indications and contraindications of vacuum-assisted vaginal delivery.
3. Explain how to perform delivery, including adequate patient preparation and consent.
4. Demonstrate delivery technique.

Residents will be expected to perform delivery appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 6.3, residents should review the following materials:

- Society of Obstetricians and Gynaecologists of Canada (SOGC). ALARM Course Manual. 27th ed. Ottawa (ON): SOGC; c2020-2021. Chapter 10, Assisted vaginal birth; p. 230-60.
- Cargill YM, MacKinnon CJ; Clinical Practice Obstetrics Committee. [SOGC clinical practice guidelines no. 148: guidelines for operative vaginal birth](#). J Obstet Gynaecol Can. 2004 Aug;26(8):747-53.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: vacuum-assisted delivery; 2016 Dec 12 [cited 2019 Oct 21];[16 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-016?scrollTo=%2323-s2.0-FM-016-HS7210-V-640-0101.
- Hook CD, Damos JR. [Vacuum-assisted vaginal delivery](#). Am Fam Physician. 2008 Oct;76(8):953-60.
- Osborn C, Bell J, Patterson DA. [Forceps- and vacuum-assisted deliveries](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1145-50.

Other Obstetrical Procedures

Umbilical Cord Prolapse

Objectives

1. Define cord prolapse.
2. Identify risk factors associated with cord prolapse.
3. Perform an adequate assessment of fetal presentation and stage of descend, prior to initiating safe artificial rupture of membranes.
4. Recognize sudden changes in fetal heart rate that correlate with cord prolapse.
5. Recognize presence of cord prolapse and need for immediate specialist assistance.
6. Describe acute management of cord prolapse.

Session Steps

1. Review identification of cord prolapse during labour.
2. Explain adequate assessment of fetal presentation and stage of descend, prior to initiating safe artificial rupture of membranes.
3. Demonstrate acute management of cord prolapse until definitive management can be established.

Residents will be expected to perform management appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following material:

- Society of Obstetricians and Gynaecologists of Canada (SOGC). ALARM Course Manual. 27th ed. Ottawa (ON): SOGC; c2020-2021. Chapter 7, Umbilical cord prolapse; p. 144-9.

Retained Placenta and Uterine Inversion

Objectives

1. Define postpartum hemorrhage (PPH), retained placenta, and uterine inversion.
2. Identify risk factors associated with retained placenta and uterine inversion.
3. Recognize the importance of active management of the third stage of labour for prevention of PPH.
4. List utero-tonic agents for prevention of PPH.
5. Perform adequate assessment to establish timing of placenta delivery.
6. Recognize presence of retained placenta and uterine inversion and need for immediate specialist assistance.
7. Describe acute management of retained placenta and uterine inversion.

Session Steps

1. Review PPH risk factors and active management of the third stage of labour.
2. Review assessment and identification of PPH, retained placenta, and uterine inversion.
3. Demonstrate management technique, including appropriate use of utero-tonic agents, intra-umbilical injection of misoprostol, and reduction of uterine inversion.

Residents will be expected to perform management appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- Society of Obstetricians and Gynaecologists of Canada (SOGC). ALARM Course Manual. 27th ed. Ottawa (ON): SOGC; c2020-2021. Chapter 15, Postpartum hemorrhage; p. 336-81.
- Anderson JM, Detches D. [Prevention and management of postpartum hemorrhage](#). Am Fam Physician. 2007 Mar;75(6):876-82.

Surgical Assist at C-Section

Objectives

1. Identify indications of C-section and when to refer a patient to an obstetrician.
2. Perform adequately as surgical assist*.

The surgical assist aids the surgeon during a given procedure. The assist performs critical tasks, such as ensuring that the area remains sterile and providing visualization of the surgical field. The assist should anticipate next steps to provide the surgeon with the necessary equipment.

*Assisting at C-section will depend on obstetrician preference.

Materials to Review

Residents should review the following material:

- Blecher LI, Mailloux B. [Cesarean section](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1105-12.

Other Gynecological Procedures

Pelvic Exam

Objectives

1. Identify indications and contraindications of performing a pelvic exam, as determined by the Canadian Task Force on Preventive Health Care (CTFPHC) standards and American College of Physicians guidelines (see [Materials to Review](#)). It is important to note that the CTFPHC does not recommend performing screening pelvic examinations for non-cervical cancer, pelvic inflammatory disease, or other gynecological conditions in asymptomatic women.
2. List conditions where pelvic exam is necessary, including: cancer screening (cervical, vulvar, etc.), pelvic inflammatory disease, sexually-transmitted infections, and other gynecological conditions.
3. Take adequate and focused gynecological history.
4. Appropriately obtain consent to perform pelvic exam.
5. List necessary equipment to perform pelvic exam, including different types of speculums.
6. Perform the exam adequately.
7. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Examination table, ideally with stirrups
- Gown and sheet, for patient and their privacy
- Bivalve vaginal speculum
 - Metal or plastic
 - Adult (sized small, medium, and large) and pediatric
- Light source
- Gel lubricant or warm water
- Latex-free gloves

Session Steps

1. Review female reproductive anatomy.
2. Review indications and contraindications of pelvic exams.
3. Explain how to perform the exam, including adequate patient preparation and consent.
4. Demonstrate exam technique.

Residents will be expected to perform the exam appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- Tonelli M, Gorber SC, Moore A, Thombs BD; Canadian Task Force on Preventive Health Care. [Recommendations on routine screening pelvic examination](#). Can Fam Physician. 2016 Mar;62(3):211-4.
- BC Center for Disease Control. PHSA-BCCDC non-certified practice decision support tool: pelvic examination [Internet]. Vancouver (BC): BC Provincial Health Services Authority; 2017 Mar [cited 2019 Oct 22];[22 p.]. Available from: http://www.bccdc.ca/resource-gallery/Documents/Communicable-Disease-Manual/Chapter%205%20-%20STI/PHSA_DST_PelvicExam.pdf.
 - Please note that while the above resource refers to RNs, its content is applicable to both RNs and physicians performing bimanual examinations.
- Central East Regional Cancer Program. Pap test learning module for health care providers – chapter 8: external and speculum exam [Internet]. Oshawa (ON): Lakeridge Health; 2019 [cited 2019 Oct 22];[16 p.]. Available from: <https://www.lakeridgehealth.on.ca/en/central-east-regional-cancer-program/resources/PAP-TEST-LEARNING-MODULE-FOR-HEALTH-CARE-PROVIDERS/Chapter-8-External-and-Speculum-Exam.pdf>.

Cervical Polypectomy

Objectives

1. Describe anatomy of cervix and types of cervical polyps, as well as differential diagnoses.
2. Identify indications and contraindications of cervical polypectomy.
3. Identify specific cases where referral to a specialist is necessary.
4. List necessary equipment for cervical polypectomy.
5. Perform polypectomy adequately.
6. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Vaginal speculum, metal, or plastic
- Non-sterile gloves
- Ring forceps
- Silver nitrate
- Local anesthetic, if necessary (see [Table 1](#))
- Pathology specimen container

Session Steps

1. Review female reproductive anatomy.
2. Review indications and contraindications of cervical polypectomy.
3. Explain how to perform polypectomy, including adequate patient preparation and consent.
4. Demonstrate polypectomy technique.

Residents will be expected to perform polypectomy appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- Choby BA. [Cervical polyps](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 910-2.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: cervical polypectomy; 2016 Dec 12 [cited 2019 Oct 23];[11 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_%60%20procedure/19-s2.0-mp_FM-024.

Chemical Therapy for Treatment of Genital Warts

Objectives

1. Review anatomy of female external genitalia and pathophysiology of genital warts.
2. List treatment options, including: topical therapies (patient- and physician-applied) and surgical or destructive therapies.
3. Identify indications and contraindications of each therapy.
4. Identify specific cases where referral to a specialist is necessary.
5. List necessary equipment for performing chemical therapy for treatment of genital warts.
6. Perform therapy adequately.
7. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Non-sterile gloves
- Cotton swabs
- Vaseline
- Chemical solutions, depending on availability
 - Liquid nitrogen
 - Trichloroacetic acid
 - 25% podophyllin

Session Steps

1. Review of female external genitalia.
2. Review indications and contraindications of chemical therapy for the treatment of genital warts.
3. Explain how to perform therapy, including adequate patient preparation and consent.
4. Demonstrate therapy technique.

Residents will be expected to perform therapy appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following material:

- Karnes JB, Usatine RP. [Management of external genital warts](#). Am Fam Physician. 2014;90(5):312-8.

Pessary Fitting

Objectives

1. Identify indications and contraindications of vaginal pessaries.
2. Name the different types of vaginal pessaries used for pelvic floor prolapse and urinary incontinence.
3. Perform procedure adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Vaginal pessary
 - Support vaginal pessary
 - Space-filling vaginal pessary
- Water-soluble lubricant

Session Steps

1. Review pelvic anatomy, various types of pelvic floor prolapse, and urinary incontinence.
2. Review indications and contraindications of vaginal pessaries.
3. Explain how to perform the procedure, including adequate patient preparation and consent.
4. Demonstrate procedure technique.

Residents will be expected to perform the procedure appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following material:

- Robert M, Schulz JA, Harvey MA. [Technical update on pessary use](#). J Obstet Gynaecol Can. 2013 Jul;35(7):664-74.

Dilation and Curettage

Objectives

1. Identify diagnostic and therapeutic indications and contraindications of dilation and curettage.
2. Identify specific cases where referral to specialist is necessary, including abnormal uterine bleeding (pre- and post-menopausal women), elective termination of pregnancy, and removal of retained conception products (incomplete abortion and postpartum infection or hemorrhage).
3. List necessary equipment to perform dilation and curettage.
4. Perform dilation and curettage adequately.
5. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Sterile gown
- Sterile gloves
- Sterile drapes
- Vaginal speculum, metal or plastic
- Antiseptic solution
 - Iodophors, such as povidone-iodine
 - Chlorhexidine gluconate/stanhexidine
- Ring forceps
- Tenaculum
- Uterine sound
- Cervical dilator(s)
- Suction device and hose
- Uterine curette
- Local anesthetic, if necessary (see [Table 1](#))
- 20-gauge spinal needle, for local anesthetic
- Pathology specimen container

Session Steps

1. Review female reproductive anatomy.
2. Explain how to perform dilation and curettage, including adequate patient preparation and consent.
3. Demonstrate dilation and curettage technique.

Residents will be expected to perform dilation and curettage appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- Williams VL, Thomas S. [Dilation and curettage](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 957-61.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: uterine aspiration; 2016 Dec 12 [cited 2019 Oct 23];[32 screens]. Available from: https://www.clinicalkey.com#!/content/medical_procedure/19-s2.0-mp_FM-032?scrollTo=%2323-s2.0-FM-032-HS7210-V-640-0101.
- Davis JD. [Induced abortion guidelines](#). J Obstet Gynaecol Can. 2006 Nov;28(11):1014-27.

Endometrial Biopsy

Objectives

1. Review risk factors for endometrial cancer and its physiopathology.
2. Identify indications and contraindications of endometrial biopsy.
3. Identify specific cases where referral to specialist is necessary.
4. List necessary equipment to perform endometrial biopsy.
5. Perform the biopsy adequately.
6. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Sterile gloves
- Vaginal speculum, metal or plastic
- Antiseptic solution
 - Iodophors, such as povidone-iodine)
 - Chlorhexidine gluconate/stanhexidine
- Ring forceps
- Single tooth tenaculum
- Endocervical curette
- Cervical dilator(s), if necessary
- Suction device and hose
- Pathology container(s) with formalin

Session Steps

1. Review female reproductive anatomy.
2. Explain how to perform biopsy, including adequate patient preparation and consent.
3. Demonstrate biopsy technique.

Residents will be expected to perform the biopsy appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- Choby BA. [Endometrial biopsy](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 967-74.
- Zuber TJ. [Endometrial biopsy](#). Am Fam Physician. 2001 Mar;63(6):1131-5.
- Gordon P. Endometrial biopsy. N Engl J Med [Internet]. 2009 Dec 24 [cited 2019 Oct 24];361:[3 p.]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMvcm0803922>.

Insertion and Removal of Intrauterine Device

Objectives

1. Review the types of intrauterine devices (IUDs) and their mechanisms of action.
2. Identify indications and contraindications of insertion and removal of IUD.
3. Review IUD removal, as well possible techniques for removal when unable to visualize IUD strings.
4. List necessary equipment to perform insertion and removal of IUD.
5. Perform insertion and removal adequately.
6. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- IUD
- Non-sterile gloves
- Sterile gloves
- Vaginal speculum, metal or plastic
- Antiseptic solution
 - Iodophors, such as povidone-iodine
 - Chlorhexidine gluconate/stanhexidine
- IUD insertion tray, if available
 - Ring forceps
 - Single tooth tenaculum
 - Metal uterine sound, if necessary
 - Long suture scissors
 - Gauze(s)
- Plastic uterine sound
- Local anesthetic, if necessary (see [Table 1](#))
- 22-gauge needle
- 10 mL syringe

Session Steps

1. Review female reproductive anatomy.
2. Explain how to perform insertion and removal, including adequate patient preparation and consent.
3. Demonstrate insertion and removal techniques.

Residents will be expected to perform insertion and removal appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- Christiani A. [Intrauterine device insertion](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 985-95.
- Christiani A. [Intrauterine device removal](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 996-7.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: intrauterine contraceptive device insertion; 2016 Dec 12 [cited 2019 Oct 24];[35 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-026?scrollTo=%2323-s2.0-FM-026-HS7210-V-640-0101.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: intrauterine contraceptive device insertion; 2016 Dec 12 [cited 2019 Oct 24];[35 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-031?scrollTo=%2323-s2.0-FM-031-HS7210-V-640-0101.

Marsupialization of Bartholin's Cyst

Objectives

1. Identify indications and contraindications of Bartholin's cyst marsupialization.
2. Demonstrate appropriate use of marsupialization versus wound catheter placement.
3. List necessary equipment to perform marsupialization.
4. Perform marsupialization adequately.
5. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Gloves
- Wound catheter
- 3 mL syringe, to inflate catheter balloon
- 2% lidocaine, with or without epinephrine
- 30-gauge needle and syringe, for lidocaine
- Antiseptic solution, to clean vial top and field area
 - Iodophors, such as povidone-iodine
 - Chlorhexidine gluconate/stanhexidine
- No. 11 or no. 15 scalpel
- Tooth forceps
- Small hemostat
- Normal saline, for irrigation
- 4x4-inch gauze(s)

Session Steps

1. Review female external genitalia and location of Bartholin glands.
2. Explain how to perform marsupialization, including adequate patient preparation and consent.
3. Demonstrate marsupialization technique.

Residents will be expected to perform marsupialization appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- Omole F, Simmons BJ, Hacker Y. [Management of Bartholin's duct cyst and gland abscess](#). Am Fam Physician. 2003 Jul;68(1):135-40.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: Bartholin's gland – marsupialization; 2016 Dec 12 [cited 2019 Oct 24];[6 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-023?scrollTo=%2323-s2.0-FM-023-HS7210-V-640-0101.

Pap Smear

Objectives

1. Review provincial guidelines for cervical cancer.
2. Review indications and contraindications of a pap smear.
3. Identify specific cases where referral to a specialist is necessary.
4. List necessary equipment to perform a pap smear.
5. Perform a pap smear adequately.
6. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Non-sterile gloves
- Vaginal speculum, metal or plastic
- Water-soluble lubricant
- Sample device(s), such as wooden spatula or cytobrush
- Microscope slides and fixative
- Culture swabs
- Transport media for culture swabs, if necessary
- Forms for specimen submission

Session Steps

1. Review female reproductive anatomy.
2. Explain how to perform a pap smear, including adequate patient preparation and consent.
3. Demonstrate pap smear technique.

Residents will be expected to perform a pap smear appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: Papanicolaou testing; 2017 May 17 [cited 2019 Oct 24];[13 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_EM-080?scrollTo=%2323-s2.0-EM-080-HS7210-V-640-0101.
- Screening Program for Cervical Cancer. Summary chart of screening guidelines for cervical cancer [Internet]. Regina (SK): Saskatchewan Cancer Agency; [cited 2019 Oct 25]. 2 p. Available from: http://www.saskcancer.ca/images/pdfs/health_professionals/clinical_resources/cancer_screening_guidelines_and_resources/Cervical%20Cancer%20Screening%20Guidelines.pdf.
- BC Cancer Agency. Cervical cancer screening policy change: frequently asked questions [Internet]. Vancouver (BC): BC Cancer Agency; 2016 [cited 2019 Oct 25]. 18 p. Available from:

http://www.bccancer.bc.ca/screening/Documents/CCSP_GuidelinesManual-CervicalCancerScreeningPolicyChangeReferenceGuide.pdf.

- BC Guidelines. Genital tract cancers in females: human papillomavirus related (cervical, vaginal, & vulvar) – Appendix B [Internet]. Vancouver (BC): BC Cancer Agency; 2016 [cited 2019 Oct 25]. 2 p. Available from: https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc-guidelines/fgt_hpv_appb.pdf.
- Canadian Task Force on Preventive Health Care. [Recommendations on screening for cervical cancer](#). CMAJ. 2013 Jan;185(1):35-45.

Paracervical Block

Objectives

1. Identify indications and contraindications of paracervical blocks.
2. List necessary equipment to perform paracervical blocks.
3. Perform a paracervical block adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Sterile gloves
- Vaginal speculum, metal or plastic
- Antiseptic solution
 - Iodophors, such as povidone-iodine
 - Chlorhexidine gluconate/stanhexidine
- Single tooth tenaculum, for non-gravid patients
- Ring forceps
- Local anesthetic, chosen according to whether patient is gravid or non-gravid
 - Xylocaine without epinephrine, for gravid patients
 - 2% lidocaine (max. dose of 300 mg), for non-gravid patients
 - Do not use bupivacaine, due to risk of cardiotoxicity
- Fetal heart monitor, for gravid patients

Session Steps

1. Review female reproductive anatomy.
2. Explain how to perform a block, including adequate patient preparation and consent.
3. Demonstrate block technique.

Residents will be expected to perform the block appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- Henderson ST. [Paracervical block](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1173-5.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: paracervical block; 2016 Dec 16 [cited 2019 Oct 25];[6 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-030?scrollTo=%2323-s2.0-FM-030-HS7210-V-640-0101.

Use of Sexual Assault Kit

Objectives

1. Review purpose of medical evaluation in cases of sexual assault. Sexual assault is defined as any form of sexual activity without consent.
2. List indication and contraindications of medical evaluation using sexual assault kit.
3. List necessary equipment to perform medical evaluation using sexual assault kit.
4. Perform evaluation adequately.
5. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Non-sterile gloves
- Light source, preferably a Wood's lamp
- Sexual assault kit, including:

Contents	Purpose
<ul style="list-style-type: none"> ○ Two urine containers 	Urine for microscopic urinalysis, pregnancy test, and drug screen
<ul style="list-style-type: none"> ○ Fingernail clippers ○ File ○ Envelope 	Fingernail clippings and scrapings
<ul style="list-style-type: none"> ○ Forceps ○ Scissors ○ Two envelopes 	Pubic hair trimming in one envelope, head hair trimming in another envelope
<ul style="list-style-type: none"> ○ Plastic comb ○ Large paper towel ○ Two envelopes 	Pubic hair combing in one envelope, head hair combing in another envelope
<ul style="list-style-type: none"> ○ Vaginal speculum ○ Aspiration pipette ○ Red-capped test tube and stopper 	Aspiration of vaginal contents
<ul style="list-style-type: none"> ○ Four cotton swabs ○ A test tube or envelope ○ One slide 	Vaginal (or penile) swabbing and smear (same for rectal swabbing and smear, if indicated)
<ul style="list-style-type: none"> ○ 10 mL saline ○ Two aspiration pipettes and bulbs ○ Two test tubes ○ Two slides 	Vaginal washing (and rectal, if indicated, using second pipette and test tube)

<ul style="list-style-type: none"> ○ Cervical scraper ○ Cervical brush ○ Slides ○ Pap smear fixative 	Pap smear
<ul style="list-style-type: none"> ○ Thayer-Martin plates ○ Chlamydia cultures ○ Sample tubes for gonorrhea/chlamydia enzymatic probes 	Gonorrhea and chlamydia evaluation (positive cultures are the gold standard for court, but probes have greater sensitivity)
<ul style="list-style-type: none"> ○ Four cotton swabs ○ Test tube or envelope ○ One slide 	Oral swabs and smear
<ul style="list-style-type: none"> ○ Two cotton-tipped swabs ○ Test tube or envelope 	Saliva collection and secretor status
<ul style="list-style-type: none"> ○ Three red-capped test tubes and stoppers ○ Tourniquet ○ Non-alcoholic swab to prepare skin ○ Syringe ○ Needle 	Blood samples
<ul style="list-style-type: none"> ○ Labeled paper bags 	Collection of clothing and dried bodily fluids
<ul style="list-style-type: none"> ○ Necessary and helpful forms, including: <ul style="list-style-type: none"> ○ Patient education handout ○ Consent form ○ History and physical exam form ○ Diagrams for documentation of injuries ○ Chain of custody form ○ Any necessary instructions ○ Checklist 	Information, consent, documentation

*Contents should be refrigerated after collection.

Table adapted from Adeyinka OW. Treatment of the adult victim of sexual assault. In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1079-83. Table 157-1, Sexual assault kit equipment; p. 1080.

Session Steps

1. Review female reproductive anatomy and sexual assault kit equipment.
2. Explain how to perform evaluation, including adequate patient preparation and consent.
3. Demonstrate evaluation technique.

Residents will be expected to perform evaluation appropriately and adequately on the simulation model.

Materials to Review

Residents should review the following materials:

- Adeyinka OW. [Treatment of the adult victim of sexual assault](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1079-83.
- Bosscher. [Management of young female as a possible victim of sexual abuse](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1084-90.



MODULE 7

Musculoskeletal Procedures

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Session 7.1

Casting

7.1.1 Below Knee Casting

Objectives

1. Identify indications and contraindications of below knee casting
2. List necessary equipment for performing below knee casting.
3. Perform casting adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- 3- or 4-inch stockinette
- 3- or 4-inch soft cotton roll(s)
- Synthetic waterproof cast liner
- 3- or 4-inch plaster or synthetic roll
- Non-sterile gloves
- Gown
- Shoe covers
- Bucket, with tepid water
- Scissors

Session Steps

1. Review indications and contraindications of below knee casting.
2. Explain how to perform casting, including adequate patient preparation and consent.
3. Demonstrate casting technique.

Residents will be expected to perform casting appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.1, residents should review the following materials:

- Boyd AS, Benjamin HJ, Asplund C. [Splints and casts: indications and methods](#). Am Fam Physician. 2009 Sep;80(5):491-9.
- Marolf GA. [Ankle and foot splinting, casting, and taping](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1247-54.

7.1.2. Arm Casting

Objectives

1. Identify indications and contraindications of arm casting.
2. List necessary equipment to perform arm casting.
3. Perform casting adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- 2-, 3-, or 4-inch stockinette
- 2-, 3-, or 4-inch soft cotton roll(s)
- Synthetic waterproof cast liner
- 3- or 4-inch plastic or synthetic roll(s)
- Non-sterile gloves
- Gown
- Shoe covers
- Bucket, with tepid water
- Scissors
- Rubber gloves
- Sling

Session Steps

1. Review indications and contraindications of arm casting.
2. Explain how to perform casting, including adequate patient preparation and consent.
3. Demonstrate casting technique.

Residents will be expected to perform casting appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.1, residents should review the following materials:

- Boyd AS, Benjamin HJ, Asplund C. [Splints and casts: indications and methods](#). Am Fam Physician. 2009 Sep;80(5):491-9.
- Eathorne SW, Sheperd TM. [Cast immobilization and upper extremity splinting](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1255-64.

7.1.3. Scaphoid (Short-arm Thumb Spica) Casting

Objectives

1. Identify indications and contraindications of scaphoid casting.
2. List necessary equipment to perform scaphoid casting.
3. Perform casting adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- 2-, 3-, or 4-inch stockinette
- 2-, 3-, 4-, or 6-inch soft cotton roll(s)
- Synthetic waterproof cast liner
- 3- or 4-inch plastic or synthetic roll(s)
- Non-sterile gloves
- Gown
- Shoe covers
- Bucket, with tepid water
- Scissors

Session Steps

1. Review indications and contraindications of scaphoid casting.
2. Explain how to perform casting, including adequate patient preparation and consent.
3. Demonstrate casting technique.

Residents will be expected to perform casting appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.1, residents should review the following materials:

- Boyd AS, Benjamin HJ, Asplund C. [Splints and casts: indications and methods](#). Am Fam Physician. 2009 Sep;80(5):491-9.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: thumb spica splint; 2017 May 15 [cited 2019 Dec 6];[9 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_EM-097?scrollTo=%2323-s2.0-EM-097-HS7210-V-640-0101.
- Eathorne SW, Sheperd TM. [Cast immobilization and upper extremity splinting](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1255-64.

7.1.4. Ulnar Gutter Splint

Objectives

1. Identify indications and contraindications of ulnar gutter splinting.
2. List necessary equipment to perform ulnar gutter splinting.
3. Perform casting adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- 2-, 3-, or 4-inch stockinette
- 2-, 3-, 4-, or 6-inch soft cotton roll(s)
- Synthetic waterproof cast liner
- 3- or 4-inch plastic or synthetic roll(s)
- Non-sterile gloves
- Gown
- Shoe covers
- Bucket, with tepid water
- Scissors

Session Steps

1. Review indications and contraindications of ulnar gutter splinting.
2. Explain how to perform casting, including adequate patient preparation and consent.
3. Demonstrate casting technique.

Residents will be expected to perform casting appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.1, residents should review the following materials:

- Boyd AS, Benjamin HJ, Asplund C. [Splints and casts: indications and methods](#). Am Fam Physician. 2009 Sep;80(5):491-9.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: thumb spica splint; 2017 May 16 [cited 2019 Dec 6];[11 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_EM-099?scrollTo=%2323-s2.0-EM-099-HS7210-V-640-0101.
- Eathorne SW, Sheperd TM. [Cast immobilization and upper extremity splinting](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1255-64.

7.1.5. Cast Removal

Objectives

1. Identify indications and contraindications of cast removal.
2. List necessary equipment to perform cast removal.
3. Perform removal adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Electric oscillating cast saw
- Cast spreader(s)
- Bandage or trauma scissors

Session Steps

1. Review complications of cast removal.
2. Explain how to perform removal, including adequate patient preparation and consent.
3. Demonstrate removal technique.

Residents will be expected to perform removal appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.1, residents should review the following materials:

- Marolf GA. [Ankle and foot splinting, casting, and taping](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1247-54.
- Eathorne SW, Sheperd TM. [Cast immobilization and upper extremity splinting](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1255-64.

Session 7.2

Joint Injections and Aspirations

7.2.1. Ankle Injection

Objectives

1. Identify indications and contraindications of an ankle injection.
2. List necessary equipment to perform an ankle injection.
3. Perform injection adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Iodine or alcohol wipes
- Sterile or non-sterile gloves
- 22- to 27-gauge needle, 1 ½-inch, for injection
- 18- to 21-gauge needle, 1 ½-inch, for aspiration
- 30-gauge needle, ½-inch, for skin anesthesia
- 1 to 10 mL syringe, for injection
- 3 to 50 mL syringe, for aspiration
- Corticosteroids

Table 11. Common corticosteroids used for joint injections

Corticosteroid	Concentration (mg/mL)	Large Joint Dosage* (mg)	Medium Joint Dosage† (mg)	Small Joint Dosage‡ (mg)	Ganglia (mg)	Tendon Sheath (mg)	Bursa (mg)
Hydrocortisone acetate	25, 50	40-100	20-40	8-20	20-40	20-50	40-90
Prednisolone tebutate (Hydeltra-TBA)	20	20-30	10-20	8-10	10-20	4-10	20
Prednisolone sodium phosphate	20	10-20	5-10	4-5	5-10	3-8	20
Triamcinolone hexacetonide (Aristospan)	5, 20	20-30	10-20	8-10	10-20	4-10	20

Triamcinolone diacetate (Aristocrat)	25, 40	20-40	10-20	8-10	10-20	4-10	20
Triamcinolone acetonide (Kenalog)	10, 40	20-40	10-20	8-10	10-20	4-10	20
Methylprednisolone acetate (Depo-Medrol)	20, 40, 80	20-40	10-40	8-10	4-20	4-10	20
Dexamethasone sodium phosphate (Decadron)	4	2-4	1-3	0.8-1	1-2	0.4-1	2-3
Dexamethasone acetate (Decadron-LA)	8	2-4	1-3	0.8-1	1-2	0.4-1	2-3
Betamethasone acetate/phosphate (Celestone Soluspan)	6	6-12	3-6	1.5-3	1-.3	1.5-2	3-6
<p><i>*—Such as knee, shoulder, and ankle.</i></p> <p><i>†—Such as elbow and wrist.</i></p> <p><i>‡—Such as metacarpophalangeal, interphalangeal, acromioclavicular, and temporomandibular.</i></p>							

Table adapted from Barkdull TJ, O'Connor FG, McShane JM. Joint and soft tissue aspiration and injection (arthrocentesis). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1303-20. Table 192-2, Common corticosteroids and recommended dosages for various joint injections; p. 1306.

Session Steps

1. Review indications and contraindications of an ankle injection.
2. Explain how to perform injection, including adequate patient preparation and consent.
3. Demonstrate injection technique.

Residents will be expected to perform injection appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.2, residents should review the following material:

- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Ankle joint injection; 2016 Feb 5 [cited 2019 Dec 6];[3 screens]. Available from: <https://vimeo.com/154304421>.

7.2.2. Elbow Injection

Objectives

1. Identify indications and contraindications of an elbow injection.
2. List necessary equipment to perform an elbow injection.
3. Perform injection adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Iodine or alcohol wipes
- Sterile or non-sterile gloves
- 22- to 27-gauge needle, 1 ½-inch, for injection
- 18- to 21-gauge needle, 1 ½-inch, for aspiration
- 30-gauge needle, ½-inch, for skin anesthesia
- 1 to 10 mL syringe, for injection
- 3 to 50 mL syringe, for aspiration
- Corticosteroids (see [Table 11](#))

Session Steps

1. Review indications and contraindications of an elbow injection.
2. Explain how to perform injection, including adequate patient preparation and consent.
3. Demonstrate injection technique.

Residents will be expected to perform injection appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.2, residents should review the following materials:

- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Elbow injection; 2014 Mar 24 [cited 2019 Dec 6];[2 screens]. Available from: <https://vimeo.com/89955916>.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Lateral epicondylitis (tennis elbow) injection; 2014 Mar 24 [cited 2019 Dec 6];[2 screens]. Available from: <https://vimeo.com/89955919>.

7.2.3. Plantar Fasciitis Injection

Objectives

1. Identify indications and contraindications of a plantar fasciitis injection.
2. List necessary equipment to perform a plantar fasciitis injection.
3. Perform injection adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Iodine or alcohol wipes
- Sterile or non-sterile gloves
- 22-gauge needle, 1 ½-inch, for injection
- 30-gauge needle, ½-inch, for skin anesthesia
- 1 to 10 mL syringe, for injection
- Corticosteroids (see [Table 11](#))

Session Steps

1. Review indications and contraindications of a plantar fasciitis injection.
2. Explain how to perform injection, including adequate patient preparation and consent.
3. Demonstrate injection technique.

Residents will be expected to perform injection appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.2, residents should review the following material:

- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Plantar fasciitis injection; 2016 Feb 5 [cited 2019 Dec 6];[2 screens]. Available from: <https://vimeo.com/154310040>.

7.2.4. Subtrochanteric Injection

Objectives

1. Identify indications and contraindications of a subtrochanteric injection.
2. List necessary equipment to perform a subtrochanteric injection.
3. Perform injection adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Iodine or alcohol wipes
- Sterile or non-sterile gloves
- 22- to 27-gauge needle, 1 ½-inch, for injection
- 30-gauge needle, ½-inch, for skin anesthesia
- 1 to 10 mL syringe, for injection
- Corticosteroids (see [Table 11](#))

Session Steps

1. Review indications and contraindications of a subtrochanteric injection.
2. Explain how to perform injection, including adequate patient preparation and consent.
3. Demonstrate injection technique.

Residents will be expected to perform injection appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.2, residents should review the following materials:

- Barkdull TJ, O'Connor FG, McShane JM. [Joint and soft tissue aspiration and injection \(arthrocentesis\)](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1303-20.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: trochanteric bursa injection; 2016 Dec 9 [cited 2019 Dec 12];[13 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-034?scrollTo=%2323-s2.0-FM-034-HS7210-V-640-0101.

7.2.5 Knee Injection and Aspiration

Objectives

1. Identify indications and contraindications of a knee injection.
2. List necessary equipment to perform a knee injection and aspiration.
3. Perform injection adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Iodine and alcohol wipes
- Sterile or non-sterile gloves
- Xylocaine without epinephrine
- 22- to 27-gauge needle, 1 ½-inch, for injection
- 18- to 21-gauge needle, 1 ½-inch, for aspiration
- 30-gauge needle, ½-inch, for skin anesthesia
- 1 to 10 mL syringe, for injection
- 3 to 50 mL syringe, for aspiration
- Corticosteroids (see [Table 11](#))

Session Steps

1. Review indications and contraindications of a knee injection and aspiration.
2. Explain how to perform injection, including adequate patient preparation and consent.
3. Demonstrate injection and aspiration techniques.

Residents will be expected to perform injection appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.2, residents should review the following materials:

- Barkdull TJ, O'Connor FG, McShane JM. [Joint and soft tissue aspiration and injection \(arthrocentesis\)](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1303-20.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Knee injection – anterior approach; 2014 Mar 24 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/89955917>.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Knee aspiration and injection – medial approach; 2016 Feb 5 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/154334860>.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Knee aspiration and injection – lateral approach; 2016 Feb 5 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/154331590>.

7.2.6. Pes Anserine Bursitis Injection

Objectives

1. Identify indications and contraindications of a pes anserine bursitis injection.
2. List necessary equipment to perform a pes anserine bursitis injection.
3. Perform injection adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Iodine or alcohol wipes
- Sterile or non-sterile gloves
- 22- to 27-gauge needle, 1 ½-inch, for injection
- 30-gauge needle, ½-inch, for skin anesthesia
- 1 to 10 mL syringe, for injection
- Corticosteroids (see [Table 11](#))

Session Steps

1. Review indications and contraindications of a pes anserine bursitis injection.
2. Explain how to perform injection, including adequate patient preparation and consent.
3. Demonstrate injection technique.

Residents will be expected to perform injection appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.2, residents should review the following materials:

- Barkdull TJ, O'Connor FG, McShane JM. [Joint and soft tissue aspiration and injection \(arthrocentesis\)](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1303-20.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Pes anserine bursitis injection; 2014 Mar 28 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/90321626>.

7.2.7. Bicipital Tendonitis Injection

Objectives

1. Identify indications and contraindications of a bicipital tendonitis injection.
2. List necessary equipment to perform a bicipital tendonitis injection.
3. Perform injection adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Iodine or alcohol wipes
- Sterile or non-sterile gloves
- 22- to 27-gauge needle, 1 ½-inch, for injection
- 30-gauge needle, ½-inch, for skin anesthesia
- 1 to 10 mL syringe, for injection
- Corticosteroids (see [Table 11](#))

Session Steps

1. Review indications and contraindications of a bicipital tendonitis injection.
2. Explain how to perform injection, including adequate patient preparation and consent.
3. Demonstrate injection technique.

Residents will be expected to perform injection appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.2, residents should review the following materials:

- Barkdull TJ, O'Connor FG, McShane JM. [Joint and soft tissue aspiration and injection \(arthrocentesis\)](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1303-20.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Bicipital tendonitis injection; 2014 Mar 28 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/154318240>.

7.2.8. Shoulder Injection

Objectives

1. Identify indications and contraindications of shoulder injection and aspiration.
2. List necessary equipment to perform shoulder injection and aspiration.
3. Perform injection and aspiration adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Iodine and alcohol wipes
- Sterile or non-sterile gloves
- Xylocaine without epinephrine
- 22- to 27-gauge needle, 1 ½-inch, for injection
- 18- to 21-gauge needle, 1 ½-inch, for aspiration
- 30-gauge needle, ½-inch, for skin anesthesia
- 1 to 10 mL syringe, for injection
- 3 to 50 mL syringe, for aspiration
- Corticosteroids (see [Table 11](#))

Session Steps

1. Review indications and contraindications of shoulder injection and aspiration.
2. Explain how to perform injection and aspiration, including adequate patient preparation and consent.
3. Demonstrate injection and aspiration technique.

Residents will be expected to perform injection and aspiration appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.2, residents should review the following materials:

- Barkdull TJ, O'Connor FG, McShane JM. [Joint and soft tissue aspiration and injection \(arthrocentesis\)](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1303-20.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Shoulder (glenohumeral) injection – posterior approach; 2014 Apr 10 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/91613244>.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Acromioclavicular joint injection; 2016 Feb 5 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/154311916>.

7.2.9. Subacromial Bursa Injection

Objectives

1. Identify indications and contraindications of a subacromial bursa injection.
2. List necessary equipment to perform a subacromial bursa injection.
3. Perform injection adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Iodine or alcohol wipes
- Sterile or non-sterile gloves
- 22- to 27-gauge needle, 1 ½-inch, for injection
- 30-gauge needle, ½-inch, for skin anesthesia
- 1 to 10 mL syringe, for injection
- Corticosteroids (see [Table 11](#))

Session Steps

1. Review indications and contraindications of a subacromial bursa injection.
2. Explain how to perform injection, including adequate patient preparation and consent.
3. Demonstrate injection technique.

Residents will be expected to perform injection appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.2, residents should review the following materials:

- Barkdull TJ, O'Connor FG, McShane JM. [Joint and soft tissue aspiration and injection \(arthrocentesis\)](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1303-20.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Subacromial injection – posterior approach; 2014 Mar 24 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/90134112>.
- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Subacromial injection – lateral approach; 2014 Mar 24 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/90134111>.

Session 7.3

Dislocation Reductions

7.3.1. Dislocation Reduction of Finger Joint

Objectives

1. Identify indications and contraindications of dislocation reduction of finger joint.
2. List necessary equipment to perform treatment for dislocation reduction of finger joint.
3. Perform treatment adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Chlorhexidine or povidone-iodine
- 25-gauge needle, 1 ½-inch
- 5 mL syringe
- 1% lidocaine without epinephrine
- Gauze
- Aluminum foam splint
- Tape

Session Steps

1. Review indications and contraindications of dislocation reduction of finger joint.
2. Explain how to perform treatment, including adequate patient preparation and consent.
3. Demonstrate treatment technique.

Residents will be expected to perform treatment appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.3, residents should review the following material:

- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: dislocation reduction of the PIP and DIP joints; 2017 May 5 [cited 2019 Dec 13];[14 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_EM-067?scrollTo=%2323-s2.0-EM-067-HS7210-V-640-0101.

7.3.2. Dislocation Reduction of Radial Head Joint

Objectives

1. Identify indications and contraindications of dislocation reduction of radial head.
2. List necessary equipment to perform treatment for dislocation reduction of radial head.
3. Perform treatment adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- None

Session Steps

1. Review indications and contraindications of dislocation reduction of radial head joint.
2. Explain how to perform treatment, including adequate patient preparation and consent.
3. Demonstrate treatment technique.

Residents will be expected to perform treatment appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.3, residents should review the following materials:

- White RD, Adams CF. [Nursemaid's elbow: radial head subluxation](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1329-31.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: nursemaid's elbow; 2017 May 5 [cited 2019 Dec 13];[9 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_EM-087?scrollTo=%2323-s2.0-EM-087-HS7210-V-640-0101.

7.3.3. Dislocation Reduction of Shoulder Joint

Objectives

1. Identify indications and contraindications of dislocation reduction of shoulder joint.
2. List necessary equipment to perform treatment for dislocation reduction of shoulder joint.
3. Perform treatment adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- Stretcher
- Restraints (washcloths, sheets, or blankets)
- Padded wrist restraints
- Bucket or weight
- Shoulder sling
- Conscious sedation equipment and medication, including:
 - IV access, solution, and stand
 - Oxygen
 - Medication and reversal medication, for procedural sedation and analgesia

Table 12. Common medications and dosages used for procedural sedation and analgesia

Medication	Class	Description	Initial IV Dose	Repeat Dose	Minimum Interval
Etomidate (Amidate)	Sedative-hypnotic	Rapid onset Short duration	0.1 mg/kg	0.1 mg/kg	5 min
Fentanyl citrate (Sublimaze)	Opiate	Short acting	1 µg/kg, up to 100 µg	20-50 µg	5 min
Flumazenil (Romazicon)	Benzodiazepine antagonist	Reversal agent for benzodiazepine	0.2 mg	0.2 mg, up to 1 mg total	1 min
Midazolam (Versed)	Benzodiazepine	Short acting Sedation/amnesia	1-2 mg	0.5-1 mg, up to 5 mg	5 min
Methohexital (Brevital)	Ultra-short-acting barbiturate	Non-analgesic amnesia	0.75-1 mg/kg	0.5 mg/kg	2 min
Naloxone (Narcan)	Opiate antagonist	Reversal agent for opiate	0.2-0.4 mg	0.2 mg	2-3 min
Propofol (Diprivan)	Sedative-hypnotic	Rapid onset	1 mg/kg	0.5 mg/kg	3-5 min

Atropine	Anticholinergic Antiarrhythmic	Treatment of symptomatic bradycardia; decrease secretions	0.4 mg	0.4 mg, 3 mg max	3-5 min
Diphenhydramine (Benadryl)	Antihistamine Anticholinergic	Treats anaphylaxis; sedative; antiemetic	25 mg	25 mg	5-10 min
Metoclopramide (Reglan)	Central and peripheral dopamine antagonist	Antiemetic	10 mg	–	–
Ondansetron (Zofran)	Serotonin (5-HT ₃) receptor antagonist	Antiemetic	4 mg	4 mg, 16 mg max	5-10 min

Table adapted from Guidotti S. Procedural sedation and analgesia. In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 7-11. Table 2-4, Commonly used medications for procedural sedation and analgesia; p. 10.

Session Steps

1. Review indications and contraindications of dislocation reduction of shoulder joint.
2. Explain how to perform treatment including adequate patient preparation and consent.
3. Demonstrate treatment technique.

Residents will be expected to perform treatment appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.3, residents should review the following materials:

- Boyd AS, Benjamin HJ, Asplund C. [Splints and casts: indications and methods](#). Am Fam Physician. 2009 Sep;80(5):491-9.
- Smith JV. [Shoulder dislocations](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1343-7.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: dislocation reduction of the shoulder joint; 2017 May 5 [cited 2019 Dec 13];[30 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_EM-035?scrollTo=%2323-s2.0-EM-035-HS7210-V-640-0101.
- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: shoulder reduction; 2016 Dec 12 [cited 2019 Dec 13];[15 screens]. Available from:

https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-038?scrollTo=%2323-s2.0-FM-038-HS7210-V-640-0101.

Session 7.4

Splinting

7.4.1. Splinting Techniques for Injured Extremities

Objectives

1. Identify indications and contraindications of splinting injured extremities.
2. List necessary equipment to perform splinting injured extremities.
3. Perform splinting adequately.
4. List possible complications and appropriate post-procedure care instructions.

Necessary Equipment

- 3- or 4-inch stockinette
- 3- or 4-inch soft cotton roll(s)
- 3- or 4-inch plastic or synthetic roll(s)
- Synthetic waterproof cast liner
- Elastic bandage(s)
- Non-sterile gloves
- Gown
- Shoe covers
- Bucket, with tepid water
- Scissors
- Patient towels or drapes

Session Steps

1. Review indications and contraindications of splinting injured extremities.
2. Explain how to perform splinting, including adequate patient preparation and consent.
3. Demonstrate splinting technique.

Residents will be expected to perform splinting appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 7.4, residents should review the following materials:

- Boyd AS, Benjamin HJ, Asplund C. [Splints and casts: indications and methods](#). Am Fam Physician. 2009 Sep;80(5):491-9.
- Marolf GA. [Ankle and foot splinting, casting, and taping](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1247-54.

- Eathorne SW, Sheperd TM. [Cast immobilization and upper extremity splinting](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1255-64.
- Fitch MT, Nicks BA, Pariyadath M, McGinnis HD, Manthey DE. Basic splinting techniques. N Engl J Med [Internet]. 2008 Dec 25 [cited 2019 Dec 13];359:[5 p.]. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMvcm0801942>.
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MODULE 8

Resuscitation and Simulation Scenarios

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Session 8.1

Airway and Ventilation Management

8.1.1. Oral Airway, Intubation, and Ventilation

Objectives

1. Identify situations where the airway can be compromised, as well as the associated signs and symptoms of acute airway obstruction.
2. Identify signs of inadequate ventilation.
3. List indications and contraindications for each airway management technique, including: oropharyngeal airway, laryngeal mask, and endotracheal intubation.
4. List necessary equipment for each airway management technique.
5. List possible complications and appropriate post-procedure care instructions for each airway management technique.

Necessary Equipment

- Universal precautions, including:
 - Sterile gown
 - Sterile gloves
 - Goggles/face shield
 - Mask
- Oropharyngeal airway devices in different sizes

Patient	Size Number	Dimension
Neonatal	00	40 mm
Infant	0	50 mm
Child	1	60 mm
Small adult	2	70 mm
Adult	3	80 mm
Large adult	4	90 mm
XL adult	5	100 mm
XXL adult	6	110 mm

- Laryngeal masks in different sizes

Patient	Weight	Size Number
Neonatal	< 6 kg	0
Infant	6 to 15 kg	1
Child	15 to 30 kg	2
Small adult	30 to 60 kg	3
Adult	50 to 90 kg	4
Large adult	> 90 kg	5

- Endotracheal tube placement
 - Laryngoscope
 - Laryngoscope blades
 - Macintosh
 - Miller
 - Endotracheal tubes

Patient	Tube Size	Depth (cm)
Newborn	3.0	9.0
1 – 6 months	3.5	9.5 - 11
6 – 12 months	4.0	11.5 – 12
2 – 3 years	4.5	13 – 13.5
4 – 5 years	5.0	14 – 14.5
6 – 7 years	5.5	15 – 15.5
8 – 9 years	6.0	16 – 16.5
10 – 11 years	6.5	17 – 17.5
12 – 13 years	7.0	18 – 18.5
14 – 16 years	7.5	19
Adult women	6 to 8 mm	18 – 19
Adult men	7 to 9 mm	20 – 22
Nasotracheal intubation, if required	5 to 7 mm	12 – 23 cm

Table adapted from Butterworth JF, Wasnick JD, Mackey DC. Airway management. In: Butterworth JF, Wasnick JD, Mackey DC, editors. Morgan and Mikhail's clinical anesthesiology. 6th ed. New York (NY): McGraw-Hill; 2018. p. 528-91.

- Water-soluble lubricant
- 10 mL syringe
- Umbilical tape or endotracheal tube holding device
- Scissors
- Bag-valve-mask device (AMBU bag)
- Oxygen delivery system
- Pulse oximetry

- Device to confirm tube placement
 - Capnograph
 - Carbon dioxide detector
 - Esophageal detector
- Suction system
- Stethoscope
- Cardiac monitor
- Defibrillator
- Blood pressure monitor
- Ventilator
- Rapid Sequence Intubation

Session Steps

1. Review signs and symptoms of acute airway obstruction.
2. Explain how to perform each airway management technique, including adequate patient preparation and consent.
3. Demonstrate procedure technique for each type of airway management.
4. Residents will be expected to perform each procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 8.1, residents should review the following material:

- Casey DF. [Tracheal intubation](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 1457-64.
- Butterworth JF, Wasnick JD, Mackey DC. [Airway management](#). In: Butterworth JF, Wasnick JD, Mackey DC, editors. Morgan and Mikhail's clinical anesthesiology. 6th ed. New York (NY): McGraw-Hill; 2018. p. 528-91.
- Ramenofsky ML, Bell RM. Airway and ventilatory management. In: American College of Surgeons, editor. Advanced Trauma Life Support: student course manual. 10th ed. Chicago (IL): American College of Surgeons; 2018. p. 22-41.
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Session 8.2

Circulation

8.2.1. Cardiac Defibrillation

Objectives

1. Identify indications and contraindications of performing cardiac defibrillation in patients suffering from cardiac arrest.
2. Identify cardiac rhythms that require cardiac defibrillation as part of cardiac arrest management.

Necessary Equipment

- No equipment required.

Session Steps

1. Review indications and contraindications of cardiac defibrillation.
2. Explain how to perform cardiac defibrillation, including adequate patient preparation and consent.
3. Demonstrate procedure technique.

Residents will be expected to perform the procedure appropriately and adequately on the simulation model.

Materials to Review

Prior to attending Session 8.2, residents should review the following material:

- Fish J. [Electrical cardioversion](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1438-43.
- American Heart Association. Advanced Cardiovascular Life Support: provider manual. 1st ed. Mesquite (TX): American Heart Association; c2016. Part 5, The ACLS cases; p. 43-154.
- Dev SP, Hillmer MD, Ferri M. Arterial puncture for blood gas analysis. N Engl J Med [Internet]. 2011 Feb 3 [Cited 2020 Feb 8];364:[3 p.]. Available from: <https://www-nejm-org.cyber.usask.ca/doi/full/10.1056/NEJMvcm0803851>.

Session 8.3

Medical Emergencies

Objectives

1. Integrate cardiac defibrillation, central vein cannulation, and arterial blood gas puncture skills into the management of different medical emergencies, including anaphylaxis and allergic reactions, asthma attacks, COPD exacerbations, seizures, and cardiac arrest cases.

Session Steps

1. Divide residents into small team. Residents will be rotate through the following cases in their team: anaphylaxis and allergic reactions, asthma attacks, COPD exacerbations, seizures, and cardiac arrest. Each resident will participate in running the case as part of a resuscitation/management team.
 2. The preceptor(s) will observe the team's management of the patient without interfering in that management. Preceptor(s) will provide the team with information about the patient's response to their intervention(s) throughout the case.
 3. At the end of the case, the preceptor(s) will debrief with and provide feedback to the team.
-

Materials to Review

Prior to attending Session 8.3, the preceptor(s) should review the following material:

- Eppich W, Chang A. [Promoting Excellence and Reflective Learning in Simulation \(PEARLS\): development of a rationale for a blended approach to health care simulation debriefing](#). *Simul Healthc*. 2015 Apr;10(2):106-15.
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- American Heart Association. Advanced Cardiovascular Life Support: provider manual. 1st ed. Mesquite (TX): American Heart Association; c2016. Part 5, The ACLS cases; p. 43-154.
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- Anderson JM, Detches D. [Prevention and management of postpartum hemorrhage](#). Am Fam Physician. 2007 Mar;75(6):876-82.
- Babel DE. [Fungal studies and scabies: collection procedures and tests](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 126-30.
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- Baxley EG, Robbo RW. [Shoulder dystocia](#). Am Fam Physician. 2004 Apr;69(7):1708-14.
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- BC Center for Disease Control. PHSA-BCCDC non-certified practice decision support tool: pelvic examination [Internet]. Vancouver (BC): BC Provincial Health Services Authority; 2017 Mar [cited 2019 Oct 22];[22 p.]. Available from: http://www.bccdc.ca/resource-gallery/Documents/Communicable-Disease-Manual/Chapter%205%20-%20STI/PHSA_DST_PelvicExam.pdf.
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- Blecher LI, Mailloux B. [Cesarean section](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1105-12.

- Bosscher. [Management of young female as a possible victim of sexual abuse](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 3rd ed. Philadelphia (PA): Saunders; 2011. p. 1084-90.
- Boyd AS, Benjamin HJ, Asplund C. [Splints and casts: indications and methods](#). Am Fam Physician. 2009 Sep;80(5):491-9.
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- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Elbow injection; 2014 Mar 24 [cited 2019 Dec 6];[2 screens]. Available from: <https://vimeo.com/89955916>.
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- Carmona R. RheumTutor [Internet]. Hamilton (ON): RheumTutor; c2019. Knee injection – anterior approach; 2014 Mar 24 [cited 2019 Dec 12];[2 screens]. Available from: <https://vimeo.com/89955917>.
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- Casey DF. [Tracheal intubation](#). In: Fowler GC, Pfenninger JL, editors. Pfenninger and Fowler's procedures for primary care: expert consult. 4th ed. Philadelphia (PA): Elsevier; 2020. p. 1457-64.
- Central East Regional Cancer Program. Pap test learning module for health care providers – chapter 8: external and speculum exam [Internet]. Oshawa (ON): Lakeridge Health; 2019 [cited 2019 Oct 22];[16 p.]. Available from: <https://www.lakeridgehealth.on.ca/en/central-east-regional-cancer-program/resources/PAP-TEST-LEARNING-MODULE-FOR-HEALTH-CARE-PROVIDERS/Chapter-8-External-and-Speculum-Exam.pdf>.
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- ClinicalKey [Internet]. Amsterdam (ND): Elsevier; c2012-2019. Procedure videos: vacuum-assisted delivery; 2016 Dec 12 [cited 2019 Oct 21];[16 screens]. Available from: https://www.clinicalkey.com/#!/content/medical_procedure/19-s2.0-mp_FM-016?scrollTo=%2323-s2.0-FM-016-HS7210-V-640-0101.
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