ENHANCED SURGICAL SKILLS TRAINING PROGRAM FOR FAMILY PHYSICIANS

AN INTEGRATED MODULAR CURRICULUM

Draft 2 as of January 20, 2014
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Introduction: The Training and Evaluation of Rural Family Physicians in Enhanced Surgical Skills (ESS)

Preamble

The National Working Group on Enhanced Surgical Skills (ESS) represents a large number of volunteers drawn from the shallow pool of those experienced and active in ESS training programs and practice in British Columbia, Alberta, and Saskatchewan, along with interested national partners. Our chair is Dr Bob Woollard (Appendix A). Our motivation derives from the accumulating evidence on the erosion of rural surgical programs and the collateral loss – local maternity programs, critical care, and the recruitment and retention of a sustainable health care workforce in these communities.\textsuperscript{1234}

Goals:

- To develop a generic core curriculum for the teaching and evaluation of Enhanced Surgical Skills (ESS) for rural Family Physicians.
- To develop and deliver continuing professional development programs based on the needs of the ESS practitioners and their communities.
- To pursue a collaborative model of distributed ESS education amongst the participating medical schools.
- To submit a formal application to the CFPC for accreditation of ESS as a Group 1 program (e.g. Emergency Medicine, Family Practice Anesthesia).

Significant financial contributions from the Rural Coordinating Centre of BC, the Alberta College of Family Physicians (ACFP), the Alberta Rural Physician Action Plan (RPAP), the Saskatchewan Medical Association (SMA), and the Society of Rural Physicians of Canada (SRPC) have provided a budget for core development activities.

Our Curriculum and Evaluation Committee (Appendix B) have written this document, building on the experience and wisdom of the ESS programs presently in place in SK and AB. Our ambition is to describe a generic training and evaluation program for ESS rural Family Physicians suitable for introduction at any of Canada’s medical schools. This document will form the basis of the larger ambitions of the National Working Group to establish a formal accredited ESS program within the College of Family Practice of Canada (CFPC) that is supported by other medical organizations including the Canadian Association of General Surgeons, the Canadian Medical Association, the SRPC, and the Royal College of Physicians and Surgeons of Canada.
Demographics - Training for whom, for where, and to do what?

For whom?

In 2000 there were 150 ESS rural Family Physicians sustaining local surgical programs in rural communities in western and northern Canada. Although the number of these programs has shrunk significantly (80 in 1995; 55 in 2011), the number of ESS has remained stable (140, 2011). There is some evidence that several of these smaller programs grew larger in volume, absorbing a workforce displaced from programs which closed.

For where?

Although there has been a sizable attrition between 1995 (80 communities) and 2011 (55), these are distributed across all of the western provinces – 11 in BC, 27 in AB, 8 in SK, 5 in MB, as well as 3 in Northern Ontario and 1 in NWT. These small volume rural surgical programs can generally be found

- In communities of 5,000-15,000 population where the ESS physicians provide most or all of the local surgical care, and
- In communities of 15,000-25,000 population where there is usually a significant local specialist presence that is supported by ESS physicians, especially for on call relief (a “mixed” model).

To do what?

The Curriculum comprises 17 clinical presentations for which a referral might expect to be made to a rural family physician with ESS training. These are drawn from

- The historical skill sets in which ESS physicians have provided services, and
- The skill sets for which there is good research evidence on the outcomes and safety of appropriately trained ESS physicians performing these procedures on selected patients in facilities with suitable health and human resources.
The Training Programs

I – Saskatchewan

Prince Albert Regional Hospital
In 2007, the Saskatchewan Medical Association funded a pilot training program with 1 Resident per year. In 2010, this became a mainstream fully funded program with 2 R3 positions in the Department of Family Medicine.

Presently, there are 5 graduates distributed in rural communities in SK, AB, BC, and the NWT. There are 3 Residents currently in training, with 2 accepted/committed to begin in July 2013. The program receives approximately 2-3 inquiries per month and interviews 3-4 candidates per year.

It is expected that, beginning in July 2013, North Battleford will provide a second clinical training site.

II - Alberta

Grande Prairie, Camrose
Historically, Grande Prairie has provided ESS training in Obstetrical and Gynecological skill sets, including caesarean section. In addition, there are now training positions available in Camrose for the General Surgery skill set. Camrose is awaiting its first Residents.

III – British Columbia

Surrey
For several years, Surrey has provided ESS training in cesarean section

Chilliwack
In 2010/2011, Chilliwack provided training for 1 Resident in a General Surgical skill set to complement the OB training from Surrey.

IV – Northern Ontario

Sudbury
The Northern Ontario School of Medicine has offered R3 positions to train family physicians to perform cesarean sections.
Program Structure

Rotations

Obstetrics/Gynecology 25 weeks
General Surgery 25 weeks
ESS Rural Elective 2 weeks

One week from each main service will be allocated to an elective in a rural community with a practicing ESS Family Physician.

Curriculum

The Curriculum is based on 17 integrated modules – each module represents a clinical presentation which might be referred to a rural Family Physician with ESS training. Each of these modules documents the knowledge, and the diagnostic, management, and procedural skills, including the minimum volume of clinical exposure (milestones) for that module.

Basic Operative Management
1. Surgery 101 – antisepsis, hemostasis, incisions, stabilization, wound healing, suturing and instruments, physiologic reaction to surgery, nutrition
2. Patient Selection and Preparation – surgical and anaesthetic
3. Surgical Decision Making – crew resource management/OR decision-making, patient transfer decision and management, triage

Management of Abdominal Presentation in the Non-Pregnant Patient in Rural and Remote
4. Abdominal Wall Mass or Pain
5. Acute Right Lower Quadrant Pain – appendicitis/appendectomy, adnexal/ovarian disease
6. GI Bleeding Upper and Lower
7. GI Screening & Surveillance – Upper GI, Lower GI
8. Perianal Presentations – hemorrhoids, infections

Management of Pregnancy in Rural and Remote
9. Complications of Labour & Delivery – operative vaginal delivery, C-section, obstetrical trauma, uterine inversion, PPH, retained placenta; ALARM, NRP
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18. Laparoscopic Principles and Skills
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21. Procedural Sedation Principles and Skills
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23. *Hysteroscopic Principles and Skills

Trauma
24. Standardized Trauma Course – ATLS, CARE, CALS
25. PALS

Other
26. *Self-Directed Learning Module Elective

(* = non-core modules)

Evaluation

While it is anticipated that there will be some variation in the evaluative process between different ESS programs, there are substantive core principles which belong in all such programs.

- Evaluation is continuous and comprehensive and is embedded in each independent clinical encounter shared by a resident and preceptor, including all consults and procedures. The evaluation should include the outcomes whether or not the encounter led to a surgical procedure.
- Evaluation should be measured as objectively as possible using something similar to an OSATS form for technical skills and something equivalent that is appropriate for measuring the knowledge, diagnostic and management skills embedded in each ESS consult.
• Evaluation should be recorded. This requires the completion of a log book (volumes of consults and procedures) and the measurement forms (Objective Structured Assessment of Technical Skills [OSATS – Appendix C.1], Objective Structured Assessment of Consultation Skills [OSACS – Appendix C.2], for each procedure or consult.

Evaluation should have both an internal and an external component (Appendix C.3).

**Internal**

The evaluation of an ESS resident’s knowledge and skills, and their progress within each of the clinical modules has 2 parallel tracks

i) Volume of clinical exposure
   Within each module, there are *milestones* for the volume of both consults and procedures. Success in each module requires that these milestones be attained.

ii) Verification of Competency
   Some measurement tool for competency (OSATS, OSACS) will be completed for each independent clinical encounter shared between a resident and a preceptor. Final success in each module requires “sign off” by 2 preceptors on both the consults and the procedures applicable to that module verifying the resident’s suitability for independent practice. The “sign off” means a Yes response to the question at the bottom of the OSATS/OSACS form – “without need for supervision”.

There will be 6-weekly meetings throughout the ESS program, attended by the Coordinators (Program, OB/GYN, General Surgeon) and the resident to review progress and problems. Every second one of these meetings should produce a “summary” OSATS and OSACS report, as well as a volume report, identifying where the resident stands with regard to successful completion of the program. Any one of these meetings has the authority to validate that the resident has successfully completed one or more modules.

**External**

The credibility of the internal evaluation process, and the portability of its certificate of completion, will be significantly larger with an external examination process. Equally important, the comfort felt by the preceptors who “sign off” on competence will be supported by the knowledge that the learner will be scrutinized by an external examination process.
i) Oral
An examination committee that includes an ESS physician, an OBGYN, and a General Surgeon from outside the program would meet, perhaps remotely by video conference, and examine an ESS resident using clinical scenarios taken from their log book. These could be scored by each examiner using the same measurement tool used for scoring the ESS consults (possibly OSACS). A ‘sign off” would be required by 2 of the 3 examiners for success on this exam.

ii) Written
Each spring in Canada, all R2 surgical residents write the Principles of Surgery exam. To include the ESS residents in this exam would be appropriate.

Although the curriculum consists of a set of integrated modules, it is possible that some learners might not successfully complete one or more modules. If they are successful with their external exams, they would be eligible for certification of successful completion of the other modules. They would also be eligible for later completion of the remaining modules, if the appropriate clinical experience were available. Due to preceptor availability and training program case loads not all electives will necessarily be available to each participant.

Certification

The National Working Group on Enhanced Surgical Skills has initiated an application to the CFPC to form an ESS Special Interest Focused Practice (SIFP) section. Our goal is to find both a “home” for ESS rural physicians as well as a pathway to

- a Certificate of Competence in ESS, within
- an accredited training program

that is portable and suitable to the credentialing processes of Canada’s health regions.
References


APPENDIX A: COMMITTEE MEMBERSHIP

1. Initial Membership, National Working Group on Enhanced Surgical Skills

Dr Bob Woollard, Associate Director, Rural Coordination Centre of BC (RCCbc), Chair
Dr Granger Avery, Executive Director, RCCbc
Dr Vanessa Berjat, ESS family physician, Rocky Mountain House, AB
Dr Nadine Caron, General Surgeon, Prince George, BC
Dr Eric Clark, GP, Prince Albert, SK
Dr Jean Gaston Descoteaux, General Surgeon, Golden, BC
Dr Ryan Falk, ESS family physician, Inuvik
Dr Randy Friesen, Chief, Department of Surgery, Prince Albert Parkland Health Region
Dr Brian Geller, ESS family physician, Meadow Lake and Enhanced Skills, U of S
Dr Stefan Grzybowski, Co-Director, Centre for Rural Health Research, Vancouver
Dr Hilgard Goosen, GP, Lacombe, AB
Dr John Haggie, Past President, Canadian Medical Association
Dr Jim Hargreaves, GP, Dawson Creek, BC
Dr Nancy Humber, GP, Lillooet, BC
Dr Stuart Iglesias, ESS family physician, Bella Bella, BC
Dr Fred Janke, Director of Rural and Regional Health, U of A
Dr Jill Konkin, Associate Dean of Rural and Regional Health, U of A
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Dr Mark Prins, ESS family physician, Inuvik
Dr Vikki Vogt, ESS family physician, Meadow Lake, SK / Revelstoke, BC
Dr Carl Whiteside, Director, Rural Education Action Plan, BC
Dr Tom Windsor Smith, Associate Dean of Rural & Northern Medicine, U of S
2. Initial Membership, Curriculum and Evaluation Committee

Dr Vikki Vogt, ESS family physician, Meadow Lake/Revelstoke, Chair
Dr Bret Batchelor, ESS family physician, Vanderhoof, BC
Dr Vanessa Berjat, ESS family physician, Rocky Mountain House, AB
Dr Nadine Caron, General Surgeon, Prince George
Dr Jean Gaston Descoteaux, General Surgeon, Golden
Dr Ryan Falk, ESS family physician, Inuvik
Dr Randy Friesen, Chief, General Surgery, Prince Albert Regional Hospital
Dr Brian Geller, ESS family physician, Meadow Lake and Enhanced Skills, U of S
Dr Nancy Humber, ESS family physician, Lillooet
Dr Stu Iglesias, ESS family physician, Bella Bella
Dr Fred Janke, Director, Rural and Regional Health, U of A
Dr Mark Prins, ESS family physician, Inuvik
Dr Stephen Pinney, Head of Orthopaedic Surgery, St. Paul’s Hospital
Dr Jared Van Bussel, ESS family physician, Pincher Creek, AB
Dr Robert Woollard, Rural Coordination Centre of BC
## APPENDIX B: THE CURRICULUM MODULES

### Basic Operative Management

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<thead>
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<th>1. Surgery 101</th>
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| *surgical and anaesthetic* |

| 3. Surgical Decision Making | 26 |
| *crew resource management/OR decision-making, patient transfer decision and management, triage* |

### Management of Abdominal Presentation in the Non-Pregnant Patient in Rural and Remote

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| 8. Perianal Presentations | 40 |
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### Management of Pregnancy in Rural and Remote

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| 24. Standardized Trauma Course – ATLS, CARE, CALS | 90 |
| 25. PALS | 91 |

### Other


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   24
3. Surgical Decision Making – *crew resource management/OR decision-making, patient transfer decision and management, triage*  
   26
1. Surgery 101

A. Sepsis/Antisepsis
   1. Host defense and infection
      a. normal mechanisms of defense
      b. routes of infection, incl. nosocomial
   2. Common surgical pathogens
      a. skin – incl. MRSA
      b. gut
      c. urinary tract
   3. Infection control
      a. hand washing/surgical scrub
      b. patient skin prep
      c. insertion of devices
      d. maintenance of sterile field
   4. Self-protection
      a. immunization
      b. barriers
      c. technical risk reduction
      d. management of injury
         i. reporting
         ii. prophylaxis
   5. SSI and wound prophylaxis
      a. define/diagnose SSI
      b. classify wounds by SSI risk
      c. describe risk factors for SSI
         i. patient factors
         ii. intra-operative factors
   6. Antibiotic therapy
      a. rationale for and against
      b. resistance
         i. mechanisms
         ii. prevention
      c. prophylaxis
         i. indications
         ii. benefits
      d. empiric therapy for sepsis
B. Wound healing
   1. Normal healing
      a. by tissue type
      b. by timeline
   2. Wound care
      a. incisional technique
      b. intra-operative care
      c. post-operatively
   3. Delayed wound healing
      a. causes
      b. management

C. Sutures
   1. types of sutures
   2. indications/contra-indications
   3. complications

D. Response to surgery
   1. metabolic/physiologic
   2. psychological
      a. pain
      b. disability/dysfunction
   3. social
      a. isolation
      b. relational stress/distress

E. Nutrition/metabolism
   1. effect of surgery and illness on nutrition
      a. altered inputs
      b. altered outputs
   2. effect of nutritional status on surgical outcomes
   3. assessment of nutritional status
      a. clinical
      b. markers
   4. nutritional supports
F. Hemostasis/transfusion
1. normal mechanisms of hemostasis and coagulation
2. disorders of hemostasis and coagulation
3. assessment/screening for disorders
4. screening for disorders of hemostasis and coagulation
   a. clinical – past, family, drug history
   b. lab/screening
5. transfusion medicine
   a. RBC – intra-operative/post-operative indications
   b. Coagulation factors
6. drugs affecting hemostasis and coagulation
   a. non-prescription substances
   b. drugs affecting platelets
   c. drugs affecting coagulation
      i. warfarin – mechanism of action, corrective measures
      ii. heparin – usual, LMWH
      iii. antibiotics
      iv. mechanisms of action
      v. corrective measures
   d. other oral drugs

G. Sedation and anesthesia
1. IV sedation
   a. common indications/contra-indications
   b. common drugs – physiology, dosages, counter-measures
      i. midazolam
      ii. fentanyl
      iii. propofol
      iv. ketamine
2. choice of anesthetic type – local vs. regional vs. general
   a. patient factors
   b. surgical factors
3. pain management
   a. role of pre-operative preparation
   b. intra-operative measures
      i. pre-emptive local anesthesia
      ii. adjuncts – blocks, suppositories
H. Surgical literature

1. Distinctives of surgical literature
   a. mixture of soft and hard data
   b. inter-operator variation
   c. multiplicity of variables for a procedure
   d. subjectivity in outcomes measurement

2. Common pitfalls in surgical research and literature
   a. placebo effect of surgery (e.g., Vineburg procedure)
   b. ignoring role of non-procedural factors in outcomes
   c. brief periods of follow up
   d. assuming lack of complaints equals patient satisfaction

3. EBRS – define/describe utility of and limits of

I. Geriatric Surgery

1. Functional aspects of aging
2. Surgical response in the elderly
3. Impact of age on outcomes
4. Legal aspects of surgery in the elderly - DNR, advance directives, proxies
5. Caregivers – define/describe ethical and legal aspects

J. Pre-operative evaluation/management

1. Diabetes
2. Steroids
3. Anticoagulants
4. Cardiopulmonary
5. Infections
2. Patient Selection and Preparation

Goals

Understand surgical risk as they pertain to:
- the patient’s underlying medical conditions
- nature of the surgery
- type of anaesthesia

Learning objectives

Knowledge objectives

1. Estimate surgical risks associated with certain medical conditions:
   a. Pulmonary disease
   b. Heart disease
   c. Liver disease
   d. Anticoagulation and bleeding disorders
2. Estimate risk of infection based on procedure
3. Estimate risk of bleeding and transfusion based on the procedure
4. Know the complications of each category of procedure:
   a. Endoscopy
   b. Laparoscopy
   c. Open abdominal surgery
5. Know the risks associated with anaesthesia
6. Know the ASA classification

Diagnostic objectives

1. Take a thorough history and physical examination, recognizing patients at risk for underlying morbidity

Management objectives

1. Understand the risks related to surgery versus the risks of a non-operative approach
2. Estimated the risks conferred from various surgical approach or options
3. Understand the risks associated with different types of anaesthesia
4. Elaborate a plan that takes into account the various risks
5. Decide on antibiotic prophylaxis when appropriate
6. Explain the various risks to the patient
7. Decide on a plan with the patient that takes into account the various risks
8. Communicate risk with anaesthetist and other members of the operating team
9. Go through the surgical checklist
10. Recognize and manage complications when they occur
Learning activities
Include a discussion of the estimated surgical/anesthetic risks with the review of each consultation

Evaluation
The learner will have demonstrated his understanding of surgical and anesthetic risk through discussion around cases and management of complications

References
Pulmonary risks:

Cardiac risks:

Risk of surgery in patients with liver disease:

Risks of endocarditis:

Antibiotic Prophylaxis:

Surgical checklist:
3. Surgical Decision Making

Goals
The resident will demonstrate competence in risk management grounded in a thorough understanding of the values that influence decision making in a low resource environment. The resident will demonstrate a comprehensive understanding of the factors influencing the decision to perform surgery and the factors which influence the decision as to choice of surgical location.

Clinical approach
The resident will learn to gather a thorough clinical picture, including the presenting complaint, patients expectations, and local resource constraints that are relevant to the care, pre-operatively, intra-operatively and post-operatively. This must include careful consideration of the risks of misdiagnosis and complications, and must also include the development of reasonable contingency plans for each of these events.

Learning objectives
Knowledge objectives
1. Describe the effect of resource constraints on surgical decision making
2. List indications for surgical intervention, transfer and expectant care for the surgical conditions within the scope of practice of an ES Surgeon

Diagnostic objectives
1. demonstrate the ability to elicit the patient’s expectations with regards to care
2. using both actual and hypothetical situations demonstrate the ability to assess the local resource constraints, including but not limited to:
   a. availability of adequately trained and experienced physician colleagues
   b. availability of adequately trained and experienced nursing colleagues
   c. availability of ancillary staff and services
   d. assess the local equipment suitability
   e. local conditions effecting the transfer of patients
3. Use features elicited on history to narrow a patient’s presentation to a short list of differential diagnoses and describe their effects on the proposed treatment plan
4. Demonstrate effective integration of this information when creating a treatment plan
Management objectives

1. Effectively explain to the patient the effects of the low resource environment on the treatment plan, including options around transfer and the likely effects of these on the course of the illness
2. Plan appropriate course of treatment for patients, which effectively integrates the patient expectations with the effect of the resource constraints
3. Plan course of treatment for a patient which includes non surgical approaches

Procedural objectives

1. Demonstrate intraoperative flexibility and responsiveness to the evolving clinical situation
2. Effectively integrate intraoperative findings into an operative plan which accounts for the resource constraints of the location

Unanticipated findings/complication objectives

1. Demonstrate a thorough knowledge of the significant and/or likely complications which will effect the decision to manage the patient locally

Evaluation

1. In training evaluation will determine whether procedural objectives have been met.
2. Models could be used in an OSATS format to evaluate some procedural skills
3. Oral examination will be used to determine a candidate’s ability to respond to variations and nuances in presentation as well as manage complications
# Management of Abdominal Presentation in the Non-Pregnant Patient in Rural and Remote

4. Abdominal Wall Mass or Pain

5. Acute Right Lower Quadrant Pain — appendicitis/appendectomy, adnexal/ovarian disease

6. GI Bleeding Upper and Lower

7. GI Screening & Surveillance — Upper GI, Lower GI

8. Perianal Presentations — hemorrhoids, infections
4. Abdominal Wall Mass or Pain

Description of Clinical Referral

This module provides a basic framework for the initial evaluation of abdominal wall mass and/or pain. Abdominal wall hernias are a major component as surgical repair of a subgroup of these are within the scope of practice of a general practitioner with enhanced surgical training.

Patients with abdominal wall mass and/or pain present to the emergency department as well as in the clinic. Symptoms may be acute or chronic. They may be spontaneous or iatrogenic. Family doctors frequently see patients with these symptoms and successfully manage them without further referral. As a family doctor with enhanced surgical training you may be called upon by your colleagues to evaluate these patients before referral is made to a different centre. Some types of hernia repairs may also be within your scope of practice. Recognizing the limits of your skillset cannot be addressed in a module such as this but will be of utmost importance in your career.

Knowledge Objectives

Anatomy

The resident will be able to describe anatomy of the abdominal wall, including arterial and venous systems, innervation, and markings as seen by laparoscopic approach. This will include the anatomy of the inguinal canal.

Clinical Presentations

Resident will demonstrate an understanding of the various clinical presentations of abdominal wall hernias, appreciating the diagnostic significance of acuity of symptoms and association with recent surgery. Types of hernias include inguinal, femoral, umbilical, para-umbilical, epigastric, Spigelian, lumbar, Richter’s, incisional, parastomal, post laparoscopic port-site, recurrent hernias and diastasis recti.

Abdominal wall pain with an etiology other than herniation should be considered. Differential may include muscular pain, abdominal cutaneous nerve entrapment syndrome, scar pain, endometriosis, thoracic nerve radiculopathy, rib pain, pelvic brim pain, rectus sheath hematoma, and varicella zoster.
Equipment

Resident will demonstrate a basic understanding of meshes commonly used in inguinal, umbilical and epigastric hernia repair.

Diagnostic Objectives

The resident will demonstrate effective and judicious use of laboratory and diagnostic imaging in the evaluation of abdominal wall pain.

Management Objectives

The resident will demonstrate appropriate selection of patients for surgery, recognizing the limits of his/her skill set.

The resident will demonstrate an ability to determine which patient is appropriate to treat and manage in a peripheral center and which patients ought to be referred to tertiary care.

Post-operative follow-up for surgical patients and management plans for non-surgical patients will be covered.

Procedural Objectives

Residents will learn principles of epigastric, umbilical, primary inguinal and incisional hernia repair.

Excision of benign masses from the abdominal wall will be included.

Residents will perform safe and skilled hernia repair demonstrating informed intraoperative decision making recognizing personal, procedural and educational limitations.

Laparoscopic hernia repair will not be covered by ESS residents.

Milestones

>5 OSATS reviewed umbilical hernia
>5 OSATS reviewed inguinal hernia with mesh
5. Acute Right Lower Quadrant Pain

Description of Clinical Referral

As a rural ESS physician, the most common referral from the emergency room will be to evaluate a patient that the referring physician thinks has appendicitis. This module includes one of the most important skills that the ESS resident must attain in their year: Appendectomy.

Framing the Referral

RLQ pain has a very large differential diagnosis. However, the ESS resident, during their time as a clinical clerk, family medicine resident and likely their time as an emergency room physician has learned a considerable amount in regard to the evaluation and management of RLQ pain.

Thus, this module focuses specifically on building on this foundation of knowledge, with the goal to specifically prepare the ESS physician to evaluate and surgically manage a patient referred for acute RLQ pain.

Knowledge Objectives

Describe the anatomy relevant to the RLQ including structures, vascularity and innervation.

1. Appendix, cecum and terminal ileum.
2. Inguinal canal and associated structures.
3. Uterus and ovaries.
4. Urinary bladder and ureters.
5. Soft tissues.

Describe the pathophysiology and etiology of appendicitis.

Diagnostic Objectives

To evaluate RLQ pain in the context of the resources available in most rural hospitals.

1. History and Physical
   a. Be able to identify the most sensitive and specific signs and symptoms for appendicitis
2. Laboratory
   a. Understand the laboratory tests useful in evaluation of RLQ pain.
3. Diagnostic imaging
   a. Understand the ultrasound criteria for appendicitis, and be able to identify these on ultrasound images.
4. Diagnostic tools
a. Understand and utilize the Alvarado scale for the evaluation of appendicitis in adults.
b. Understand and utilize the Pediatric Appendicitis Score for the evaluation of appendicitis in children.

5. Differential Diagnosis
   a. The ESS resident should be able to list a detailed differential diagnosis and be able to specifically explain why the presentation is unlikely to be an alternative diagnosis.

**Management Objectives**

1. To plan appropriate management of patients with low-likelihood of appendicitis, clinically suspect appendicitis, and diagnostic imaging confirmed appendicitis.
2. To describe the literature and issues around medical management of possible appendicitis.
3. To carry out pre-surgical patient selection of patients that could be managed in the rural hospital, versus those would be likely better managed in a regional hospital. This list would include:
   a. Obese patients.
   b. Elderly patients.
   c. Pregnant patients.
   d. Very young children.
   e. Patients with suspected appendiceal abscess
   f. Patients with suspected appendiceal perforation and associated peritonitis.
   g. Medical co-morbidities.
4. To accurately describe decision making between open versus laparoscopic appendectomy.
5. To be able to carry out a thorough but focused informed consent for both open and laparoscopic appendectomy.

**Special Considerations**

1. The ESS resident should have an approach to the following possible intra-operative findings. This approach should include the decision to either close the incision and refer, or treat locally.
   a. Appendiceal abscess
   b. Appendiceal Perforation
   c. Cecal necrosis/involvement
   d. Perforated diverticulum
   e. Ovarian mass
2. The ESS resident should have an approach to the evaluation and management of the following possible post-operative complications.
a. Post-operative abscess/wound infection.
b. Post-operative wound dehiscence.
c. Post operative intra-abdominal infection.
d. Unexpected post operative pain (acute and chronic).

Procedures

1. Perform an open appendectomy.
2. Perform an exploratory laparoscopy.
3. Perform a laparoscopic appendectomy.
4. Perform a bedside ultrasound scan for appendicitis (Optional: where appropriate training facilities exist).

Milestones

1. Consults
   a. At least thirty emergency consultations for RLQ pain.
2. Procedures
   a. >5 OSATS reviewed laparoscopic appendectomies*
   b. >5 OSATS reviewed open appendectomies*

* This is in the context of a broad based learning program in which the resident will learn basic laparoscopic and open abdominal surgical skills.
6. GI Bleeding Upper and Lower

Description of Clinical Referral

This module addresses patients presenting with upper or lower gastrointestinal bleeding. Patients may present acutely to the emergency department or as outpatients in a clinic. Patients may also be referred as inpatients by colleagues at the local hospital. At the end of this module, the learner will be able to diagnose and manage upper and lower gastrointestinal bleeding, in both the acute and stable outpatient settings.

Clinical Approach

Upper GI bleeding
- Is the bleeding acute or chronic?
- Is the patient stable or unstable?
- What is the likely source?
  - esophageal
    - varices
    - esophagitis
    - malignancy
    - Mallory-Weiss
  - gastric
    - varices and other vascular lesions
    - gastritis
    - peptic ulcer disease
    - benign and malignant lesions
  - duodenal
    - ulcers
    - duodenitis
    - vascular lesions (angiodysplasia, aorto-enteric fistula)

Lower GI bleeding
- Is the bleeding acute or chronic?
- Is the patient stable or unstable?
- What is the likely source?
  - anatomic/structural
    - ie: diverticulosis/diverticulitis, anorectal disorders
  - vascular
    - angiodysplasia, radiation-induced, ischemic
  - inflammatory
    - inflammatory bowel disease, infectious, antibiotic-associated
  - neoplastic
    - colorectal cancer
  - other
    - post-procedural (polypectomy, surgery)
Knowledge Objectives

Upper GI Bleeding
- to recognize acute and chronic presentations of upper gastrointestinal bleeding (UGIB)
- to describe the relevant surgical anatomy of upper GI tract
- to identify common causes of UGIB and develop an individualized differential diagnosis
- to understand the pathophysiology of causes of UGIB and rationale for treatment
- to recognize and manage associated comorbidities (cardiovascular disease, cirrhosis, smoking, etc)

Lower GI Bleeding
- to recognize acute and chronic presentations of upper gastrointestinal bleeding (LGIB)
- to describe the relevant surgical anatomy of the lower GI tract
- to identify common causes of LGIB and develop an individualized differential diagnosis
- to understand the pathophysiology of causes of LGIB and rationale for treatment
- to recognize and manage associated comorbidities (cardiovascular disease, coagulopathies, etc)

Diagnostic Objectives

For both UGIB and LGIB:
- to identify both acute and chronic causes of bleeding through a comprehensive clinical approach
- to understand the role of investigative tools (ie: bloodwork, endoscopy, imaging/radiology) and apply them appropriately

Management Objectives

For both UGIB and LGIB:
- to resuscitate unstable patients
- in the context of acute bleeding, to recognize when to perform endoscopy, and when to stabilize and transport the patient to a higher level of care
- to understand the use of temporizing devices such as the Sengstaken-Blakemore tube
- to direct medical management of the identified diagnosis
- to plan for and perform endoscopy in both acute and outpatient settings
- to develop a working relationship with the referral centre for situations where a cause cannot be identified, or the management requires a higher level of training

Procedures
Please refer to the endoscopy module regarding esophagastroduodenoscopy and colonoscopy. Please refer to the anorectal disorders module regarding procedures relevant to anorectal pathology (ie: hemorrhoidal banding).
Milestones

- Consults
  - assessment of at least 10 patients with suspected UGIB (emergency and inpatient settings)
  - assessment of at least 10 patients with suspected LGIB (emergency and inpatient settings)
- Procedures
  - refer to endoscopy module
  - minimum 10 OSATS reviewed for upper GI endoscopy performed for UGIB
  - minimum 10 OSATS reviewed for lower GI endoscopy performed for LGIB

References

- SAGES website
- UpToDate
- any surgical textbook reference
7. GI Screening & Surveillance

Description of Clinical Referral

Many patients require screening or surveillance for gastrointestinal conditions, namely malignancies. While any family physician is qualified to approach these issues and initiate screening methods, the family physician with Enhanced Surgical Skills training is able to incorporate GI endoscopy in their community. Referrals from colleagues may therefore be for screening endoscopy based on risk, follow up of an abnormal screening study (such as fecal occult blood testing), or surveillance of a previously diagnosed condition. This module provides a basic outline for the learner to follow; specific screening or surveillance strategies are intentionally omitted given how quickly guidelines can change.

Clinical Approach

Upper GI conditions (screening and/or surveillance, as applicable)
- gastric malignancies
- Barrett’s esophagus
- peptic ulcer disease
- esophageal varices

Lower GI conditions (screening and surveillance, as applicable)
- inflammatory bowel disease
- colonic polyps
- colorectal cancer

Knowledge Objectives

- to describe the difference between screening and surveillance
- to understand the rationale for screening programs based on disease prevalence and test sensitivity
- to understand the pathophysiology of the above-named conditions under “Clinical Approach”, including the natural history and rationale for surveillance as applicable

Diagnostic Objectives

- to understand the approach to screening for the above-named gastrointestinal conditions, and the rationale for a given screening test
- to describe how screening approaches may change based on individualized risk
- to risk stratify a given patient and appropriately apply the screening methods for that condition
Management Objectives

- to appropriately screen patients for the above-named GI conditions using recent national, provincial/territorial, or local guidelines
- to appropriately manage an abnormal or incomplete screening test
  - o i.e: follow up colonoscopy for a positive FOBT, polypectomy or biopsy during endoscopic procedures, referral depending on pathology results or lesion characteristics, CT colonography or double contrast barium enema, etc.
- to understand when to reassure a patient and when to repeat screening
- to understand when to initiate surveillance, and how often to repeat surveillance, for which conditions
- to appreciate which conditions may be safely screened or managed by a family physician with ESS training, and which require referral to a general surgeon or gastroenterologist

Procedures

- Please refer to the endoscopy module

Milestones

- Consults
  - minimum of 20 patients for whom screening for an upper GI conditions is recommended
  - minimum of 20 patients for whom screening for a lower GI conditions is recommended
- Procedures
  - Please refer to the endoscopy module.
    - Of the minimum of 150 OSATS for colonoscopies, at least 75 should be for the purpose of screening or surveillance of colorectal cancer.

Resources

- Canadian Association of General Surgeons (http://www.cags-accg.ca)
- Canadian Association of Gastroenterology (http://www.cag-acg.org)
- Ministries of Health by province/territory
- UpToDate
- Society of American Gastrointestinal and Endoscopic Surgeons (http://www.sages.org)
8. Perianal Presentations

Goals

Diagnose and treat common perianal conditions including: perianal abscess, fistula, fissure, pruritus ani, proctalgia fugax, internal and external hemorrhoids and their complications.

Identify variations of the common presentations that require modified approaches, additional investigations and referral.

Clinical approach

Acute perianal pain
- With mass
  - Acute thrombosed external hemorrhoid
  - Rectal prolapse
  - Prolapsed internal hemorrhoids
  - Perianal/ischiorectal abscess
- Without mass
  - Intersphincteric abscess
  - Anal fissure

Chronic perianal pain
- Constant
  - With rash
    - Pruritus ani
    - Eczema
    - Yeast infection
  - Without rash
    - Anal fissure
- Intermittent
  - With Drainage
    - Perianal fistula
  - Without drainage
    - Prolapsing internal hemorrhoids
  - At night only
    - Proctalgia fugax

Bright rectal bleeding
- With pain
  - Anal fissure
- Without pain
  - Internal hemorrhoid
  - Malignancy
Perianal mass

- With pain
  - Thrombosed external hemorrhoid
  - Perianal abscess
  - Rectal prolapsed
- Without pain
  - Perianal warts
  - Skin tag

Learning objectives

Knowledge objectives

1. Describe the anatomy of the anal canal
2. Identify anatomical boundaries of the perianal, intersphincteric, ischiorectal and suprasphincteric ano/rectal abscesses.
3. Identify anatomical course of intersphincteric, transphincteric, suprasphincteric and extrasphincteric fistulas
4. Describe the innervations of the anal canal
5. Describe the physiology of anal continence mechanism

Diagnostic objectives

5. Use features elicited on history to narrow a patient’s presentation to a short list of differential diagnoses
6. Given images or actual patient presentations, distinguish rectal prolapse from prolapsed internal hemorrhoids.
7. Given images or actual patient presentations, distinguish thrombosed external hemorrhoid from perianal abscess and/or prolapsed thrombosed internal hemorrhoid.
8. Identify signs of chronic anal fissure: midline anal tag, proximal fibrous anal polyp.
9. Given a patient presentation, classify internal hemorrhoid (1 to 4)
10. Given a patient with an anal fistula demonstrated by a visible external opening, determine the expected course of the fistula based on Goodsall’s rule.

Management objectives

- Plan appropriate course of treatment for patients with internal hemorrhoidal disease based on the presentation and classification of a specific patient
• Plan course of treatment for a patient with anal fissure that includes non surgical approaches.
• List indications for surgical intervention in patients with anal fissure

Procedural objectives

1. Perform hemorrhoid banding
2. Perform botox injection for chronic anal fissures that are not responsive to non-surgical approaches
3. Perform chemical and/or surgical ablation of perianal warts
4. Incise and drain perianal, intersphincteric, ischiorectal abscess
5. Perform fistulotomy for intersphincteric, low transphincteric fistulas.
7. Incise and drain acutely thrombosed external hemorrhoids

Unanticipated findings/complication objectives

1. Ellicit signs and symptoms that may indicate IBD as a co-morbidity in a patient with perianal abscess or fistula and alter management plan accordingly
2. Manage patients with acute urinary retention following perianal procedures, and seek to determine if acute perianal sepsis is a potential cause
3. Manage post hemorrhoid banding bleed

Evaluation

• Written component will cover knowledge and diagnostic approach objectives
• In training evaluation will determine whether procedural objectives have been met.
• Models could be used in an OSATS format to evaluate some procedural skills
• Oral examination will be used to determine a candidate’s ability to respond to variations and nuances in presentation as well as manage complications.
MANAGEMENT OF PREGNANCY IN RURAL AND REMOTE

9. Complications of Labour & Delivery — operative vaginal delivery, C-section, obstetrical trauma, uterine inversion, PPH, retained placenta; ALARM, NRP

10. First Trimester Pain and Bleeding — D&C, ectopic
9. Complications of Labour & Delivery

Goals

Diagnose and treat complications of labour and delivery: dystocia of labour, obstetrical trauma, retained placenta, uterine inversion, antepartum, intrapartum and postpartum hemorrhage.

The learner will gain additional experience and understanding of pregnancy and obstetrics. This builds on the foundations already acquired through a family medicine residency and family medicine practice.

Clinical presentations

- Labour dystocia
- Fetal distress
- Maternal shock
- Hemorrhage
- Cervical, vaginal, perineal lacerations and obstetrical trauma

Learning objectives

Knowledge objectives:
1. Describe the stages of labour
2. Know the definition for dystocia of labour
3. Understand the physiology of fetal oxygenation
4. Know the different methods and indications for fetal surveillance in labour: intermittent auscultation, external electronic fetal monitoring, internal electronic fetal monitoring
5. Know the classification, signs and symptoms for mild, moderate and severe shock
6. Know the anatomy of the pelvis: pelvic bones, pelvic cavity, pelvic brim, pelvic floor, perineum, urethra, urogenital triangle, anal triangle, ischiocavernosus muscle, bulbospongiosus muscle, perineal body, superficial transverse perineal muscle, external and internal anal sphincter.

Diagnostic objectives:
1. Know how to use a partogram
2. Diagnose labour dystocia
3. Identify the etiology of labour dystocia:
   a. Power: contractions, maternal expulsive efforts
   b. Passenger: fetal position, attitude, size, abnormalities
c. Passage: pelvic structure, soft tissue factors
d. Psyche: pain, anxiety
4. Know how to classify a fetal heart tracing: normal, atypical, abnormal
5. Recognize hemorrhage and diagnose shock
6. Identify the etiology of antepartum and intrapartum hemorrhage: placenta previa, placenta accrete, placenta abruption, vasa previa
7. Identify the etiology of postpartum hemorrhage: Tone, Trauma, Tissue, Thrombin
8. Recognize obstetrical trauma, including uterine rupture, uterine inversion and assess the degree of perineal laceration

Management objectives:
4. Manage dystocia of labour
   a. recognize latent phase of labour vs dystocia in active labour
   b. know when to recommend augmentation with oxytocin
   c. know when to perform an amniotomy
   d. know when to recommend an epidural
   e. know when to recommend a caesarian section
5. Manage an atypical or abnormal fetal tracing
   a. Implement obstetrical resuscitation
   b. Know when to observe vs recommending a caesarian section/operative vaginal delivery
6. Manage hemorrhage
   a. Prevent postpartum hemorrhage by implementing active 3rd stage of labour
   b. Implement maternal resuscitation
   c. Correct uterine tone
   d. Remove retained products of conception
   e. Repair laceration to cervix, vagina and perineum
   f. Manage abnormality of coagulation, while preparing for transfer

Procedural objectives:
1. Perform a cesarian section
2. Perform a vacuum-assisted vaginal delivery
3. Repair 1st, 2nd, 3rd, 4th degree perineal tears
4. Perform a D&C in a post-partum uterus
Unanticipated findings and complications objectives:
1. Identify high obstetrical risk and arrange for safe transfer to appropriate level of care
2. Identify patients at risk for a caesarian hysterectomy and have them deliver in a tertiary care center
3. Be prepared to perform a hysterectomy or caesarian hysterectomy
4. Fetal death: show empathy, identify appropriate work-up or refer for work-up
5. Maternal death: understand the implications of an obstetrical catastrophe

Learning activities

The learner will work on the obstetrical ward for 6 months. He/she will be responsible for the obstetricians’ patients under guidance from the respective obstetrician. The learner will do the consultations from the family physicians and review them with the obstetricians.

The learner will attend the weekly presentations on an obstetrical topic and will be responsible for presenting to these meeting once or twice a month.

The learner will present at grand rounds on an obstetrical or surgical topic.

The learner should have performed 50 c-sections by the end of their training.

Evaluation

In-training evaluation will determine whether objectives have been met. These include:
- Field notes
- OSATS

References

ALARM course and textbook
Williams’ Obstetrics textbook and study guide
A guide to fetal monitoring: www.covvadis.ca
10. First Trimester Pain and Bleeding

Complications of Early Pregnancy

Goals

Diagnose and treat common presentations of bleeding and/or pain related to early pregnancy, including early pregnancy loss (threatened, inevitable, incomplete and missed abortion) and ectopic pregnancy. Understand that pregnancy is a unique presentation with additional diagnoses that need to be considered, but not to the exclusion of other causes of abdominal pain discussed in the other modules. Be able to provide the approach to management of missed and incomplete abortions whether conservative, medical or surgical (dilation and curettage), as well as management of ectopic pregnancy.

Induced termination of pregnancy is considered beyond the scope of ESS training.

Clinical approach

The following should be considered as additional diagnoses when pregnancy is confirmed, not as an exhaustive list of all causes of bleeding or pain. An adequate workup should also consider non-pregnancy related causes of pain and bleeding and will not be covered here.

Bleeding in 1st trimester with or without pain
- Threatened abortion
- Inevitable abortion
- Incomplete abortion
- Ectopic pregnancy

Fetal demise without pain or bleeding
- Missed abortion

Abdominal pain without bleeding
- Ectopic pregnancy

Learning objectives

Knowledge objectives
1. Understand the importance of obtaining a βHCG on all female patients of childbearing age.
2. Be able to present a broad differential diagnosis of non-pregnancy related causes of abdominal/pelvic pain and bleeding.
3. Describe the differences between the clinical presentations of threatened, inevitable, incomplete, missed and complete abortion.
4. Describe the ultrasonographic findings of ectopic pregnancy and early pregnancy loss.
5. Understand the function of serial βHCG in the diagnosis of early pregnancy loss and ectopic pregnancy.
6. Describe the anatomy of the uterus, fallopian tubes and ovaries including blood supply.

Diagnostic objectives
1. Recognize the setting of acute abdomen and possible hemodynamic instability in ruptured ectopic pregnancy and the need for emergent intervention.
2. Use ultrasonographic and serial βHCG findings to diagnose early pregnancy loss and ectopic pregnancy.
3. Given presentations of threatened and inevitable abortion, develop a strategy for appropriate follow-up to provide prognosis.
4. Proficient use of speculum examination for diagnosis of early pregnancy loss, but also vaginal and cervical causes of vaginal bleeding.
5. Understand the use of diagnostic laparoscopy in the diagnosis of ectopic pregnancy in settings of limited alternative diagnostic modalities.

Management objectives
1. Plan for appropriate follow-up in the diagnosis of threatened or inevitable abortion. Specifically the need and timing of serial βHCG and repeat ultrasound.
2. Plan for elective or medical management of incomplete or missed abortion.
3. Provide indications for elective vs. medical vs. surgical intervention in incomplete or missed abortion especially in the context of rural and remote medicine with understanding of the potential risks and complications of each approach.
4. Plan for appropriate management or referral of ectopic pregnancy, including stabilization.
5. Describe clinical situations where medical management of ectopic pregnancy may be an option including risks and complications.

Procedural objectives
1. Perform paracervical blockade as an option for pain control during dilation and curettage.
2. Perform dilation and curettage and suction curettage.
3. Perform laparoscopy for purposes of diagnostic laparoscopy, salpingostomy or salpingectomy for tubal ectopic pregnancy. Consider the option of closure and transfer if procedure is deemed to be beyond skill of practitioner.
4. Be prepared to perform laparotomy for control of bleeding in ruptured ectopic.

Evaluation
1. Evaluation of emergency assessment of 30 first trimester bleeding or pain.
2. >10 OSATS reviewed dilation and curettage or suction aspiration.
3. >5 OSATS reviewed salpingectomy or salpingotomy. This should only be seen as a minimum in the context of laparoscopic competency from other laparoscopic techniques.

Recommended resources

Williams Gynecology, Schorge et al.
SOGC Guidelines
UptoDate
MANAGEMENT OF NON-ABDOMINAL PRESENTATIONS
IN RURAL AND REMOTE

11. Integumentary Lesions – skin, nails, subcutaneous lesions, ganglia, lipoma, flaps, skin grafting

12. Fertility – vasectomy, tubal ligation, essure

13. GenitoUrinary Disease – acute testicular/scrotal disease, phimosis, circumcision, hydrocele, urethral dilation

14. Non-Pregnant Uterine Bleeding

15. *Tonsillar Disease – tonsillectomies, direct laryngoscopy

16. *Hand – carpal tunnel syndrome, hand trauma/infection, tendon repair, compartment syndrome

17. *Other Elective
11. Integumentary Lesions
12. Fertility

Goals

- To understand the advantages and disadvantages of sterilization techniques which include vasectomy, tubal ligation and transcervical sterilization such as Essure and Adiana.
- To be able to assess and counsel patients regarding these procedures and to perform them in a competent manner.

Clinical Approach

Vasectomy

- Assess and counsel patients regarding the procedure, including complications
- Recognize or identify contraindications and relative contraindications

Tubal Ligation

- Assess and counsel patients regarding the procedure, including complications
- Recognize or identify contraindications and relative contraindications

Transcervical sterilization

- To be able to offer this as an alternative to vasectomy or tubal ligation
- Assess and counsel patients regarding the procedure, including complications
- Recognize or identify contraindications and relative contraindications

Learning Objectives

Knowledge objectives

- Describe the anatomy of the scrotum and its contents
- Identify the vas deferens and surrounding anatomical structures. Differentiate the vas deferens from other tubular structures.
- Describe the innervations of the scrotal structures.
- Describe the short term complications of vasectomy which includes post-operative hematoma and infection
- Describe the long-term complications of vasectomy, which includes sperm granulomas, congestive epididymitis and chronic scrotal pain.
• Describe the anatomy of the uterus, fallopian tubes, ovaries and pelvis including blood supply as well as the basic hormonal changes that occur from menarche to post menopause.
• Describe the risks and complications of laparoscopic tubal ligation and mini-laparotomy tubal ligation.
• Describe the risks, complications and contra-indications to transcervical tubal implants such as Essure and Adiana.
• Describe the failure rates of each sterilization procedure including different surgical techniques.
• Describe the risk of post-sterilization regret, recognizing it is more common in woman and occurs in 6-7% at five years compared to 1.5-2% of men. Recognize and be able to assess the most significant risk factor for regret which is marital or partner relationship conflict at the time of the decision to undergo sterilization. Other risk factors include young age.

Management Objectives

• Plan an appropriate pre-operative counseling visit
• Offer and plan appropriate operative intervention
• Plan post-operative care and management including post-vasectomy semen analysis.

Procedural Objectives

• Perform vasectomy
• Perform laparoscopic or mini-laparotomy tubal ligation
• Optional: perform hysteroscopic tubal implants with either Essure or Adiana

Complication Objectives

• Recognize when a scrotal hematoma needs to be drained and perform this procedure.
• Recognize when an infection is presenting post-vasectomy and manage appropriately
• Recognize the complications of tubal ligation including wound infection, hematoma and perforation of the uterus, bladder and intestine.
  o Manage these appropriately including possible referral.
Milestones

- **Consults:**
  - For each consultation encounter the learner will complete a patient assessment that includes the appropriateness of sterilization and risks.
  - The learner can provide a discussion of the appropriate options available to the patient together with the advantages and disadvantages of each option.
    - This will include a discussion of the risks and complications.

- **Procedures:**
  - Vasectomy: a minimum of 20 procedures completed independently
  - Tubal Ligation: a minimum of 20 procedures completed independently
  - Transcervical Sterilization: a minimum of 20 procedures completed and followed up independently

Evaluation

- Written component will cover knowledge objectives
- In training evaluations will determine whether procedural objectives and/or milestones have been met.
  - Enough patients will need to have undergone the procedure to determine overall competence in performance of these procedures.

Resources

Dynamed

**Obstet Gynecol.** 2013 Feb;121(2 Pt 1):392-404


**National Guideline Clearinghouse 2012 Oct 8:37281**

13. GenitoUrinary Disease

Goals

- To diagnose and manage presentations of the acute scrotum.
- To recognize and understand when treatment of phimosis is necessary.
  - To understand the indications and risks associated with circumcision and to manage complications appropriately
- To diagnose and appropriately manage presentations of hydrocele.
- To diagnose and appropriately manage acute urinary retention.
  - To diagnose urethral stricture or meatal stenosis and recognize when urethral dilatation is indicated to manage this appropriately.
  - To recognize when a supra-pubic catheter may be indicated and perform this procedure.

Clinical Approach

- The following diagnostic possibilities should be understood when an adult male presents with an acute painful scrotum:
  - Testicular torsion
  - Torsion of the testicular appendage
  - Acute scrotal trauma/hematoma
  - Epididymitis
  - Orchitis
  - Testicular cancer
  - Acute inguinal hernia
  - Acute hydrocele
  - Idiopathic scrotal edema
  - Scrotal vasculitis
- The following diagnostic possibilities should be understood when an child or adolescent presents with acute scrotal pain:
  - Testicular torsion
  - Torsions of the testicular appendage
  - Epididymitis
- To understand the difference between pathologic and physiologic phimosis and thereby understand the most appropriate management in each case.
- To understand the causes and risks of hydrocele and to understand when intervention is indicated.
- The following diagnostic possibilities should be understood when an adult male presents with acute urinary retention:
  - To be differentiated from chronic urinary retention
Obstructive causes include but are not limited to:

- Benign prostatic hypertrophy
- Penile obstruction including phimosis, meatal stenosis, penile constricting bands
- Neoplasms including prostate, bladder, gastrointestinal, retroperitoneal
- Urethral strictures
- Bladder stones
- Fecal impaction

Infectious and inflammatory causes include but are not limited to:

- Balanitis
- Cystitis
- Genital herpes
- Lyme Disease
- Prostatic inflammation (prostatitis, prostatic abscess)
- Urethritis
- Schistosomiasis

Pharmacologic causes include but are not limited to:

- Analgesics
- Anticholinergics
- Antihistamines
- Antidepressants
- Antihypertensives
- Antipsychotics
- Sympathomimetic agents
- Muscle relaxants

Neurologic causes include but are not limited to:

- Autonomic neuropathy or peripheral nerve dysfunction
- Brain pathology (such as multiple sclerosis)
- Spinal cord pathology

The management of acute urinary retention includes urethral catheterization but may require supra-pubic catheterization.

- To also recognize when urethral dilatation is indicated and to perform this procedure.

Learning Objectives

Knowledge objectives

- To describe the anatomy of the male genito-urinary system including innervation, musculature and anatomical structures.
- To describe the anatomy of the scrotum and its contents.
- To describe the age groups most at risk for testicular torsion.
• To describe the presentation of testicular torsion (typical and atypical) and to understand that this is an acute surgical emergency.
  o To present a differential diagnosis for the presentation of acute scrotal pain
  o To understand each of the diagnoses and how to differentiate one from the other.
  o To have a working knowledge of Doppler ultrasound to diagnose acute scrotal pathology.
• To diagnose a hydrocele and understand when surgical intervention is indicated.
• To diagnose pathological phimosis and describe appropriate management.
  o To describe the causes of pathological phimosis
• To present an appropriate differential diagnosis for acute urinary retention and describe how to make a proper diagnosis.
  o To describe the management of different causes of acute urinary retention.
  o To describe when procedural intervention is required.

Diagnostic objectives

• Use features elicited on history and physical examination to narrow a patient’s presentation with acute scrotal pain.
• Given ultrasound images, distinguish testicular torsion from other causes of acute scrotal pain.
• In the diagnosis of testicular torsion describe how to rule out:
  o Torsion of testicular appendix
  o Epididymitis/ orchitis
  o Incarcerated hernia
  o Trauma
  o Varicocele
  o Testicular tumors
  o Idiopathic scrotal edema
• To describe how to recognize a hydrocele and how to differentiate it from the same diagnoses listed above.
• Use features elicited on history and physical examination to narrow a patient’s presentation with acute urinary retention.
  o Describe when intervention is needed and what that intervention might be.

Management Objectives

• Plan an appropriate course of treatment and follow-up for testicular torsion.
• Plan an appropriate course of management for each of the following diagnoses of an acutely painful scrotum:
  o Scrotal hematoma/ trauma
  o Torsion of testicular appendix
- Epididymitis/ orchitis
- Incarcerated hernia
- Varicocele
- Testicular tumors
- Idiopathic scrotal edema

- Plan an appropriate course of treatment for pathological phimosis.
- Plan an appropriate course of management for hydrocele, which may include watchful waiting.
- Plan an appropriate course of management for the male patient presenting in acute urinary retention.

**Procedural Objectives**

- Perform surgery for testicular torsion
- Perform surgery for scrotal hematoma
- Perform adult circumcision
- Optional: perform infant circumcision
- Perform trans-scrotal approach for non-communicating hydrocele
- Perform urethral catheterization in the difficult patient
- Perform supra-pubic catheterization
- Perform urethral dilatation

**Unanticipated findings/ complications objectives**

- Plan an appropriate course of management of testicular necrosis
- Manage the patient with acute peri-operative wound infection or dehiscence
- Manage the patient with acute hemorrhage related to any of the procedures above including circumcision
- Manage the patient with urethral trauma

**Milestones**

- The acutely painful scrotum:
  - For each consultation the learner will provide a full patient assessment including a diagnostic and management plan.
  - The learner will realize that testicular torsion is an acute surgical emergency that needs to be managed in a timely fashion (< 6 hours after onset of pain).
• Acute urinary retention:
  o For each consultation the learner will provide a full patient assessment showing
    an organized approach to diagnosis of the etiology of the acute urinary
    retention, understanding that relieving the obstruction for patient relief is
    paramount.
  o The learner will have completed a minimum of 5 difficult urinary
    catheterizations.
  o The learner will have completed a minimum of supra-pubic catheterizations.

• Pathological phimosis:
  o For each consultation the learner will provide a full patient assessment to
    understand the etiology and the appropriateness of surgical intervention
  o The learner will be able to delineate a conservative management plan before
    resorting to surgery.
  o The learner will have completed at least one adult circumcision.

• Optional: infant circumcision:
  o For each consultation the learner will be able to provide an outline of the pro’s
    and con’s associated with the procedure as well as the risks and complication.
  o If the learner chooses that he/she will do this procedure, then he/she must
    demonstrate competence by completing at least 5 circumcisions independently.
  o The learner must demonstrate an approach to the case of persistent bleeding.

• Hydrocele:
  o For each consultation the learner will be able to provide a patient assessment to
    understand the appropriateness of surgical intervention.
  o The learner must complete a minimum of 5 hydrocele repairs.

Evaluation

• Written component will cover knowledge, diagnostic, management and complication
  objectives.
• In training evaluations will determine whether procedural objectives have been met.
  o Some of these diagnoses are infrequent enough that the candidate may not
    encounter enough patients to demonstrate competency in the procedures
    outlined.
  o Oral examination may be needed to evaluate competent comprehension of the
    procedures.
  o A model for testicular torsion in an OSATs format may provide additional
    information to evaluate management of this problem.
Resources


Dynamed


First Consult
14. Non Pregnant Uterine Bleeding

Goals

To diagnose and treat common presentations of bleeding with or without pain in a non
pregnant female. This will include but no limited to metromenorrhagia, menorrhagia and
metrohagia in a premenopausal, menarchal and postmenopausal female.

Pre and perimenopausal dysfunctional uterine bleeding is by far the most common
manifestation of dysfunctional uterine bleeding. A basic understanding of the hormonal
irregularities that occur during this time is essential to the ability to appropriately diagnose and
manage these problems.

Postmenopausal problems usually present as irregular bleeding. This is always abnormal and
requires prompt investigation as the likelihood of significant pathology is higher than in
perimenopausal bleeding irregularities.

Menarchal bleeding irregularities require a detailed history and understanding of the pattern of
menstruation. The rationale and understanding of a conservative approach should be
understood.

Clinical Presentations

The following diagnostic possibilities should be understood when a non-pregnant female
presents with irregular bleeding. The possibility of a falsely negative pregnancy test should be
considered and the reader should make reference to the module also on bleeding
complications of early pregnancy.

Pre and peri-menopausal irregular bleeding with or without pain

- hormonal benign dysfunctional uterine bleeding
- endometrial hyperplasia
- uterine fibroids
- uterine polyps
- cervical cancer
- vaginal bleeding
- endocervical polyps
- endometrial cancer
- abnormal clotting such as hemophilia carrier, von willebrands disease,
- birth control induced irregularities
- medications such as anticoagulants
- endometritis
- post radiation bleeding
Menopausal and post-menopausal irregular bleeding with or without pain

- atrophy
- endometrial hyperplasia
- uterine fibroids
- uterine polyps
- cervical cancer
- vaginal bleeding
- endocervical polyps
- endometrial cancer
- abnormal clotting such as hemophilia carrier, von willebrands disease,
- birth control induced irregularities
- medications such as anticoagulants
- endometritis
- post radiation bleeding

Menarchal irregular bleeding

- normal transitional bleeding with in the first few months of menarche
- infection
- genital trauma
- cervical cancer
- genital warts
- abnormal clotting such as hemophilia carrier, von willebrands disease
- medication such as anticoagulants
- birth control induced irregularities

Learning Objectives

Knowledge objectives

1. Understand the importance of obtaining a Bhcg on all female patients of childbearing age.
2. Be able to describe the anatomy of the uterus, fallopian tubes, ovaries and pelvis including blood supply as well as the basic hormonal changes that occur from menarche to post menopause.
3. Understand the cyclical nature of female hormones and their impact on uterine bleeding.
4. Be able to categorize patients into one of three groups of abnormal non-pregnant uterine bleeding - Menarchal, perimenopausal or postmenopausal.
5. Be able to present a broad differential diagnosis of potential pregnancy related causes that could mimic similar presentations in a non-pregnant woman.
6. Be able to present a broad differential for each group of non-pregnant abnormal uterine bleeding and explain the differences in their presentations.

7. Understand the psychological link between some presentations of gynecological disease and recognize the need for psychological intervention when necessary.

8. Understand the presentations of more significant abnormal uterine bleeding and the necessity of prompt investigation and diagnosis.

9. Be able to identify patients in whom the use of misoprostol would be beneficial in further procedural investigation and treatment.

Diagnostic objectives
1. Be able to take a detailed history and formulate reasonable parameters for which patients should be further investigated and which should be conservatively managed.

2. Understand the different tools for investigation of abnormal uterine bleeding including serology - cbc, iron studies, clotting studies, appropriate hormonal studies when necessary, endometrial biopsy, PAP smear, ultrasound and other radiographic investigations when necessary, and operative investigation.

3. Recognize the setting of hemodynamically unstable uterine bleeding and the need for emergent stabilization and intervention.

4. Proficient use of speculum examination

5. Proficient ability for endometrial sampling

6. Understand the use of diagnostic hysteroscopy, D and C

Management Objectives
1. Formulate appropriate follow-up for conservatively managed abnormal bleeding.

2. Formulate a plan for medical management of abnormal bleeding.

3. Formulate a plan for further surgical investigation and or treatment of abnormal bleeding.

4. Provide indications for emergent and elective management of abnormal bleeding as well as medical and surgical options in the context or rural and remote medicine. Explain the potential risks and complications of each approach in the context of health care delivery in a rural areas.

5. Appropriately diagnose gynecological malignancies and refer in timely manner to appropriate specialist.

6. Appropriately diagnose genital trauma and refer to appropriate team for psychological and medical management.

Procedural objectives
1. Perform endometrial sampling = 5

2. Perform dilation and curettage or suction aspiration = 5

3. Insert IUD as medical management when appropriate = 5
Evaluation
1. Knowledge of menarchal, perimenopausal and post-menopausal dysfunctional uterine bleeding documented through field notes and OSATS
2. Endometrial Sampling OSATS
3. Dilation and Curettage OSATS

References

Williams’ Obstetrics textbook and study guide
Up to Date
15. Tonsillar Disease

Non-Core Module
16. Hand

Non-Core Module

Goals

- To recognize and appropriately investigate symptoms of carpal tunnel syndrome.
- To understand the prognosis, advantages and disadvantages of management approaches for carpal tunnel syndrome.
- To counsel patients appropriately regarding the management of carpal tunnel syndrome.
- To recognize hand trauma which can be managed locally versus hand trauma, which needs to be referred to a hand surgeon.
- To understand when simple phalangeal amputation is appropriate and to be able to perform this procedure in a competent manner.
- To be able to perform a simple skin graft for finger trauma when appropriate.
- To be able to perform an extensor tendon repair in a competent manner.
- To assess and counsel patients regarding the appropriate management of de Quervain tenosynovitis.

Clinical Approach

Neuropathies of the Hand

- Ulnar Neuropathy
- Carpal Tunnel Syndrome

Hand Trauma

- Complicated trauma
- Complex fractures
- Tendon injuries
- Nerve Injuries
- Phalangeal amputations
Hand Infections

- Cellulitis
- Closed space infections
- Tendon sheath infections
- Osteomyelitis

Compartment syndromes of the hand

- Carpal Tunnel Syndrome
- De Quervain Tenosynovitis

Learning Objectives

Knowledge Objectives

- Describe the anatomy of the hand including innervation, tendon and musculature.
- Identify each of the anatomical structures in the hand including bones, joints, fascia, tendons, tendon sheaths, nerves and nail beds.
- To recognize the serious nature of closed space infections and compartment syndromes of the hand.

Diagnostic Objectives

- Use features elicited on history to narrow a patient’s presentation to a short list of differential diagnoses.
- Given a patient presentation describe appropriate investigation including imaging techniques and nerve conduction studies.
- To recognize and diagnose trauma to various anatomical structures including soft tissue such as tendon and muscle injury, blood supply and nerve supply.
- To recognize complicated trauma which needs to be managed beyond local resources.
- To be able to differentiate between cellulitis, synovial infections and closed space infections.
- To identify signs of tendonopathies including de Quervain disease and other repetitive strain injuries
Management Objectives

- Plan an appropriate course of management for patients with carpal tunnel syndrome based on severity and evidence for various approaches.
- Plan an appropriate course of management for patients presenting with hand trauma. This may include referral to a hand surgeon.
- Plan an appropriate course of management for patients presenting with infection in the hand.
- Plan an appropriate course of management for patients presenting with de Quervain disease.

Procedural Objectives

- Perform steroid injection of the carpal tunnel for carpal tunnel syndrome.
- Perform carpal tunnel release.
- Perform phalangeal amputation including skin flap.
- Perform skin graft for fingertip injuries.
- Perform extensor tendon repair.
- Perform steroid injection of compartments when appropriate, including first dorsal wrist compartment at radial styloid.
- Perform release of first dorsal extensor compartment for persistent de Quervain disease.

Complication Objectives

- Identify nerve injury associated with either trauma or as a complication of surgery.
- Identify vascular compromise within the hand and recognize this as an urgent complication.
- Identify complicated fractures and tendon injuries that require management beyond the scope of local resources.
- Identify closed space infections and manage appropriately including possible referral.
- Identify osteomyelitis in the hand as a complication of trauma or surgery and manage appropriately including possible referral.
Milestones

Consults
- For each consultation encounter the learner will complete a patient assessment and discussion that includes various management options available to the patient.
- The learner will be able to describe the advantages or disadvantages of management options.
- The learner will be able to describe prognosis of the condition as well as risks of treatment.

Procedures
- In training evaluation will determine whether procedural objectives have been met.
- Carpal Tunnel steroid injection: a minimum number of 10 procedures completed independently.
- Carpal Tunnel release: a minimum number of 10 procedures completed independently.
- Phalangeal amputation: will require a number of different traumas to show independent competence.
- Skin graft of fingertip injury: performing this procedure independently should provide evidence of competence.
- Extensor tendon repair: a minimum number of 10 procedures completed independently.
- De Quervain disease: the learner should be able to demonstrate appropriate injection in an oral examination.
- The learner may require elective time with a hand surgeon for exposure and volume to achieve some these competencies.

Evaluation
- Written component will cover knowledge and diagnostic objectives.
- In training evaluation will determine whether procedural objectives have been met.
- Oral examination will be used to determine a candidate’s ability to respond to variations and nuances in presentation as well as to manage complications.
Resources

Dynamed

Diagnosis Pro


Tallia AF and Cardone DA, Diagnostic and Therapeutic Injection of the Wrist and Hand Region, Am Fam Physician, 2003, 67(4): 745-50
17. Other Elective

*Template for Non-Core Module*
**BASIC PRINCIPLES**

18. Laparoscopic Principles and Skills 74
19. Endoscopic Principles and Skills 77
20. Laparotomy Principles and Skills 81
21. Procedural Sedation Principles and Skills 83
22. Emergency Ultrasound Principles and Skills – EDE, EDTU, FAST 86
23. *Hysteroscopic Principles and Skills 87
18. Laparoscopic Principles and Skills

Description of Module

This module is intended to supplement other modules in which laparoscopic surgery is indicated. It is not the intention of this module to present the clinical presentation or diagnostic work-up of surgical disease, but to provide the learner with the principles and skills to safely perform basic laparoscopic surgery. The learner should be familiar with alternate surgical management options, as well as the risks and benefits of each procedure in a given patient (ie: open vs laparoscopic appendectomy)

Knowledge Objectives

1. demonstrate understanding of physiology of laparoscopy
   a. mechanical effects of abdominal distention
   b. pharmacologic effects of CO2
   c. preoperative evaluation of the patient
2. demonstrate understanding of laparoscopic set-up and equipment
   a. for insufflation
   b. laparascopes/cameras
   c. video monitors and light sources
   d. disposable vs reusable equipment
   e. trocar types and their use
   f. graspers/dissectors/scissors/paddles/retractors
   g. hemostatic devices (monopolar and bipolar cautery)
   h. tissue approximation devices (clips, loops/ties, and staples)
   i. other (ie: specimen bags)
3. anatomy
   a. general abdominal wall and intra-abdominal anatomy is covered in another module
   b. surgical anatomy as relevant to laparoscopic procedures is covered in another module
   c. special attention to the laparoscopic anatomical view of the abdominal wall, abdominal organs, and pelvic organs
4. indications and contraindications for the proposed laparoscopic procedure, and ability to recognize when to:
   a. abandon a laparoscopic procedure and convert to an open procedure
   b. conduct an intra-operative consultation, or
   c. refer the patient to a general surgeon
5. complications of laparoscopic surgery
Procedural Objectives

The learner should be able to demonstrate safe and appropriate:

1. setup of laparoscopic equipment in an OR
2. establishment of pneumoperitoneum
   a. port site selection (with consideration for use of local anaesthetic)
   b. Veress needle and open technique with a Hasson trocar
   c. confirmation of pneumoperitoneum
   d. placement under direct vision of other necessary ports for the desired procedure, taking into account working port relationships
   e. inspection for injuries on entry
3. general laparoscopic skills and diagnostic laparoscopy
   a. adhesiolysis as appropriate
   b. instrument use to survey the abdomen and of gentle tissue handling technique
   c. use of hemostatic devices (monopolar cautery, bipolar cautery)
   d. use of tissue approximation devices (clips, loops/ties, staples)
   e. recognition of normal tissue vs pathologic processes
   f. direction of the surgical assistant as required to optimize exposure
   g. closure and follow up management
4. laparoscopic appendectomy
   a. port placement for appendectomy (and understanding of variations)
   b. identification and exposure of the appendix, and evaluation for the presumed diagnosis
   c. ability to identify alternate diagnoses in the context of a normal-appearing appendix
   d. safe handling of infected tissue
   e. dissection of the appendix, including adequate exposure
   f. ability to ligate the appendix using endo-loops and possibly using stapler
   g. removal of the appendix from the abdomen
   h. closure and follow up management
5. laparoscopic tubal ligation
   a. in-and-out catheterization to empty the bladder
   b. placement of uterine manipulator
   c. port placement for tubal ligation
   d. identification and exposure of the uterus, round ligaments, fallopian tubes to the fimbriae, and ovaries
   e. ability to use the uterine manipulator, or direct the assistant to do so
   f. placement of Filshie clips and demonstration of appropriate position
   g. use of bipolar paddles for electrocauterization technique of tubal ligation
   h. closure and follow up management
Milestones

1. Consults
   a. Consultations will occur in the context of each patient presentation, as outlined in the clinical modules. For many of these consultations a laparoscopic procedure may be appropriate.

2. Procedures
   a. minimum of 10 laparoscopic appendectomies
   b. minimum of 40 laparoscopic abdominal entries
   c. minimum of 2 laparoscopic tubal ligations
   d. assisting with other laparoscopic procedures (ie: cholecystectomy, inguinal hernia repair, colon resection, hysterectomy, cystectomy, ectopic pregnancy, etc) when available to further develop laparoscopic skills and techniques
19. Endoscopic Principles and Skills

Description of Module

This module is intended to supplement other modules in which endoscopic procedures are indicated. It is not the intention of this module to present the clinical presentation or diagnostic work-up of surgical disease, but to provide the learner with the principles and skills to competently perform esophagastroduodenoscopy and colonoscopy.

Knowledge Objectives

Upper GI Endoscopy

1. indications and contraindications for EGD
2. necessary and available equipment for UGI endoscopy
3. forms of procedural sedation appropriate for endoscopy
4. relevant anatomy of the oropharynx, esophagus, stomach, and duodenum
5. appropriate counseling of patients prior to endoscopy
6. risks (anaesthetic and procedural) and their management

The learner should be familiar with the endoscopic appearance of various upper GI conditions including but not necessarily limited to the following. Specific management of these conditions is covered by other modules:

1. recognition of various esophageal disorders (including grading systems where relevant):
   a. esophagitis (GERD, candida, eosinophilic, ingestions, etc)
   b. structural disorders (diverticulae, rings, webs, strictures, etc)
   c. motility disorders
   d. Barrett’s esophagus
   e. malignancy
   f. esophageal varices
2. recognition of various gastric disorders:
   a. gastritis (peptic, infectious, etc)
   b. peptic ulcer disease
   c. structural/anatomic (herniae, post-operative changes)
   d. vascular disorders (varices, arteriovenous malformations)
   e. benign and malignant growths
3. recognition of various duodenal disorders:
   a. duodenitis
   b. peptic ulcer disease
   c. structural disorders (webs, diverticulae)
   d. inflammatory bowel disease
   e. benign and malignant growths (duodenal vs ampullary)
Lower GI Endoscopy

1. indications and contraindications for sigmoidoscopy/colonoscopy
2. necessary and available equipment for LGI endoscopy
3. forms of procedural sedation appropriate for endoscopy
4. relevant anatomy and physiology (anus, rectum, colon, and terminal ileum)
5. appropriate counseling of patients prior to endoscopy
6. risks (anaesthetic and procedural) and their management

The learner should be familiar with the endoscopic appearance of various lower GI conditions including but not necessarily limited to the following. Specific management of these conditions is covered by other modules:

1. recognition of various anorectal disorders:
   a. hemorrhoidal disease
   b. fistula-in-ano
   c. fissures
   d. sexually transmitted (and other infectious) lesions
   e. pruritis ani
   f. condylomata acuminata
   g. benign and neoplastic growths

2. recognition of various colonic disorders:
   a. polyps
      i. suction/false polyps
      ii. hyperplastic vs adenomatous
      iii. polyposis syndromes
      iv. submucosal lesions
   b. malignancies
      i. adenocarcinoma
   c. inflammatory disease
      i. IBD (ulcerative colitis vs Crohn’s)
      ii. infectious (viral, bacterial, parasitic)
      iii. antibiotic-associated
      iv. ischemic
      v. radiation-associated
   d. structural
      i. diverticulosis
      ii. strictures
      iii. post-operative changes
Procedural Objectives

1. Upper GI Endoscopy:
   a. proper maintenance and preparation of equipment for UGI endoscopy
   b. safe performance of EGD with an understanding of both blind and direct visual esophageal intubation
   c. appropriately performance of cold and hot (snare) biopsies, understanding their indications and contraindications
   d. retrieval of foreign bodies
   e. advanced techniques: sclerotherapy, epinephrine injection, banding, when appropriate for level of skill

2. Lower GI Endoscopy:
   a. proper maintenance and preparation of equipment for LGI endoscopy
   b. safe performance of sigmoidoscopy/colonoscopy
      i. basic techniques
      ii. understanding of loop formation (ie: alpha, reverse alpha, gamma) and management
   c. appropriate performance of cold and hot (snare) biopsies
   d. appropriate performance of polypectomies and use of associated equipment (biopsy forceps, snares, baskets, tattooing, etc)
   e. retrieval of foreign bodies
   f. hemorrhoid banding

Milestones

1. Consults
   a. Each endoscopic procedure (outpatient, inpatient, or emergency room consultation) should be associated with a patient assessment and management plan.
   b. If any of the above-listed conditions have not been seen by the learner by the end of their program, the learner is to review the endoscopic appearance of these conditions with their preceptors.

2. Procedures
   a. UGI Endoscopy:
      i. minimum of 100 esophagogastroduodenoscopies
      ii. minimum of 100 cold biopsies (including those of the GE junction)
      iii. minimum of 50 hot/snare biopsies
      iv. *minimum of 10 injections (sclerotherapy, epinephrine)
      v. *minimum of 5 esophageal dilations
         (*optional endoscopic procedure)
b. Lower GI Endoscopy
   i. minimum of 10 flexible sigmoidoscopies
   ii. minimum of 150 colonoscopies (with cecal intubation)
   iii. minimum of 100 cold biopsies
   iv. minimum of 50 hot/snare biopsies
   v. minimum of 50 polypectomies (these may include cold or hot/snare biopsies)
   vi. minimum of 10 hemorrhoid bandings
   vii. minimum of 10 submucosal injections (saline, tattoo dye)
20. Laparotomy Principles and Skills

Description of Clinical Referral

General practitioners with enhanced surgical skills will perform laparotomy under emergent circumstances only. The exception to this rule will be caesarean section. Because the possibility of a laparotomy exists it is essential the ESS resident complete their training with an understanding of the basic principles and skills required to safely perform emergency laparotomy. These skills are then transferable to many of the other objectives included in the ESS program. There is not, however, sufficient time during this program to address the complexities of the emergency laparotomy.

Knowledge Objectives

Anatomy

The resident will be able to describe anatomy of the abdominal wall, including arterial and venous systems, innervation, and markings as seen by laparoscopic approach.

The resident will also require a general approach to the intra-abdominal anatomy. This will include knowledge of all the intra-abdominal organs and their arterial and venous systems.

The resident will be familiar with the different incisional approaches to the anterior wall of the abdominal cavity with a basic understanding of the advantages and disadvantages to each approach.

Clinical Presentations

The resident will demonstrate ability to identify patients requiring emergent laparotomy under circumstances where referral of the patient to tertiary care would be perilous without immediate intervention.

Equipment

The resident will have a basic understanding of the surgical instruments used during laparotomy.

The resident will be knowledgeable with respect to the variety of suture materials used for laparotomy with advantages and disadvantages of each.

Management Objectives

The resident will learn to work as part of a surgical team that includes the anesthesiologist, the OR nurses and ward nurses, who will decide as a group what is in the best interest of the trauma patient, taking into consideration the capacity of the hospital to care for the unstable pre and post-operative patient. This also includes efficient communication with referral centers.

The resident will understand the importance of aggressive pre-operative resuscitation and stabilization of trauma patients.
The resident will appreciate the importance of muscle relaxation, urinary catheterization and/or gastric aspiration during laparotomy.

The resident will plan appropriate post-operative care including fluid resuscitation, re-feeding, and post-operative antibiotics.

**Procedural Objectives**

During the resident’s training period he/she will demonstrate safe and skilled performance the following components of laparotomy:

1. selection of incision site appreciating that in trauma patients a midline incision is almost always the most appropriate
2. proper incision and hemostasis technique
3. safe handling of tissue and bowels during set-up of mechanical fixed retraction and during the remainder of the procedure
4. abdominal survey
5. closure of incision
6. technique for leaving an abdomen open for transfer in the event primary closure is not possible
7. the resident will understand the procedure for packing an abdomen in the event that stabilization is required for transfer to tertiary care.
8. the resident will demonstrate informed selection of suture material
21. Procedural Sedation Principles and Skills

Goals

To demonstrate competent assessment of a patient’s candidacy for procedural sedation and safe delivery of same, when appropriate, for minor surgical procedures.

To demonstrate understanding of the principles and practice of procedural sedation by describing procedure selection, drug selection, patient monitoring and management of potential complications.

Note: The level of anaesthetic expertise of the ESS physician is expected to be that of a typical emergency room physician or other non-anaesthesiologist proceduralist. It is understood that sedation during procedures may be delivered either by the ESS proceduralist, or by a 2nd attending physician.

Clinical Presentations

- Fasting adult patient for elective procedural sedation
- Non-fasting adult patient for urgent procedural sedation

Learning objectives

Knowledge objectives
1. List indications for procedural sedation
2. Take a patient history and physical that includes relevant anaesthetic considerations
3. Characterize the 4 sedation depths: minimal, moderate, deep & general anaesthesia
4. Describe the common pharmacologic options and dosing for minimal and moderate sedation: benzodiazepines, opiates, ketamine, propofol
5. Describe available drug reversal agents, doses and indications for their use: naloxone, flumazenil
6. List equipment and supplies required for PS
7. Describe pre- intra- and post-procedure patient monitoring

Diagnostic objectives
1. Using both actual and hypothetical situations demonstrate the ability to create a sedation plan based on thorough integration of the procedural features with the patient’s clinical picture.
Management objectives
1. Effectively explain risks, benefits and alternatives to sedation to the patient
2. Include consent for PS in the pre-procedure discussion
3. Demonstrate effective sedation team leadership
4. Demonstrate awareness of and compliance with sedation documentation standards per institution
5. Demonstrate effective post-sedation communication with recovery staff and patient

Procedural objectives
1. Perform peripheral IV starts and line set-up
2. Perform a focused equipment check and patient set-up
3. Perform accurate, standardized drug preparation, delivery and titration
4. Demonstrate effective monitor information synthesis as it provides patient data
5. Perform primary procedure (ex: colonoscopy, abscess drainage) while maintaining safe sedation
6. Manage sedation complications as they arise

Unanticipated findings/complication objectives
1. Identify the patient with clinical conditions that render him/her not suitable for otherwise indicated procedural sedation
2. Discuss patient age groups and clinical features that may require a 2nd physician present for sedation management, or cardiorespiratory risk factors leading to specialist referral for anaesthetic reasons.
3. Demonstrate a thorough knowledge of the significant and/or likely complications of PS and describe an appropriate management sequence.
   a. Hypoxia
   b. Apnea
   c. Respiratory arrest
   d. Cardiac arrhythmia
   e. Cardiac arrest
   f. Failed sedation

Evaluation
1. At least 25 logged sedations
2. 5 completed in-training OSATS evaluations
3. 3 completed in-training OSACS evaluations

Upon module completion, the candidate will be able to describe a personal drug armamentarium of choice, and basic step-by-step description of procedural sedation induction, maintenance and trouble shooting.
Oral/Written term examination questions will be used to determine a candidate’s synthesis of information and ability to respond to variations and nuances in practice and presentation.

References


22. Emergency Ultrasound Principles and Skills

EDE, EDTU, FAST
23. Hysteroscopic Principles and Skills

Non-Core Module

Description

This module is a procedural module only. It is intended to provide the learner with the basic skills necessary to perform diagnostic hysteroscopy. There are 2 sizes of hysteroscopes that can be used for hysteroscopy, the smaller (3mm) is diagnostic only, while the larger of the 2 (8mm) is used both for diagnoses and surgical intervention such as ablation or fibroid resection. It is the intention of this module to describe the procedure only for the smaller of the scopes for diagnostic purposes in the work up of abnormal uterine bleeding in the non pregnant uterus. Diagnostic hysteroscopy may also be performed on sedated patients with local anesthetic in the non operating room setting. For the purposes of this module it will be described in the operative setting as it will more than likely be performed simultaneously with other diagnostic and therapeutic operative interventions.

The learner should make reference to the module on abnormal bleeding in the non pregnant uterus for the appropriateness of performing this diagnostic test.

Knowledge Objectives

1. Demonstrate the ability to adequately explain the indications for, the alternatives to and the potential complications of hysteroscopy to the patient and adequately obtain surgical consent for the operation.
2. Demonstrate an understanding of the anatomy of the perineum, pelvis, cervix, uterus and fallopian tubes.
3. Demonstrate understanding of the basic principles of hysteroscopy including, hydrodistention of the uterus, fluid shifts and potential hyponatremia.
4. Demonstrate understanding of the potential complications specific to the hysteroscopy including, cervical injury, uterine perforation, hyponatremia, inconclusive exam and formulate a plan for attending to these whether it is local intervention or transfer to referral center.
5. Demonstrate an understanding of the basic hysteroscopic set up in the operating room including patient position, thromboembolic precautions when necessary, draping and sterility of patient and instruments, perioperative antibiotics.
6. Demonstrate the indications and contraindications for hysteroscopic examination as well as when it should and should not be performed in conjunction with D and C.
7. Demonstrate an ability to recognize when to refer to specialist due to incomplete examination, complications of the operation or perform an intraoperative consultation when further management is unclear.
Procedural objectives

The learner should be able to demonstrate safe and appropriate:

1. set up of hysteroscope utilizing sterile technique in the OR.
2. Draping the patient and set up of equipment table for the procedure independently.
3. Visualization of the cervix using weighted speculum.
4. Dilation of the cervix using Dennison, Pratt or Hagar dilators and obtain adequate immobilization of the cervical canal to allow entry of the 5mm diagnostic hysteroscope.
5. Demonstrate the ability to safely insert the hysteroscope into the uterine cavity with care to inspect the cervical canal upon entry.
6. Utilize misoprostyl and cervical os finders and superior/inferior cervical traction for more challenging cases.
7. Identify crucial landmarks of the uterine cavity.
8. Recognize and demonstrate the ability to problem solve when there is equipment failure, malfunction or an incomplete exam.
9. Accurately identify pathology during the exam.
10. Adequately record hypotonic saline in/out during the exam and complete the hysteroscopy in a timely manner.
11. Demonstrate the ability to promptly recognize when there is an intraoperative complication and the options for immediate management and delayed management.
12. Plan for post operative pain management
13. Perioperative antibiotics

Milestones

Consults

1. Consults will occur in the context of the work up for abnormal bleeding in the non pregnant uterus. Milestones in this module will be more based on the number of procedures.

Procedures

1. 5 hysteroscopies with or without d and c
TRAUMA

24. Standardized Trauma Course – ATLS, CARE, CALS
25. PALS
24. Standardized Trauma Course

ATLS, CARE, CALS
25. PALS
OTHER

26. *Self-Directed Learning Module Elective
26. Self-Directed Learning Module Elective
APPENDIX C: EVALUATION

1. Objective Structured Assessment of Technical Skills (OSATS) 96
2. Objective Structured Assessment of Consultation Skills (OSACS) 97
3. Evaluation Schema 98
1. Objective Structured Assessment of Technical Skills (OSATS)

<table>
<thead>
<tr>
<th>Date</th>
<th>Candidate</th>
</tr>
</thead>
</table>

### Name of Procedure

<table>
<thead>
<tr>
<th>Degree of Involvement</th>
<th>Mostly watched Held Instruments</th>
<th>Performed procedure with supervision</th>
<th>No Supervision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>8 9</td>
</tr>
</tbody>
</table>

#### Time, motion and flow of operation and forward planning

- Many unnecessary moves. Frequently stopped operating or needed to discuss next move.
- Makes reasonable progress but some unnecessary moves. Sound knowledge of operation but slightly disjointed at times.
- Economy of movement and maximum efficiency. Obviously planned course of operation with effortless flow from one move to the next.

| 1 2 3 | 4 5 6 7 | 8 9 |

#### Respect for Tissue

- Frequently used unnecessary force on tissue or caused damage by inappropriate use of instruments.
- Careful handling of tissue but occasionally causes inadvertent damage.
- Consistently handled tissues appropriately with minimal damage.

| 1 2 3 | 4 5 6 7 | 8 9 |

#### Knowledge and handling of instruments

- Lack of knowledge of instruments
- Competent use of instruments but occasionally awkward or tentative
- Obvious familiarity with instruments

| 1 2 3 | 4 5 6 7 | 8 9 |

#### Suturing and knotting skills as appropriate for the procedure

- Placed sutures inaccurately or tied knots insecurely and lacked attention to safety
- Knotting and suturing usually reliable but sometimes awkward.
- Consistently placed sutures accurately with appropriate and secure knots with proper attention to safety.

| 1 2 3 | 4 5 6 7 | 8 9 |

#### Technical use of assistants and relations with patient and surgical team

- Consistently placed assistants poorly or failed to use assistants. Communicated poorly and/or showed lack of awareness of needs of patient or surgical team.
- Appropriate use of assistant most of the time. Reasonable communication and awareness of needs of patient or surgical team.
- Strategically used assistants to the best advantage at all times. Consistently communicated and acted with awareness of needs of patient or surgical team.

| 1 2 3 | 4 5 6 7 | 8 9 |

#### Insight/attitude

- Poor understanding of areas of strengths/weaknesses
- Some understanding of areas of strengths/weaknesses.
- Fully understands areas of strengths/weaknesses.

| 1 2 3 | 4 5 6 7 | 8 9 |

#### Documentation of procedures

- Limited documentation, poorly written.
- Adequate documentation but with some omissions or areas that need elaborating.
- Comprehensive legible documentation, indicating findings, procedure and postoperative management.

| 1 2 3 | 4 5 6 7 | 8 9 |

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Have you witnessed this candidate perform this surgery previously?  Y / N

Is the candidate improving on this procedure?  Y / N

Would this candidate now be competent to perform this procedure without the need for supervision?  Y / N

Comments on candidate’s performance/recommendations for improvement:

Signature  Trainee:___________________  Preceptor:___________________
## 2. Objective Structured Assessment of Consultation Skills (OSACS)

<table>
<thead>
<tr>
<th>Date</th>
<th>Module</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Candidate</strong></td>
<td><strong>Nature of Consult</strong></td>
</tr>
<tr>
<td><strong>Degree of Involvement</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Mostly observing patient encountered by preceptor</td>
<td>Independently conducted, but guidance required for Dx &amp; decisions</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Medical Expert (Knowledge)</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Incomplete understanding of anatomy and pathophysiology.</td>
<td>Basic knowledge complete but requires coaching.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Medical Expert (Diagnostics)</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Unable to integrate physical findings and investigations to make differential and/or diagnosis.</td>
<td>Mostly able to develop a differential and probable diagnosis. May seek help prematurely.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Manager</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Inappropriate decision making, failing to incorporate patients condition and rational resource use. Incomplete facilitation.</td>
<td>Some appropriate management decisions and facilitation. Preceptor required to fill in gaps.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Communicator/Professional</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Neither develops rapport with patient/family nor comprehensively transmits diagnosis &amp; treatment risks/benefits/alternative in a way that secures fully informed consent.</td>
<td>Requires coaching either in building adequate rapport or securing fully informed consent.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Collaborator</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Alienates or fails to engage team members effectively in their roles.</td>
<td>Accesses appropriate team members. Requires coaching to step into leadership role and provide succinct directives.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Patient Advocate</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Incompletely identifies and responds to patient’s particular situation/context.</td>
<td>Identifies some of patient’s unique needs. May require guidance to strategize response.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Insight/attitude (Professional)</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Poor understanding of areas of strengths/weaknesses.</td>
<td>Some understanding of areas of strengths/weaknesses.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Documentation of consultation</strong></td>
<td><strong>Module</strong></td>
</tr>
<tr>
<td>Limited, poor quality documentation.</td>
<td>Adequate documentation but with some omissions or areas that require elaboration.</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Have you witnessed this candidate manage this condition previously?  **Y / N**

Is the candidate’s knowledge and managerial skill growing?  **Y / N**

Would this candidate now be competent to direct management of this condition without the need for supervision?  **Y / N**

Comments on candidate’s performance/recommendations for improvement:

Signature | Trainee: | Preceptor:
# 3. Evaluation Schema

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Internal Evaluation</th>
<th>External Evaluation</th>
</tr>
</thead>
</table>
| Modules of Common Clinical Presentations Referred to ESS Family Physicians | Knowledge Diagnosis Management | Volumes of Consults

<table>
<thead>
<tr>
<th>Objective Structured Assessment</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; “Signed off” by the of Consultative Skills (OSACS)</td>
<td>2 preceptors*</td>
</tr>
<tr>
<td>Module not successfully completed without both</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective Structured Assessment</td>
<td>Milestone</td>
</tr>
<tr>
<td>&gt; “Signed off” by the of Technical Skills (OSATS)</td>
<td>2 preceptors*</td>
</tr>
</tbody>
</table>

| 6 Weekly Evaluation Program, OB, GS, Coordinator | Evaluative material includes volumes, OSACS, OSATS, and includes the opportunity to validate the completion of a module. One summary Evaluation Form documenting volumes/OCACS/OSATS for each module. |

<table>
<thead>
<tr>
<th>Oral Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>examining committee includes GPS, OB, GS</td>
</tr>
<tr>
<td>examining material based on log books/completed modules</td>
</tr>
<tr>
<td>can be done remotely with video conference</td>
</tr>
</tbody>
</table>

| Written Exam |
| Principles of Surgery exam now written by all R2 surgical residents. |

*Answering Yes on the OSATS/OSACS form to “without need for supervision”