

NOSM



CLERKSHIP
SURVIVAL
GUIDE

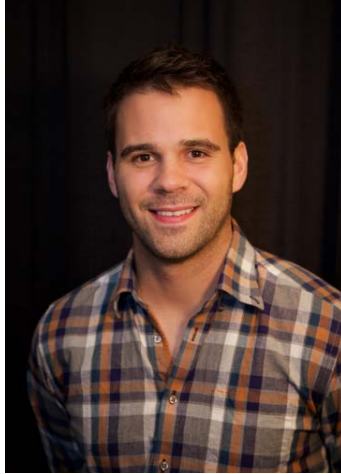
THE OFFICIAL *UNOFFICIAL* GUIDE TO SURVIVING CLERKSHIP

COURTESY OF THE CLASS OF 2015 & 2019

A Letter From the Original Editors



Jonathan Ramkumar



Adam Bignucolo



Brandon Webber

First things first, we want to congratulate all of you on making it this far in your medical careers and thank you for checking out NOSM's Official *Unofficial* Guide to Surviving Clerkship! This guide was put together by volunteers from the Class of 2015 to provide future NOSM students with general advice that we wish we had prior to starting our 4th year clerkship. In the guide, you'll find tips on how to chart & organize your dictations, common conditions to know, top resources to use and how to excel on electives all while keeping your sanity throughout your final year at NOSM.

We have organized the guide in three main sections: general advice, core rotations and elective rotations. The core rotations sections were written based on Sudbury rotations and meant to provide the tools to get the most of your rotations and being a functional clerk. They also contain information specific to doing electives in these specialties. The elective subspecialty sections go into more depth and offer advice on how to stand out on your electives in a variety of other specialties.

Your final year of medical school is by far one of the most exciting yet challenging years at NOSM. You may experience some of your highest but also your lowest moments of medical school throughout your rotations. Always remember that we are all in this together! Also, we all had unique interests and hobbies before becoming medical students. Make sure to find time throughout your final year to enjoy all the things you love in life and to share these moments with your classmates, friends, and family.

We'd love to hear from you guys, so feel free to send us any questions and feedback on the guide to nosmclerkshipguide@gmail.com. Finally, we want to wish each and every one of you the best with your future medical careers. And remember, that wherever medicine takes you, we all got our start at the Northern Ontario School of Medicine.

Yours Truly,
Chief Editors

A handwritten signature in black ink, appearing to read 'J. Ramkumar'.

A handwritten signature in purple ink, appearing to read 'Adam Bignucolo'.

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Jon, Brandon, and Adam

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General Core Advice

General Core Advice

This section gives some general advice for stream selections along with your six core rotations: Internal Medicine, Women's Health, Children's Health, Emergency Medicine, Surgery, and Mental Health. You will find things such as tips on how to chart, dictations and commonly used medications you'll encounter throughout clerkship. Following this are more in-depth descriptions of these six cores and words of wisdom for pursuing electives in a variety of specialities. It may be difficult to get excited about certain core rotations you are less interested in, but you never know when it'll come in handy! There's valuable info to take away from all your core rotations. Keep an open mind and you'll be thankful when you're doing that crash delivery in the middle of a Neil Diamond concert!

Picking Your Stream

Stream selection is done similarly to previous ranking systems you used for NOSM placements. It may feel overwhelming at times when trying to pick the best stream to optimize your match when it comes time for CaRMS. Here are some points to keep in mind for stream selection:

- You will have up to 20 weeks of electives. You only need to have a total of 12 weeks of electives to graduate. You need an elective in at least 2 different disciplines of medicine (Ex: 4 weeks Family Med, 8 weeks Anaesthesia).
- All streams allow for at least 8 weeks (two blocks) of electives prior to CaRMS deadline (mid-November).
- If you are applying to multiple specialties or to a competitive one, you might want to have as many electives as possible as early as possible. In addition, you might consider complementary core rotations early (i.e. If you want general surgery you can use your general surgery core rotation to get a reference letter).
- If you end up with a stream that you are not happy with, it is possible to swap block-for-block with other students as long as each party agrees.
- Phase 3 is busy. Electives are like week-long interviews and they can be fairly draining. **Plan for some time off:** this is an important factor for stream selections. Some things to consider:
 - o Do you prefer your time off in the summer or in the winter?
 - o Would you like a few weeks off in the fall to work on your CaRMS application?
 - o Would you like some time off after CaRMS is all said and done? If so, take a stream with electives in the last two blocks.

YOU DO NOT NEED TO DO 20 WEEKS OF ELECTIVES!

This is definitely not essential even if matching to a competitive specialty. Make sure to book some time off, you'll definitely appreciate some down time during your 4th year. Choosing a stream with alternating electives and cores can be helpful to get some time back in your home campus to recharge in between electives.

No other medical school has as much time spent in primary care than NOSM. If you are considering Family Medicine as either your first choice or a backup, you do not need to use all your elective time doing Family Medicine electives. Many programs will state *overtly* in their program description that they value a variety of elective experiences that encompasses the entire breadth of medicine. Use the elective time as an opportunity to see other specialties (get experiences that will be useful in your future

field, for example, consider Obs if you think you will do family + Obs later in your career). You will be able to justify your choices of electives in your personal letters and at the interviews.

Personal Days

You get **TWO** personal days during 4th year with which you can take time off without question. NOSM wants you to have the request in 6 WEEKS IN ADVANCE in order to allow for scheduling. Sometimes they won't care at all if you ask a day before the block starts, sometimes they will tell you it's too late. Ultimately, if you know you want a day off, try to get in your requests as soon as possible.

- You can't use two days during one block.
- One strategy is to use your personal day on a Friday or Monday to create yourself a long weekend. Most preceptors are very accommodating and will try to schedule your call on another weekend if you tell them that you are using the personal day to go away.

To request a day, fill out the "Request for Approval for Absence from MD Program Form" that can be found on myCurriculum under the "Most Requested Documents" tab.

- This document should be sent to Learner Affairs, and before waiting for a reply, also send a formal request to the clinical lead for the core rotation. If they approve it, let Learner Affairs know (cc them the reply) and it will expedite your personal day approval.
- There can be exceptions to applying 6 weeks in advance in emergency situations.

On-Call Shifts

Every core rotation will have call except for Emergency Medicine. The amount of call varies with each rotation. When you are on-call, your responsibility is mainly to see new consults and help deal with ward issues. Here are a few tips to help you on your call shifts:

- Things can be unpredictable, so be sure to have portable food (i.e. granola bars) on you and drink plenty of water whenever you get a chance.
- Keep in mind the closing hours for the places to eat in the hospital to avoid the lovely vending machine cuisine.
- It's sometimes helpful to bring study material and/or your laptop if you get some down time during your call shift.
- Try to get your consult dictations done as soon as possible to avoid having them pile up before bed or the next day.
- Make sure to get your call room key and don't be afraid to grab some extra blankets, as it can get quite cold during the wintertime.
- You will also be surprised how far an extra pair of socks or new scrubs goes especially on 24-hour shifts. There are also showers available in the call room area.
- It may even be a good idea to bring some shower gel/shampoo as well as a toothbrush/toothpaste to refresh yourself in the morning if you've had a late night, before you do morning rounds at the end of your night shift.

Exams

You will write 4 exams during the year. They are progressive exams, that include all topics, and are of equal difficulty. The reason for this style is to help you prepare and get used to the LMCC format.

Everyone has different learning styles and approaches to studying for these exams. Other than looking over core objectives on the MyNOSM website, students have found it helpful studying physician's academic talks, going through CaseFiles, reviewing past exams and using Toronto notes. Some rotations may require you to work the morning of your exam, so don't rely on having this morning off to cram. It is possible to get your exam moved earlier if you have previous plans for that weekend. Just remember to apply for this as early as you know.

During each rotation, try to make study notes so that when it comes to studying for the LMCC exam after cores are done, you have notes already made to refer to. Some students find it useful to buy a question bank such as QBank or UWorld early on during the year, and set aside 5 questions to go through everyday to test your knowledge along the way.

Resources

Here's a short list of useful resources general to all core rotations and specialities. For more in-depth resources, please see the specific specialty section you're looking for.

Texts

- First Aid Medicine Series
- Pocket Medicine Series by Massachusetts General Hospital
- Recall Medicine Series
- Tarascon Pocketbook Series
- Sanford Guide for Antimicrobials

Apps

- UptoDate, DynaMed
- Rx Files
- Lexicomp, Epocrates Drug App
- OnExam Medical App
- Qx Calculate, MD Calc
- Journal Club

Podcasts

- Pedscases.com: Pediatrics for Medical Students
- Surgery 101
- Louisville Lectures Internal Medicine
- EMrap, ERCAST, EM Basic
- OBGYN-101 Gray Haired Notes
- ICU Rounds & PulmCrit

Online Resources

- Medscape, Merck Manual
- FPNotebook
- JAMA (The Rational Clinical Exam Series)

- www.theNNT.com (Number Needed to Treat)
- Youtube- Dr. Najeeb Lectures, MEDGRAM, ftplectures, Shotgun Histology, Handwritten Tutorials

How to Chart

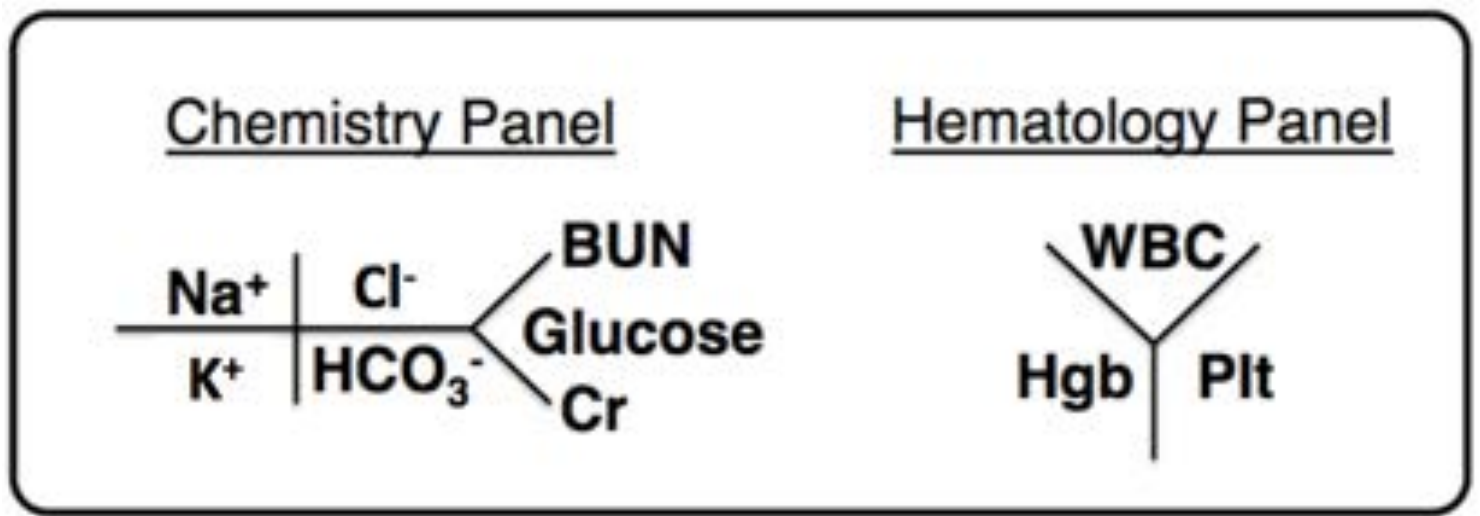
Initial Note and Transfer Note

- Patient Identification and brief summary of HPI and diagnoses
- Medications prior to admission
- Past Medical History & Surgical History
- Social History
- Physical Exam
- Investigations to date
- Laboratory Data
- Summary statement - brief one line summary
- Assessment and Plan - Numerate the ongoing issues and what needs to be done

Ongoing daily SOAP notes

- **Subjective** - include an update since the last note. General outline includes: sleep, pain, appetite, voiding and stooling, new investigations, nursing report.
- **Objective** - Vital signs, physical exam findings, lab results
- **Assessment and Plan** - can usually include in the same heading since you can address ongoing issues you numerated in the first note with any new issues identified across the stay. Make sure to note resolved issues so that you don't forget about them.
 - o Always include disposition in your plan. This shows that you are thinking forward to what will ultimately get the patient home. This may have to include involvement of the team for discharge planning (i.e.: social work, PT, OT, community resources).

Fishbone diagrams are designs that help you track the common lab work you order on a routine basis. We have included the two most common ones below:



Physical Exam Charting

Many times you will find yourself doing a physical exam and you need a quick way to report and document your findings to save time and effectively communicate information. It's also nice when dictating to have a routine method of reciting these findings. We've also included examples of ways you can document pathological or abnormal findings. These are just things we've learned so feel free to take away what you like:

A&O x3 - alert and oriented in three spheres

NAD - no acute distress

HEENT

- Neck supple with no masses or adenopathy
- PERLA - pupils equal and reactive to light and accommodation
- MMM - mucous membranes moist
- Normal buccal and gingival mucosa, normal tongue, normal palate and oropharynx with midline uvula
- Nasal septum, airway, turbinates normal
- TMs reflective with no inflammation or air-fluid levels

CVS

- S1/S2 normal, no EHS - normal heart sounds with no extra heart sounds
- If a murmur is heard, document grade (1-6 scale), when it starts, quality (harsh/soft/musical/high-pitched), pattern (crescendo/decrescendo), where on the precordium, and radiation. This will help communicate murmurs in a systematic way that will allow people to interpret all the information necessary to associate it with a condition.
 - o A 2/6 harsh early systolic murmur with a crescendo-decrescendo pattern best heard over the left sternal border and radiating into the neck (an example of aortic stenosis [AoS])
 - o A 2-3/6 high-pitched early-to-mid diastolic murmur with a decrescendo pattern heard best over the pulmonic area with no radiation but worse with inspiration (an example of pulmonic regurgitation).
 - o A 4-5/6 constant systolic-diastolic murmur with machinery-like quality heard over the entire precordium (an example of a PDA).

Respiratory

- WOB - work of breathing
- AEEBB - air entry equal bilaterally to the bases
- SOB - shortness of breath
- SOBOE - shortness of breath on exertion
- PND - paroxysmal nocturnal dyspnea

Abdomen

- Soft and Non-tender, no palpable masses/hernias
- No cutaneous skin changes appreciated
- BS present
- No organomegaly (ie. hepatosplenomegaly)
- No peritoneal signs such as rigidity, guarding, rebound tenderness
- No CVA tenderness
- No extrahepatic stigmata of liver disease
- No appreciable AA widening

- If pregnant, comment on the fundal height (FH) and fetal heart rate (FHR)

GU

- Normal male/female external genitalia. No exudate or lesions.
- No CMT - cervical motion tenderness
- Non-painful DRE with no significant abnormalities or blood upon withdrawal

Neuro

- Cerebellar exam
 - o No gross ataxia, normal swing and stance gait
 - o RAM normal - rapid alternating movements
 - o Rhomberg negative
 - o Point-to-point & Heel-to-Shin movements normal
 - o No nystagmus
- Cranial nerves
 - o CN 2-12 grossly normal and intact
- Motor
 - o 5/5 strength symmetrical in all four limbs in proximal & distal groups, no pronator drift
 - o Normal tone and no sustained clonus
- Sensory
 - o No sensory deficits to fine touch & pinprick (state which areas tested)
 - o Normal proprioception and vibration sense
 - o Stereognosis, grapesthesia normal
- Reflexes
 - o 2+ in quads/calcaneal/biceps/triceps/brachiorad tendons
 - o Babinski to flexion

MSK

- Full and painless active and passive ROM with soft end-feel at the end of range (Soft end feel with normal ROM demonstrates that there are no capsular restrictions, soft early end feel may be a finding in OA, hard end feel may be an obstructing mass like a meniscal tear or osteophyte).

PVS

- Cap refill < 2 secs in (describe which limb used to test)
- Radial/Brachial/Femoral/Post Tib/Dorsalis Pedis 2+ bilaterally
 - o Comment on rate, rhythm and countour/amplitude
- Non-palpable abdominal aorta
- No carotid bruits auscultated
- No cutaneous skin changes (pallor, bruising, ulcers) identified (describe which limb)

Orders

You will fortunately get tons of practice writing orders throughout clerkship. Don't get too overwhelmed trying to memorize doses of all medications, but have an idea of dosing for regularly used meds. Make sure to have a drug resource handy such as Lexicomp, Epocrates, RxFiles, UptoDate, etc. One thing to keep in mind throughout 4th year is that every physician is different. They all have their personal preferences to analgesia, anti-emetics, prophylactic anticoagulation, and even antibiotic regimens. Just keep in mind an order set for a particular medical condition may differ depending on your preceptor.

General Admission Orders

- Admit to Dr. _____
- Diagnosis:
- Diet: NPO, sips, clear fluids, full fluids, DAT, specific diet (diabetic, cardiac)
- Activity: AAT, Bed Rest, Up in Chair as tolerated
- Vitals: VS qShift, q4h, q3h, q2h etc., orthostatic BPs
- Maintain O2 sats >92%
- IV, Ins/Outs: NS, LR, D5½NS, ⅔NS⅓D5 with 20-40 mEq KCL @ 100cc/hr
- Chest tube, NG tube to -20cm suction or straight drainage.
- Investigations:
 - Labwork such as CBC, lytes, BUN, Cr, LFTs, PTT/INR, Urinalysis, Tox Screen, Blood Cultures, ECG etc.
 - Imaging such as CXR, AXR, Abdominal U/S, Head CT, ABGs, etc.
- Drugs:
 - Analgesia
 - Acetaminophen 650-975mg PO q4h prn (do not exceed 4g/day)
 - Tylenol #3 1-2 tabs PO q4h prn
 - Hydromorphone (Dilaudid) 2-4 mg PO q3h prn
 - Hydromorphone (Dilaudid) 1-2 mg SC/IV q3h prn
 - Morphine 5-10mg IM/SQ q3h prn
 - Morphine 2-6 mg IV q3h prn
 - PCA as per anaesthesia
 - Anti-emetics
 - Dimenhydrinate (Gravol) 25-50mg PO/IM/IV/PR q4h prn
 - Metoclopramide (Maxeran) 10mg PO/IM/IV/SC q6h prn
 - Ondansetron (Zofran) 8mg PO/IV q8h prn
 - Anti-reflux
 - Ranitidine (Zantac) 50mg IV q6h or 150mg PO BID
 - Pantoloc (Tecta) 40mg IV OD or IV drip at 8mg/hour infusion
 - Anti-coagulation
 - LMWH
 - Lovenox 40mg SC OD (prophylactic)
 - Lovenox 1.5mg/kg SC OD (therapeutic)
 - Heparin 5000u SC BID (prophylactic)
 - Warfarin 2-10mg PO OD (Check for therapeutic INRs)
 - Rivaroxaban 15-20mg PO OD
 - Apixaban 5-10mg PO OD
 - Antecedent
 - Home meds-Reassess to continue/hold/dc

- Antibiotics (Doses differ depending on indication)
 - Amoxicillin 500mg PO BID
 - Ciprofloxacin 400mg IV q12h
 - Cefazolin (Ancef) 1g IV q8h
 - Ceftriaxone 1-2g IV OD/BID
 - Metronidazole (Flagyl) 500mg IV q12
 - Levofloxacin 500mg PO/IV BID
 - Piperacillin/Tazobactam 3.375g IV q6h
 - Vancomycin (dose varies)
- Anti-constipation
 - Colace 100mg PO BID or fleet
 - Senna 15mg PO OD
- Physician Consults: Consult Dr. _____, Specialty
- Allied Health Consults: PT, OT, Social Work, Speech

Psychiatry Admission Orders (on top of regular admission orders)

- Admission Status
 - Voluntary
 - Form 1 (completed and on chart; form 42 given to patient)
 - Form 3 **Notify Right's Advisor*
 - Form 33 **Notify Right's Advisor*
- Orientation
 - Patient to wear hospital clothing
 - Check and lock patient's belonging/valuables
 - Explain smoking policy to patient
- Safety
 - Page psychiatry resident to assess patient every Sat/Sun am if patient is off-service
 - Close observation – Suicide and Elopement precautions q20min
 - Constant observation – 1:1 sitter and room only
 - Semi continuous observation (RN may discontinue 1:1 sitter at nursing discretion)
 - Ward only (check room and surrounding areas for access to sharps – particularly off service)
- Visitors
 - During visiting hours only
 - No visitors
- Medications
 - Smoking:
 - Nicotine patch _____mg –topical application daily PRN (>10 cigarettes/day – 21mg patch, <10 cigarettes/day – 14mg/day)
 - Nicotine Inhaler 1 cartridge q1-2h (max. 10 daily)
 - PRNs:
 - Haldol 5-10mg PO/IM q4h PRN for agitation or psychosis (max. 30mg/day)
 - Ativan 1-2mg PO/IM q4h PRN for agitation/anxiety (give with Haldol) (max. 8mg/day)
 - Cogentin 1-2mg PO/IM BID PRN for EPS
 - Olanzapine 5-10mg PO q6h PRN for agitation (max. 30mg/daily)
 - Physical Restraints q24h PRN for severe agitation (please call MD)

Operative Note

- Pre-Op Diagnosis:
 - o Post-Op Diagnosis:
 - o Surgery:
 - o Surgeon:
 - o Assistants:
 - o Anaesthesia: Name and Type of Anaesthesia (General, Local, Spinal)
 - o Operative Findings:
 - o In's and Out's:
 - o Estimated Blood Loss:
 - o Specimens:
 - o Drains and Tubes:
 - o Complications:

Delivery Note

- Patient presentation and GTPAL
 - o Ms. X is a G1P0 woman who presented at 18:00 to the L&D floor with regular painful contractions
- Length of stages
 - o Note what time they were in active labour, then when they were fully dilated (entering second stage), then what time delivery was (entering third stage), then what time the placenta was delivered.
- Type of delivery
- Induction or cervical ripening used
- Infant sex
- Presentation
- Nuchal cord
- Complications
- Perineum
- APGAR scores and cord gases
- Placenta and number of vessels
- Blood loss

Progress Note following Delivery

- Post-partum day
- Haemoglobin
- Fundus (firm, tender, etc.)
- Lochia (note the quality and quantity of discharge)
- Breast feeding
- Episiotomy
- Pain control

Prescriptions

No matter what you do, every physician will have their own way of doing prescriptions. Despite this, there is still a general format for prescriptions that is adhered to. As you may have noticed, some physicians have writing that could be mistaken for the lost languages of Atlantis, and this is why it is even more important to WRITE LEGIBLY and in a systematic manner so that information is conveyed clearly. Here is a general outline of how to approach it, whether you are writing in the chart or for an outpatient prescription:

- Line 1 - Drug name and dose
- Line 2 - Sig: Latin for “please write to take this way”
 - o This line includes the route and the dosing schedule, and includes whether or not it is PRN or regular
- Line 3 - Mitte: Latin for “send this many”
 - o This line includes the number of tabs, or the duration of therapy
- Line 4 - Repeat, you can denote the total number of refills the patient may have

Depending on your preceptor, your prescriptions may vary from 1-4 lines, but the bottom line is ensure that it is clear and legible to avoid any medication errors.

Example 1: Simple analgesic for short term pain relief

Acetaminophen 1 (One) gram
po TID PRN
30 tabs

Example 2: morphine as written in the chart for a patient in the ER

Morphine 5mg
IV q15 minutes
up to three times for pain

- o Note the difference here: we wrote “for pain” at the end. In the ER and the Inpatient setting, sometimes you cannot communicate to others in the future why you are writing what you are writing, so be clear. Here’s another example:

Dimenhydrinate 25-50mg
PO or IM q4-6h PRN for nausea

Example 3: antibiotic drops for AOM with perforation

Ciprodex drops
Both ears, 4 (four) drops BID
for 7 days

Example 4: Stimulant for ADHD

Biphentin 20mg

po qAM

90 tabs - dispense 30 tabs every 29 days

No substitutions

- Note the differences here: “no substitutions” is added when a brand name product is demonstrated to be more efficacious for a patient; it prevents the pharmacy from dispensing the generic form as a substitution. With certain controlled substances, like amphetamines, there are limitations on the number of total tabs that can be dispensed and the time; make sure to identify total number of tabs AND how many tabs can be dispensed at a particular interval.

When possible, especially for inpatients or patients in the ER, give a range of dosing and timing to allow the nurses some flexibility and judgement into provision of meds. If you're too rigid, you may be getting a page in the middle of the night for something as simple as nausea control that could have been avoided.

For patients being admitted, they often have a litany of new or PRN medications being added. Is the lorazepam for sleep, agitation, or anxiety? Is the Acetaminophen for pain or fever? The clearer you are, the more appropriate the symptom management is.

You can also put stipulations on medications for certain clinical situations. For example, if prescribing a beta-blocker, you can add “**hold if HR less than 60**” to prevent adverse outcomes.

Some tips for prescription writing:

- Always write the patient name, address, and DATE on the prescription first.
- Make sure you sign the prescription, even if you are a medical student - this helps the pharmacy identify differences in calligraphy between students and the signing physicians to know that it is not a forgery.
- Always number your prescriptions, and write the total number IN LETTERS at the bottom next to your signature and circle this number.
 - If you are prescribing Naproxen, Acetaminophen, and Tramadol, label each with a (1), (2), and (3), then after completing the prescription, write (three) next to your name.
 - This may seem redundant and unorthodox, but it ensures that a sneaky patient can't write in a fourth prescription.
- Following the previous comment, eliminate any blank space in the prescription pad. A strikethrough is a quick way to prevent someone from adding an extra prescription to the list.
- For controlled substances, patient's health care number and your preceptor's CPSO number need to be on the prescription.

Dictations

How to Dictate

- At the beginning of your dictation, always include very descriptive and clear identifying data to ensure that there is no confusion about who you are dictating on, for, and who you are. I.e. - “Hi this is x-----x medical student year X dictating an admission history and physical for Dr. x-----x of the x-----x department on patient x-----x (then spell the name). Date of birth (patient’s) x--- ----x, hospital number x-----x. Begin dictation” Make sure to copy relevant physicians on your note.
- Dictating requires you to punctuate as you go in order to allow the dictatypist to understand how to format the document. At the end of a sentence, state “period” and state “comma” as you need to. Stating, “new heading” will begin a new segment of the dictation (for example - “new heading physical exam”). You can then state “new paragraph” or “new line” as you go through to subdivide your segments into relevant sections). Handy tip is to take a picture of the dictation card, so you have these numbers on you at all time.
- Try to get your dictations done in a timely fashion, as on busier services they can easily pile up! Also, if your patient ends up coming back to ER, your discharge summary may be all the physician has for past medical history.

Consultations


- Reason for consultation
- Identifying information
- History of Presenting illness
- Past Medical History
- Medications in Community
- Allergies
- Social and Personal History
- Physical Exam
- Investigations/Laboratory
- Impression and Plan
- Thank you remark and professional courtesy

Discharge Summaries

These summaries are quite SUCCINCT and outline only the pertinent course in hospital. Do not include elements of the HPI or past history, as this information is readily available in admission notes. The most important part of this note is to communicate what was done in hospital and what the plan is for discharge (mainly for primary care physicians or specialists should the patients rebound back to hospital). Ensure you copy pertinent physicians including their GP on the discharge summary.

- Admission Date
- Discharge Date
- Most Responsible Diagnosis
- Comorbid Conditions (these are conditions that were concomitantly treated and contributed to length of stay).
- Course in Hospital
- Medications on discharge
- Impression and Plan

Dictation Card (HSN)

Work Types -- Inpatient Charts	 <p>Health Sciences North Horizon Santé-Nord</p> <p>Health Information Services Department</p> <p>705-523-7100 ext 8096</p> <p><i>Author's Guide & Dictating Instructions</i></p>
<ol style="list-style-type: none"> 1. Preadmission History 2. History & Physical 3. OR Report 4. Inpatient Progress Note 5. Consultation Note 6. Discharge Summary 7. ACU/Clinic Note 9. Priority/Stat 10. ED Physician Report 11. EEG 12. Critical Care Program 14. Executive Secretary, Medical Affairs 16. Emergency and Medical Program 17. Sleep Disorders Clinic 18. Pulmonary Function Report 19. Surgical Program 	
Work Types --Northeast Cancer Centre	
<ol style="list-style-type: none"> 50. Letters 51. Consultation Note 52. Admission History & Physical 53. Treatment Note 54. Progress Note 55. Peripheral Clinics 60. Nutritional Consultation 61. Physiotherapy Consultation 62. Psychosocial Assessment 	
Work Types – Mental Health	
<ol style="list-style-type: none"> 301. Inpatient Priority 302. Outpatient Priority 303. Inpatient Regular 304. Outpatient Regular 306. Discharge Summary 308. Outpatient Legal Report 	

Author's Dictating Guide	Dictating Instructions
<p>Direct line to dictating system (external) (705) 523-7076</p> <p>In-house dictation Extension 8000</p> <p>To ensure that you receive your dictation in a timely & accurate manner, please remember to:</p> <ul style="list-style-type: none"> • Identify yourself and spell your name clearly • Specify your training level and specialty (i.e.: MS 3, 4 or PGY 1, 2, 3, etc.) • Name the preceptor with whom you are including the specialty • Provide the patient's name, chart # and date seen • Provide the type of report – see back of card for appropriate work types 	<ul style="list-style-type: none"> • Dial telephone number or extension • Enter used ID # • Locum physicians, use <u> 436</u> • NECC locum physicians, use 1095 (Neurology locum physicians are assigned an individual number) • Enter work type # • Enter chart # • Begin dictating <ol style="list-style-type: none"> 1. Stop 2. Record 3. Incremental Rewind/Play 5. Insert 6. Forward *6 Skip to end 7. Rewind to beginning # To dictate next job *# Hang up <p style="text-align: right;">April 2012</p>

General Elective Advice

General Elective/CaRMS Advice

This general elective advice section serves to provide you with the info and advice with setting up, preparation, elective experience and aftermath. Please note that the elective specific sections, which follows, is written for persons interested in applying for those specialties for CaRMS. Therefore, it is a little more in-depth to help students be successful and to stand out during their elective blocks.

The best piece of advice for applying to electives is to **PLAN EARLY!** Electives are on a first come first serve basis, therefore meeting the earliest deadline for elective applications definitely works in your favour.

Before Applying for Electives

Each medical school will require various degrees of documents and forms for your electives application. Therefore, make sure to read up on what required documents are needed for your specific schools you're applying to. Here's a short list of items to complete early on and keep record of:

- Immunizations (varies between schools) but make sure to get a yearly TB and influenza
- Criminal record check
- N95 Fit Mask
- Basic Cardiac Life Support certification
- Passport size photo
- Photocopies of passport/student card
- Letter of good standing/university form signed by your school.

Keep a copy of all these documents on your computer for easy access. I can't stress enough to get these items done early even before you're thinking of applying for electives! Some tests such as immunizations serology or criminal record check can take weeks to come in.

There is also a centralized process in the works for elective applications similar to OMSAS and CaRMS. Since this is not yet implemented, we have included advice in this document that pertains to the system as it is now in 2014. As this system evolves and changes in the future, make sure to update your understanding of the elective application process and ignore the antiquated info within this document.

Applying for Electives

As stated above, please apply early as it is first come first serve basis! Some deadlines can be up to 9 months before the elective, so making a excel spreadsheet to keep track of deadlines, school, dates, elective type, and elective requirements can very helpful. Some electives are limited on availability depending on the month so confirm this through the school's elective catalogue. Make sure you plan out electives to cover 2 different CaRMS categories. You can also get special permission to do a 2-week elective in between end of CCC and your 3rd year OSCE. Two-week electives are more than enough to create a great impression and to get a reference letter from a school. Plus, this allows you to visit more schools.

Elective time is limited to set a number of weeks; therefore a general rule is to only apply to schools you would like to attend for residency. When thinking about your strategy for the future, **LOOK AT THE**

PROGRAM DESCRIPTIONS ON THE CaRMS WEBSITE! Some programs may have requirements to do an elective in that specialty, some may only require an elective at the school itself in any field, and some may have no requirement at all. If you are planning on applying coast to coast, a general strategy is to do at least one elective out west at any school and one elective out east at any school. Unofficially, schools see this as a sign of dedication and willingness to move outside your province. It can sometimes be hard to justify why you want to go to BC in an interview if you've never gone west of Thunder Bay.

Please read the specialty specific section for complementary electives to apply for if you have a particular interest. If you have a preceptor in mind, feel free to include their name in your application. It can be advantageous to work with program directors, as they will have more influence when CaRMS time comes around. Also, pre-CaRMS electives tend to reflect more value than elective blocks after CaRMS applications close, so think about this when applying for streams.

Don't be afraid to contact school elective coordinators multiple times (phone works best) if your elective block is nearing and you haven't heard back. Sometimes you have to be a little persistent. Also, it has happened where electives get denied due to availability reasons. Therefore, depending on your specialty, persons have double booked elective times slots in the past. Unfortunately, there may rare occurrences wherein you get denied for multiple electives during the same time slot. Make sure to contact the NOSM electives coordinator early on as they usually can facilitate an elective on short-term notice.

Before your Elective

Hopefully, the elective application process went smoothly and the majority of electives you applied for are confirmed. A common mistake is forgetting there are still more administrative tasks to take care before you show up on your first day of elective. Make sure to read all details/attachments in your confirmation email for your elective well before the first day. There are usually various tasks depending on the school to complete up to a month before your elective for access to EMR, scrubs, online training modules (WHMIS yet again, yay!), copy of CV/rotation, and reporting details for the first day. Also, make sure to brush up on some of the topics for your elective through the other sections of this guide.

Other things to organize are accommodations and travel. Most schools have online accommodations websites to search through which are usually much cheaper than staying at hotels or school residences. Keep in mind that parking at hospitals and public transportation can add up quickly, so if possible try to get a place within walking distance to your placement. There is also a Clerkship Travel Program Grant to apply for through Health Force Ontario (be sure that the hospital you are going to qualifies for this grant). This grant can only be used at an academic center and you must also stay in a hotel for the funding to be reimbursed.

First Day of Elective

First day! Hopefully by this point you have a time and place for where to go for your first day. Also, that you have read up on some topics relating to your elective through this guide. For most electives, the first day can be quite chaotic in a new hospital. Usually, there will be a wait at the electives coordinator office as a whole new set of electives students will be starting with same day as you. Try to show up a little early to beat the rush. You'll most likely spend a part of the morning getting some tasks done. Here's a list of things to inquire about before you find your team (not all of these may apply to you): ID Card, EMR access/training, scrubs, pagers, locker, parking passes, and dictation codes. Also, there are some keys areas in the hospital to become familiar with for your electives. Other than your specific patient wards, become familiar with your preceptors office location, where to get food in hospital, on-call rooms, security (for card issues and on call access), emergency department, and other specialty related areas (i.e. OR for surgery).

During your Elective

The majority of you will embark on electives with the goal of applying competitively to this school for residency and hopefully getting a reference letter from your elective experience. For elective specific advice, please see the appropriate section of this guide. Here is a list of a few things that can help you to achieve this goal on your elective (may not apply to all specialties):

- **Be a team player!** - Even though your clinical skills and knowledge is definitely a plus, most staff/resident teams are really looking for someone they can see themselves working with. Therefore, being easy to go along with, approachable, and helping out the team in all aspects goes a long way. This may sound intuitive, but you'd be surprised how many medical students miss the boat with this one. We get told over and over that this is one of the most important aspects programs look for in candidates. Always try to lighten the workload of your junior/senior residents and take initiative to volunteer helping out with paperwork, running consults, discharge summaries, updating lists etc. If unsure, just ask your residents how you can help out the team.
- **Know your patients well!** - This goes a long way as often residents/staff are always asking what the most recent blood work of a certain patient shows, results of important imaging, or if certain consulting services have seen the patient yet. Therefore, it can look quite positively if you're constantly up to date with your patient's status and able to keep your team informed promptly.
- **Talk to residents** - Who better to ask all your CaRMS and program related questions to than someone who successfully completed this process. The residents are handy in not only giving you an idea of what the program is like, but they will also let you know who the influential preceptors are to work with if you are interested in this program. Also, make sure you're clear to them of your intentions for CaRMS if this school and specialty is something you're applying for. Don't be afraid to ask for feedback early in your elective regarding your expectations as an elective medical student.
- **Take call shifts** - Try to take a few call shifts during your elective, even if this is not an elective requirement. Depending on the size of the team/hospital, you may find your responsibilities during the day are limited, especially with the early clinical experiences you've had at NOSM. On call is a great time to get more face time with your staff, have more responsibilities and acquire more hands-on skills. Preceptors/residents definitely notice the time and work that you put into your

elective and even staying late a few days will reflect positively on you. This may also give you a better idea of the specialty lifestyle.

- **Ask for reference letters** - Most of these physicians are use to writing letters and most of them expect elective students to ask for these. Make sure to ask if the preceptor is able to write a **strong** reference letter for you. Generally try to pick someone you've worked the most with or someone who is influential within the residency program. Staff will ask the residents about your performance and feedback for your letter, so don't worry too much if you primarily worked with residents. Make sure to get their contact information (i.e. email address) before you leave the elective. It's important to clarify what you would like them to include in their letter as well as who the letter will be intended for. If you are doing an elective in ENT but applying for family medicine, ask them to write you a strong family medicine reference. Some may even write two letters if you are applying for multiple specialties, but you have to make this clear!
- **Arrange a meeting with the program director** - Try to contact the program director or their assistant early in your elective to arrange this meeting. It shows initiative on your part and hopefully they will remember you when you come around for CaRMS interviews. Even though some will give you a synopsis of the program, be prepared and have questions for them. Certain general questions to ask during this meeting: aspects that are unique to this program, where do most of your graduates end up (fellowships, enter workforce etc.), availability of elective time to explore further interests (locally, nationally, internationally if interested), research opportunities, fellowship programs, what characteristics are they looking for in potential candidates. There are also many specialty specific questions you can ask during this meeting.
- **Evaluation** - Make sure to have a sit down discussion with your preceptor regarding your evaluation and remind them about the online form they have to fill out for you. This is a great time to reinforce your intentions for CaRMS and interest in their program.
- **Have fun!** - This is probably one of the most exciting times of medical school. You get to travel across the country, explore different cities, meet new people, and check out potential future practice locations. So make sure you spend some time exploring the area and checking out the local sites. The hospital is only part of your life as a resident, so make sure the city and surrounding area can provide with you all the other things you love in life!

After your Elective

Once your elective is complete, your main task is following up on your reference letters. When contacting your referees for letters, make sure to include your rotation dates, current CV, list of residents (or potentially staff) you've worked with, evaluation comments from that elective, and a photo if it's been awhile since your elective. Sometimes, you may have to send reminder emails to these physicians as they are quite busy. Last thing is to follow these up after CaRMS match to send a thank you card or email.

CaRMS Application Preparation

CV: Starting to think about this early may help eliminate some later stresses. By the end of CCC, it would be ideal to have a complete, updated CV ready to go for 4th year electives. More than often during electives, preceptors who agree to write you a reference letter will ask for your CV. You want to make sure it is something you are proud to give out to preceptors. This includes it being formatted in an appealing fashion, which is easy to read and follow. Ask friends or family members to look over your CV to get feedback ahead of time. You can even send it to NOSM Learner Affairs who will gladly review it for you. This way, you can save yourself the stress of scrambling during your elective to finalize your CV. When it comes time fill out CaRMS applications, you will be required to input the information from your CV into the CaRMS portal under specific subcategories. This can be tedious, but having a complete CV will save you time. Some schools may also require you to attach your CV to the application.

Personal statement letters: This is your chance to convince the program/school that they should accept you. It is useful to keep a journal of various clinical encounters you had throughout medical school. Write down significant moments during ICE placements/CCC/electives where you learned something about yourself, was challenged ethically, dealt with a difficult patient etc. All of these experiences can help you when you are writing your personal letters and while preparing for residency interviews. When you are ready to write your personal letter, be sure to check each program's description and school requirements for the personal statement letter. Once you have a draft complete, send it to friends and family to review. This doesn't necessarily have to be people in medicine. Having reviewers from a variety of different backgrounds can give you new ideas that you may never have even thought of! Be aware of your 4th year schedule prior to CaRMS application deadline (mid-Nov). Leaving your letters to write during electives in early fall can be stressful, as you may be surprised how busy and mentally exhausting electives can be.

Notarizing legal documents/transcripts: Get this done in the early fall. Be aware that you will need to get legal proof of identification (ie. passport, birth certificate) notarized to upload onto CaRMS portal. NOSM does provide a notary, free of charge, so touch base with them early to set up a date/time to get your documents signed. You'll also have to order your NOSM transcript through Laurentian WebAdvisor to be sent directly to CaRMS. Some programs may require your undergraduate transcript as well and if so you'll have to order it directly from that institution and have it sent to CaRMS (or you can upload it yourself). Your medical student performance record (MSPR) will be sent to you sometime in the fall to review, and then NOSM will send it directly to CaRMS for you.

Core Rotations

Women's Health

Site description:

OB/GYN in Sudbury is based out of the Labour and Delivery floor (3 floor centre tower) as well as the OR suite and the various offices of the OB/GYNs in the community. Academic teaching sessions are at the 65 Larch St. Medical Building.

Summary of Experiences:

During this rotation you will have the opportunity to spend two weeks on the Labour and Delivery floor on the day-to-day basis. You will also rotate through one week of operating room time and one week of in-office clinics.

Labour and Delivery Floor

You will have a two-week block in which you are scheduled for 8-5 on the L&D floor. This starts with seeing any patients you delivered as post-partum follow ups in the morning, checking for the planned C-sections and active labours that day, any antepartum patients, as well as any inductions of labour scheduled for the day. Your post-partum charting should include a few unique items including fundal tone and position, lochia, breastfeeding, and mood. Leave your pager number on the whiteboard every morning. There are scrubs at the change rooms on the OB floor.

Typically there are two students on the two-week rotation together, although frequently someone is post-call and you will be alone on the floor. Between the students you can divide up the labouring patients and C-sections and round to meet the patients. Then you spend the day following your patients through. Keep tabs on the OB on call, they will be going to meet the patients and sometimes do procedures like rupturing membranes or inserting a cervical ripening agent as they round in the morning.

Throughout the day it is prudent to check up on your patients every 1-2 hours to ask the nurse about their progress and check in with any concerns they may have. There also may be outpatients to see throughout the day or emergency consults.

For C-sections you should check in with the OB who will be doing it and ask if you can scrub, and in what role. For the most part, you will be able to scrub in as first assist for C-sections. There are often multiple learners and residents on rotation, so it's courteous to alternate and offer everyone the chance to scrub. There is a whiteboard in the OR, which is right on the L&D floor to write your name and glove size. Outside the OR are rubber boots near the scrub sink, which you can wear them to keep your shoes clean.

Call

When you are on call it goes from 5pm to 8am, weekdays and weekends is 8am-8am. You can get your call room key from security at the main entrance. The call room is on the 5 floor North Tower. A good suggestion is to put your call room phone number on the whiteboard along with your pager number, sometimes pager coverage can be spotty.

Usually on call you can stick around the floor until bedtime (although you are free to go for a walk around, get coffee, or find somewhere else to spend your time). If it's busy you spend the day doing consults and seeing patients in the EPAC (ambulatory care), following labouring patients and C-sections.

Office

You will be required to set up your own office days, by calling the offices of the OB/GYNs listed in the rotation manual you get at the start of the rotation. Typically each office is a combination of OB patients and gynaecology consults. It can be difficult to organize these clinic days, so recommendation is to set this up as early as you can.

OR

The ORs run daily for OB/GYN in OR 8 and 9. You can show up to the OR, write your name on the board and meet the OB/GYN there. You are expected to spend the day with them, scrub on the cases and there is teaching throughout the day. You are expected to round on the patients in the post-operative period throughout your OR week. Make sure to check the OR list the previous day to see what surgeries will be happening. Try to review these cases, and introduce yourself to the patients prior to entering the OR.

Scrubs can be obtained from the change room on the OB floor for your OR days, and you can leave your things in this change room as well.

ELECTIVE INFORMATION

What electives to apply for

Many residency programs are looking for diversity. General electives in Obstetrics and/or Gynaecology are highly recommended. Other options include:

- High Risk Obstetrics (may be called MFM or perinatology)
- Rural/Family Obstetrics
- Reproductive Endocrinology & Infertility
- Gynaecologic Oncology
- Uro-gynaecology
- Pediatric and/or Adolescent Gynaecology
- Sexual Health
- Paediatrics
- Neonatology
- Anaesthesia (experience with epidurals)
- Radiology (especially Ultrasonography)
- Family Medicine
- Genetics

Specifics of Specialty:

Gynaecology Clinic

- Know the most common conditions seen in a Gyne Clinic including (abnormal uterine bleeding, postmenopausal bleeding, pelvic pain, genital infections, IUD insertions, pap smears, endometrial biopsies)
- Be comfortable with performing pap smears

- Be keen and ask your preceptor to assist you in performing endometrial biopsies
- Understand cervical cancer screening guidelines and how to manage abnormal pap smear results
- Know the fertility workup investigations for both male and female patients

Pre-Natal Clinic

- Understand important investigations that needs to be done at appropriate gestational ages
- Learn about prenatal investigations including routine bloodwork, infectious diseases, eFTS, tests for Alloimmunization, and adjusted levels for BG and TSH
- Have a general understanding of important counselling topics (nutrition, exercise, sexual activity, substance use, immunization, safe medications in pregnancy)
- Know common complaints and be able to differentiate benign vs pathological (PUP, pedal edema, abdominal pains, nausea)
- Be prepared to discuss pre-conception counselling

Labour & Delivery

- Know the general concepts of triaging patients with appropriate evaluation for admission or discharge; recognize problems that would require additional medical attention (such as post-dates, decreased AFI, gestational HTN, GDM, or TOLAC counselling)
- Evaluation and management of preterm contractions, preterm labour, and PPRM
- Women in labour should have an up-to-date CBC and Group Type & Screen
- Know how to read and interpret non-stress tests (fetal monitoring)
- Know reasons for inducing labour
- Progress notes should be written:
 - o Latent Phase (minimum every 4 hours)
 - o Active Phase (minimum every 2 hours)

Operating Room

- Practice hand ties and basic sutures should you get the opportunity to show off your skills in the OR
- Know how to write a basic Operative Note. Tip: the EBL in a normal delivery is 300mL, and in a C/S that jumps to 700mL.
- Spend some time with the anaesthesiologists prior to caesarean sections; you may get the opportunity to work on your epidural skills

Consults

- Know how to take an appropriate gynaecologic/obstetrical history (GTPAL). Include this in your usual history/physical notes. This should include a menstrual history, an obstetrics history, sexual health, and urinary symptoms as appropriate for the presentation. If a pregnant patient, elicit the course of that pregnancy.
- Ensure that you take note of most recent investigations (such as hormone tests, pelvic or abdominal U/S, hystero-salpingograms)

Common Conditions

Gynecological topics:

- Abnormal uterine bleeding in premenopausal vs. post-menopausal
- Heavy menstrual bleeding
- Vaginal discharge and/or odour, vulvar pruritus

- PCOS
- Dyspareunia and/or Pelvic Pain (endometriosis, adenomyosis, fibroids)
- Contraceptive options
- Uro-gynaecological concerns: prolapses, types of incontinence
- Endometrial hyperplasia

In obstetrics, it is helpful to think of conditions in one of two ways:

- 1) By trimester (certain complaints are more relevant)
 - First trimester: bleeding, SA, ectopics, recurrent losses
 - Second trimester: PPRM, preterm labour, incompetent cervix
 - Third trimester: bleeding, early labour
 - Post-partum: PPH, PPD, breast-feeding difficulties
- 2) By source of the problem: maternal, fetal, or placenta
 - Maternal: Types of hypertensive disorders, GDM, Anemia
 - Fetal: Dystocia, IUGR, chromosomal abnormalities, alloimmunization
 - Placenta: Chorioamnionitis, umbilical cord prolapse

It will also be helpful to learn the essentials of normal newborn care and how to manage common problems, although you are not generally responsible for rounding on the neonates after delivery.

- Jaundice
- Hypoglycaemia
- Sepsis
- Transient tachypnea of the newborn
- Meconium aspiration

Procedures to Know

Be comfortable *performing*:

- Pap smears
- Bimanual exams
- Endometrial biopsies
- Pelvic exams for obstetrical patients
- Delivering a baby
- AROM
- Shoulder dystocia management
- Bimanual uterine compression
- Uterine massage
- Cord gas sampling
- Neonatal physical exam
- IUD insertion and removal
- Suturing tears/lacerations/episiotomies
- Pessary insertion and/or removal

Be knowledgeable *observing/participating*:

- Colposcopy and associated management (ie. Cryotherapy, LEEP)
- Fetal scalp monitoring and blood sampling
- Genital tract biopsies
- Vacuum aspiration

- Dilatation & curettage (D&C), polypectomy
- Hysteroscopy
- Endometrial ablation & biopsy
- Hysterectomy (abdominal, vaginal, laparoscopic)
- Tubal ligation or salpingectomy
- Operative obstetrics (vacuum, forceps)
- Caesarean deliveries
- Bartholin cyst I&D
- Urethropexy (TVTO or urethral suspension)

Common Medications

Note: Helpful to learn what is not safe in pregnancy

Acyclovir

- Antiviral for treatment and management of genital herpes

Betamethasone valerate - Celestone

- Enhancement of fetal pulmonary maturity for preterm labour

Canesten

- Antifungal for treatment of vaginal yeast infections

Carboprost

- Hemabate; treatment of uterine atony/PPH

Cyklokapron/Tranexamic Acid

- Anti-fibrinolytic used to treat menorrhagia, may be used in PPH management

Diflucan

- Antifungal used to treat vaginal yeast infections

Dinoprostone

- Cervidil; induction of labour

Ergotamine

- Treatment of uterine atony/PPH

Flagyl

- Bactericidal antibiotic used to treat bacterial vaginosis, trichomonas, and vaginitis

Folic Acid

- Prevention of open neural tube defects

Lupron

- GnRH analog used in treatment of endometriosis, leiomyoma, DUB

Methotrexate

- For ectopic pregnancy or medical abortion. The dosage for this is dependent on square meter of body surface area (use a calculator).

Oxytocin

- Pitocin; augmentation of labour, uterine tone after delivery and in PPH

Penicillin G

- GBS prophylaxis

PGE2

- Prostin gel; induction of labour

Criteria

Stages of Labour and appropriate lengths; cardinal movement of baby

APGAR score
FHR monitoring with Non-stress test
Bishop Score
Degrees of vaginal laceration
Cervical Cancer Screening
Risk of Malignancy Index of Ovarian Tumours
Integrated Prenatal screening/Maternal serum screening- interpretation of results
Understand levels of beta-HCG

Resources

SOGC Clinical Practice Guidelines. For topics not available, check ACOG.

Textbooks

- Beckmann's Obstetrics and Gynaecology textbook
- Williams' Obstetrics
- Williams' Gynaecology

Pocket Books

- Gynaecology and Obstetrics Guidelines - New Treatment Guidelines
- John Hopkins Manual for Gynaecology and Obstetrics
- Obstetrics, Gynaecology and Infertility: Handbook for Clinicians; Pocket Edition
- Comprehensive Handbook Obstetrics and Gynecology ("The Red Book")
- Essential Management of Obstetric Emergencies
- Mosby's Pocket Guide to Fetal Monitoring
- SOGC: Health Beginnings

Apps:

- LactMed! – Quick library of drugs that are safe in lactation
- OMama – Website/app developed by BORN Ontario and eHealth Ontario
- STD Tx Guide – a CDC app for quick reference on STD treatments
- ACOG – will provide OB updates but also has useful calculators for ob/gyne
- MenoPro – still a basic app, it is a decision making tool to help determine appropriate candidates for pharmacological management of menopausal sx
- Cancer Care Ontario App for Cervical Cancer

ALARM Course Material

- Available on SOGC website and/or with the ALARM course

Neonatal Exam:

<http://learnpaediatrics.com/videos/newborn-exam/>
<http://learnpaediatrics.com/body-systems/neonate/>

Infertility Workup:

<https://www.mountsinai.on.ca/care/fertility/for-physicians/Infertility-Algorithm.PDF>

Site Description:

Welcome to the exciting world of paediatrics in Sudbury! This rotation is divided into two parts – two weeks will be spent doing outpatient/community paediatrics and the other two weeks will be spent doing inpatient paediatric care. Your time in paediatrics will take place in a variety of locations. Below is a list of locations that will help to orient you to your rotation:

- *North Eastern Ontario Health Centre for Kids (NEO Kids)* –located across from the south tower at HSN.
 - o Site of: Pediatric Offices
- *Paediatric Floor* – Health Sciences North – 3rd. Floor South Tower.
 - o Site of: Inpatient Care
- *Neonatal Intensive Care Unit* – Health Sciences North – 3rd. Floor South Tower
- *Paediatric Outpatient Clinic* – Health Sciences North – 1st. Floor South Tower across from Parking Services
 - o Site of: Healthy Weights, Botox, and PARE Clinics
- *Children's Treatment Centre*- Health Sciences North- Located adjacent to the NEO Kids office building.
 - o Site of: Neonatal Follow-Up Clinics.
- *Sudbury Outpatient Centre- Resource Centre* – 2nd Floor— 865 Regent Street South
 - o Site of: Type 1 Diabetes Clinic
- *Child & Community Resources*- 662 Falconbridge Road
 - o Site of: ADOS Testing Clinic

Summary of Experiences:

As mentioned above, your time in this rotation will be spent divided between inpatient and outpatient paediatric care. You will also have the opportunity to participate in a number of specialty clinics, including Type 1 Diabetes, ADOS (Autism Diagnostic Observation Schedule) Assessments, Botox, and PARE (Pediatric Abuse Referral and Evaluation) clinics. In addition, you will be allowed to spend half of a day in the NICU.

Community Paediatrics

During your two weeks in outpatient/community paediatrics, you will be assigned to a variety of paediatricians. You will be expected verify the start time with their secretaries and meet them at their offices no later than 15 minutes prior to that time. Throughout the day you will see a mixture of new consults and follow-up appointments. Your approach to each patient will differ depending on the type of visit:

- **Consults:** Take a full pediatric history—they want to know EVERYTHING. This includes your regular history, in addition to the birth history, childhood illnesses, and developmental milestones. You will be asked to dictate your notes, so the more detail the better!
- **Follow-Ups:** Read through the chart prior to seeing the patient. Take a FOCUSED history and perform only necessary aspects of the physical exam. Depending on the physician, you may be asked to dictate these as well.

- Pro Tip: You can look at previous follow-up notes to give yourself a template for your dictations.
- ALL physical examinations require height, weight, and head circumference (if <2years). You should plot these on their respective growth charts and know which percentiles they are trending at prior to speaking with your preceptor—DON'T FORGET!

Inpatient Paediatrics

When you are in the hospital for inpatient paediatrics, your day starts around 0730-0800 hrs. You are expected to arrive on the floor, ask the ward clerk for the list of patients and divide them amongst yourselves (including a resident at times). Next, you should review your patients chart and get acquainted with their history if they are unknown to you. This also provides an opportunity to review the results of any outstanding investigations. Prior to seeing your patients, it is a good idea to track down their nurse to see if anything pertinent happened over night. You can then go and visit your patients and perform any physical exams that you deem necessary. At around 1000 hrs, you will round on your patients with a family-centred approach. This will include, the patient, their family members, any allied health professionals (i.e. dietician, social worker), and the medical staff, including their nurse, medical students, residents, and the staff physician. When the team arrives to your patient's room, you will be expected to give a brief summary, including a one liner on the patient's identification and reason for admission, and list of current issues. (**Pro Tip:** Pre-write your notes so that you have this information organized and accessible during rounds. In addition, the afternoons can sometimes be hectic with consults, so having this done in the morning will make your afternoons more manageable). Once you have listed the issues, you should suggest a plan. After a discussion with all members of the team, the staff physician will decide on a course of action. If there is time between patients, you should try to finish your note to include what was discussed. If the patient is being discharged, it will be your responsibility to ensure all the follow up appointments are made, their medication prescriptions are written and a discharge summary has to be dictated.

In the afternoon, there are often scheduled consults to be seen on the Paediatric Floor. Ask your ward clerk for the schedule, and divide the consults up between medical learners. These patients will require a full paediatric history and physical examination. You will be responsible for dictating either a consultation or admission note on these patients on a case-by-case basis.

Finally, you may also be asked to see consultations in the Emergency Department—either during the day while you are on the Paediatrics Floor or at night when you are on call. If this occurs, you will report to the ED and ask the ward clerk where your patient is located (if you were not given a bed number). The patient in the ED will require a full paediatric history and physical examination. Once you have completed this, come up with a differential diagnosis and plan prior to reviewing with your resident or staff paediatrician. If you feel that the patient will need admission, begin writing orders while you are waiting to review. **IMPORTANT:** If you are ever worried or concerned about the patient while you are assessing them, do not hesitate to call your staff immediately! You will be required to dictate either a consult note or admission history and physical depending on the patient's diagnosis.

Specialty Clinics

There are a wide range of paediatric specialty clinics in Sudbury. These often include a multidisciplinary approach to specific paediatric conditions. As such, you will be part of a team, which might include social work, occupational therapy, physiotherapy, dietetics, and the attending paediatrician. The clinics students most commonly attend are:

- *Type I Diabetes Clinic* – for children who are managing with Type I Diabetes.
- *Healthy Weights Clinic* – for children who are obese.

- *Neonatal Follow Up Clinic* – for children born premature or for those with complex health issues.
- *Botox Clinic* – for children who have Cerebral Palsy.
- *ADOS Testing* – for children who are undergoing testing for Autism Spectrum Disorder.

On-Call

Throughout your core rotation, you will be required to participate in call shifts. You will usually be on call with a resident, but at times you will be placed directly with a staff paediatrician. Call shifts are usually 1 in 4, and you will be required to work two weekends throughout your rotation. Your on-call hours will be as follows:

- *Monday* – Friday – 1700-0000 hrs
- *Saturday* – 0800-0800 hrs (24 hour call)
- *Sunday* – 0800-0000 hrs

As mentioned previously, you are responsible for two weekend calls: 1) Friday night and during the day and evening on Sunday and 2) 24 hours on Saturday. Call for paediatrics is taken from home, therefore, you are able to leave the hospital (if you live within 20 minutes) when there are no pending consults. Your responsibilities on Saturday and Sunday are the same as a normal weekday in that you are to round on the patients on the floor, come up with a plan of management for each, and write detailed notes. There are no on-floor consultations, but you may or may not be asked to consult in the ED.

Neonatal Intensive Care Experience

During your paediatrics core rotation, you will be scheduled to spend a half-day in the Neonatal Intensive Care Unit. While there, you are to perform a physical examination on two neonates, which are selected for you by the nursing staff. You are also expected to complete an assignment while on the unit. (**Pro Tip:** Do NOT complete this in advance, as the rule in the NICU is not to wake a sleeping baby. If your babies are sleeping when you arrive, you will be sitting around bored if you have completed it ahead of time. In addition, the answers to your assignment are on the back of an order set in the unit. Ask the nurses, they will help you out!). When you arrive for your scheduled half day, introduce yourself to the nurses and explain your learning objectives. **IMPORTANT:** BE SURE TO CHECK IN WITH THE NURSE before handling any patients. The NICU nurses can be very protective of their patients so be respectful of them and always ask permission!

Electives Information

If you're interested in a career in paediatrics, you should be trying to plan some electives in that discipline. It's hard to pinpoint exactly which electives will help you to succeed in matching to paediatrics, however, it is recommended that you spend some time in a variety of disciplines.

It is also important to keep in mind there are some areas of paediatrics where you will be working much more closely with staff paediatricians than others. For instance, if you decide to do an elective at a large teaching centre (i.e. The Hospital for Sick Children), you may not work directly with your staff paediatrician. You might get more one-on-one time if you choose to do an elective at a smaller site, or in a subspecialty such as paediatric endocrinology.

It is also a good idea to spread your electives out across the country. This will help you to learn about the differences between programs and where you best fit in. It is always recommended that you attend

electives at your program of choice. This helps to show interest and will allow you to meet directly with the Program Director. This is great for networking and will help you to get your foot in the door.

A list of common paediatric electives is outlined below:

- General Ward Paediatrics
- Community Paediatrics
- Paediatric Surgery
- Paediatric Endocrinology
- Paediatric Cardiology
- Paediatric Psychology
- Adolescent Medicine
- Neonatology (NICU)
- Paediatric Emergency Medicine

Common Conditions

Try to develop an approach to the assessment, investigation, diagnosis, and management of some of the more common paediatric health problems:

- Asthma/Reactive Airway Disease
- Attention Deficit/Hyperactivity Disorder
- Common Surgical Conditions
 - o Pyloric Stenosis
 - o Intussusception
 - o Inguinal Hernia
- Common Childhood Malignancies
 - o Leukemia
 - o Lymphoma
 - o Neuroblastoma
 - o Wilm's tumour
- Constipation
- Cystic Fibrosis
- Diabetes Mellitus (Type I and II)
- Febrile Seizures
- Gastroesophageal Reflux Disease (GERD)
- Genetic Syndromes
 - o Trisomy 21
 - o Trisomy 18
 - o Trisomy 13
 - o Fragile X
 - o Klinefelter Syndrome
 - o Turner Syndrome
 - o Noonan Syndrome
 - o DiGeorge Syndrome
 - o Prader-Wili Syndrome
- Hyperbilirubinemia
- Infections
 - o Acute Otitis Media
 - o Croup
 - o Bronchiolitis

- Pneumonia
- Gastroenteritis
- Urinary Tract Infections
- Sepsis
- Meningitis

Common Medications

- Acetaminophen, Ibuprofen
- Antibiotics – Penicillins, Cephalosporins, Macrolides, Clavulin, Gentamycin
- Salbutamol
- Racemic Epinephrine
- Prednisone, Dexamethasone
- Flovent
- PEG3350
- ADHD Medication – Stimulants (i.e. Methylphenidate, Dextroamphetamine)
- Seizure Medication – Benzodiazepines, Phenobarbital, Phenytoin

Procedures

- Lumbar puncture
- Bag-valve mask ventilation
- Endotracheal intubation
- Nasogastric tube placement
- ABGs
- Bladder catheterization
- Suprapubic aspiration

Essential Resources

Textbooks

- Nelson Textbook of Paediatrics – 19. Edition (Kleigman, Robert)
- Pocket Paediatrics – Published by The Mass General Hospital for Children
- Paediatric Secrets – 5. Ed (Elsevier Health)
- Paediatric Clinical Skills – 4. Edition (Goldbloom, PR)

Websites

- www.pedsinreview.org - Easy to understand Paediatric Review Articles
- www.cps.ca - Canadian Paediatric Society Website
- www.aap.org - American Academy of Paediatrics Website
- www.pedscases.com - Interactive website created for medical students by medical students

Apps

- Pedi STAT
- PedsToolbox
- Pedscases.com – Podcasts created for medical students by the Alberta Children’s Hospital

It is also a good idea to spread your electives out across the country if you are willing to travel. The more exposure you have to different programs, the more places and programs you will learn about and the

more programs will learn about it. Paediatrics is a somewhat competitive specialty to get into and therefore you arguably become a more competitive applicant the more places you are willing to attend.

A list of common paediatric electives is outlined below:

- General Ward Paediatrics
- Community Paediatrics
- Paediatric Surgery
- Paediatric Endocrinology
- Paediatric Cardiology
- Paediatric Psychology
- Adolescent Medicine
- Neonatology (NICU)
- Paediatric Emergency Medicine

Common Conditions

Try to develop an approach to the assessment, diagnosis, investigation and management of some of the more common paediatric health problems:

- Asthma/Reactive Airway Disease
- Attention Deficit/Hyperactivity Disorder
- Common Surgical Conditions (Pyloric Stenosis, Intussusception, Inguinal Hernia)
- Common Childhood Malignancies (leukemia, neuroblastoma, Wilm's tumour, lymphoma)
- Constipation
- Cystic Fibrosis
- Diabetes Mellitus (Type I and II)
- Febrile Seizures
- Gastroesophageal Reflux Disease (GERD)
- Hyperbilirubinemia
- Infections (Acute Otitis Media, Croup, Bronchiolitis, Pneumonia, Gastroenteritis, Urinary Tract Infections, Sepsis, Meningitis)

Common Medications

- Acetaminophen, Ibuprofen
- Antibiotics – Penicillins, Cephalosporins, Macrolides, Clavulin, Gentamycin
- Salbutamol
- Racemic Epinephrine
- Prednisone, Dexamethasone
- Flovent
- PEG3350
- ADHD Medication – Stimulants (methylphenidate, dextroamphetamine)
- Seizure Medication – Benzodiazepines, Phenobarbital, Phenytoin
-

Procedures

- Lumbar puncture
- Bag-valve mask ventilation, endotracheal intubation
- Nasogastric tube placement

- ABGs
- Bladder catheterization, suprapubic aspiration

Essential Resources

Textbooks

- Nelson Textbook of Paediatrics – 19. Edition (Kleigman, Robert)
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Websites

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- www.cps.ca - Canadian Paediatric Society Website
- www.aap.org - American Academy of Paediatrics Website
- www.pedscases.com - interactive website created for medical students by medical students

Apps

- Pedi STAT
- PedsToolbox
- Pedscases.com – Podcasts created for medical students by the Alberta Children's Hospital

Site Description

The Mental Health core rotation takes place at two sites in Sudbury. The first site is at HSN on the 6 Floor North Tower (or on the 5th floor North tower if your preceptor works in the CAMHP). The most severely ill patients are often admitted here. It consists of two units. Acutely ill patients (general in acute psychosis) are located in the unit called the “PIC” (Psychiatry Intensive Care) unit while the other unit is the main inpatient site. The second mental health location is Kirkwood and depending on your preceptor, your inpatients will be located at one of these sites.

Parking for both HSN and Kirkwood is included with the purchase a physician tag for HSN. Kirkwood has a pass that you can purchase, if you do not want to purchase the HSN doctor’s parking pass (approximately \$38 for the month, or you can pay \$3 a day). If your psychiatrist only works at Kirkwood this would be adequate.

Academic rounds are held each morning in the student lounge on the main floor. This room also has a fridge and a microwave. You can get to this room in the morning by entering through a door at the back of Kirkwood beside the garage and taking the stairs up to the main floor.

In addition, you may also be asked to attend psychiatric programming elsewhere, such as downtown at 127 Cedar Street site. (This is located downtown across the street from the bus terminal. Parking is very limited. You can park in the physician site, which is located right next to the building. Simply tell security that you are a medical student and need to park there. They will provide you with a guest pass.)

Summary of Experiences

Each morning begins with teaching at the Kirkwood site. It starts at 7:30 or 8am and last approximately 1.5 hours. Then you will round on your inpatients. Some psychiatrists have inpatients at the Kirkwood site and some have patients only at HSN. When rounding you will be expected to see the patient and write a note in their chart. The psychiatrist will then meet with you and the patient for a few minutes, to ensure that you are accurate in your assessment. Hopefully, you get some time in the PICU where the more acute patients are.

Following rounding you will be in clinic each afternoon. Most of the psychiatrist’s clinics are located at the Kirkwood site. Depending on who you work with, you will either get to observe the first few days and then begin interviewing patient’s on your own or be given patients to interview on the first day. You will be responsible for documenting and dictating for the patients you see. The nice part of psychiatry is the ability to take ample time for your history and physical.

Unlike other rotations, you may be required to go off hospital property for some of your rotation. As an example many psychiatrists go to Manitoulin Island/Espanola to see patients. They usually allow you to come along. If you get the chance to go it is a very good learning experience.

In addition, as part of your clinical rotation you will be required to observe electroconvulsive therapy (ECT) for at least one morning. ECT is done at 7:30am at HSN in the surgical recovery area. The entrance is through day surgery, on the second floor. Another requirement is spending half a day doing child psychiatry. The child psychiatry unit is located on the 5th floor of the north tower at HSN.

Furthermore, as part of your first rotation in Mental Health, you may have the opportunity to attend the Sudbury Jail with either Dr. Joseph or Dr. Veluri. If this is something of interest to you, you will be required to submit an updated Criminal Record Check to them.

Keeping safe: always ensure that the patient and their belongings have been searched by either security or a nurse prior to entering the room; ensure that you have your “panic button” on you at all times and be sure to check that it is working whenever you first enter a floor; ensure that you let someone on the healthcare team know that you are entering the room; keep your distance and keep yourself between the patient and door; if you feel unsafe, do not feel that you have to continue with the interview and find your preceptor.

ELECTIVE INFORMATION

What electives to apply for

It is beneficial to have an adult psychiatry elective. It will likely afford you the opportunity to work with some residents and get a broad sense of what psychiatry has to offer at that particular training centre. Additionally, it could be helpful to round out your electives experience by applying to some of the subspecialties:

- Child and adolescent psychiatry
- Forensic psychiatry
- Geriatric psychiatry

In addition, electives that may be of benefit include:

- ER psychiatry
- Consult-Liaison psychiatry
- First episode psychosis
- Dual diagnosis
- Psychiatric outreach team
- Addictions Medicine
- Psycho-oncology
- Eating disorders

Common Conditions

Be comfortable with the basics of these topics:

- Acute dystonia
- Akathisia
- Anticholinergic toxicity
- Alcohol withdrawal
- Lithium toxicity
- Neuroleptic malignant syndrome
- SSRI discontinuation syndrome
- Serotonin syndrome
- QTc prolongation
- Neurodevelopmental disorders
- Neurocognitive disorders
- Schizophrenia disorder

- Bipolar disorder
- Depressive disorders
- Anxiety disorders
- Feeding and Eating disorders
- Substance Use disorders
- Personality disorders

Procedures

These are the “procedures” you will be doing on a daily basis:

- Mental Status Exam (good reference is Toronto notes)
- Safety/Risk Assessments (Toronto Notes is good for this as well)
- How to differentiate delirium from dementia
- Electroconvulsive therapy
- Form 1, Form 42, Form 3, Form 4, Form 33, Form 30-from the Mental Health act

Common Medications

Know the common medications used in the following categories:

- Antidepressants: SSRI, SNRI, TCA, NDRI
- Antipsychotics: Typical vs. Atypical
 - o Haldol, Risperidone, Olanzapine, Aripiprazole, Quetiapine
- Mood Stabilizers: Lithium, Valproic Acid, Lamotrigine, Carbamazepine
- Sedatives/anxiolytics
- Psychostimulants (methylphenidate, amphetamines, others)
- Cognitive enhancers (acetylcholinesterase inhibitors, memantine)
- Serious psychotropic drug interactions
- Psychotropic toxicity/emergencies guide
- Alcohol/benzodiazepine withdrawal

Criteria

- DSM-V Criteria
- Psych Mnemonics
 - o “Current Psychiatry: Mnemonics in a nutshell: 32 aids to psychiatric diagnosis”
- Mental Status Exam
- MMSE/MoCA/ToRCA/BNA-SF
- CIWA-Ar, COWS
- Form 1/Form 42, Form 2, Form 3/Form 30, Form 4, Form 33 Section 17
- Abnormal Involuntary Movement Scale (AIMS) for tardive dyskinesia
- Simpson-Angus Extrapyrarnidal Side Effects Scale
- Barnes Akathisia Rating Scale (BARS)

Resources

- Toronto Notes
- Seek out guidelines such as CANMAT

- Psychiatric Recall
- THE YELLOW CARD – Psychotropic Drug Reference Card from the Department of Psychiatry, Halifax, NS (best resource to have on hand)
- Switching antidepressants guide

General Surgery

Site Description

General Surgery in Sudbury is based at HSN and the offices of the pair of surgeons that you are matched with for your 4-week rotation. You will be assigned to the Green or Orange Team. You are on call with the residents for that specific team along with another one of your colleagues. Throughout the rotation you may have residents present, who will help you organize your days. It is best to get your schedule sorted out early in the placement, as it will be difficult to find time afterwards. You will spend time in the following settings:

- *Ambulatory care* - 1st Floor South Tower
- *Wound Care Team* - 1st Floor South Tower
- *Endoscopy Suite* - 2nd Floor Centre Tower, at the back off of the OR suites
- *Day Surgery* - 2nd Floor Centre Tower, adjacent to the OR Suites
- *OR Suites* - 2nd Floor Centre Tower
- *ER* - 2nd Floor Centre Tower
- *Surgical Ward* - 7th Floor, North Tower

Summary of Experiences

Some of you may already be experiencing some general anxiety thinking about the start of your surgery rotation. While surgery may not be your cup of tea, there is much to take out of every core rotation during clerkship. For some of you, it may be the only chance to see inside a live human body and assist with some of the most interesting surgeries around. Clerks have gotten to take part in surgeries that majority of physicians have never even seen before. Try to keep this in mind throughout your month! You have the opportunity to see anatomy and surgical conditions that you may never encounter for the rest of your medical career. I would be up front to your preceptors about your future career aspirations, as most of them will cater your rotation to that area. Show up everyday with a positive attitude and try to be as helpful as possible to the team- the surgeons will recognize your efforts and be more willing to teach you.

For your surgery rotation, you'll be partnered up one of the two teams of surgeons for the month. Unfortunately, there is no official schedule for the month, but more on a weekly basis. Try to find out at the end of the previous week, the weekly schedule of your surgeons. They will either be in OR, endoscopy, clinic, or ACU (small procedures) for the most part. You'll always join your surgeons on their OR days. If your surgeons aren't working a certain day, take advantage to try out other surgical specialities or using this as study time if your preceptors approve. If you do join other services, make sure to run it by the coordinator of the block. If unsure on what to do, you can ask your preceptor or residents for some recommendations. If you know in advance, you can call another surgeon's office to set up a clinic or OR day. Most of the surgeons would even approve you joining them in OR on short notice. You could even cross off some bucket list items like seeing open-heart surgery or even a brain! Another great option, which is strongly recommended, is spending a day with the wound care nurses to learn about wound management and ostomy care.

One main difference between surgery and other rotations is the early mornings and long hours. Unfortunately there's no way around this. You will be busy on surgery and often the basic necessities of life such as sleeping and eating are forgotten. Try not to let this happen to you! Make sure to get to bed

an appropriate time to wake up semi-refreshed for rounds. Check your doctor's patient list the night before on EMR to see for new admissions to round on the next morning so you're not out of the loop. Make sure to pack plenty of snacks like granola bars (keep them stocked in your scrub pockets) and drink plenty of fluids throughout the day even if you aren't thirsty!

One of my last pieces of advice is: Do not take criticism personally! On rare occasion, medical students may be the butt end of criticism or a joke just because you're a med student. It has nothing to do with your personal knowledge or skill set (Please see anecdote at end of this chapter). Some preceptors also have different styles of teaching and one of them is asking you a ton of questions under pressure. Don't feel discouraged if you don't know these answers. This is why you are on core rotation, to learn new things! Also, just like any other rotations, you will make mistakes. Don't shy away from suturing or putting in a drain just because the first one didn't go so well. The only way to get better is by practicing and learning from your previous mistakes. The best time to try new things or things that scare you is as a med student! Expectations are low and you always have backup.

With all that said, by the end of your rotation, hopefully you will have had the chance to scrub in on some interesting cases and took home some applicable knowledge to help with your future medical career. For more everyday surgical tips applicable to all surgical specialties, please see Surgery Advice in Elective Section.

ELECTIVE INFORMATION

One should focus majority of their electives on general surgery and subspecialties including:

- Community General Surgery
- Thoracics
- Colorectal
- Paediatric Surgery
- Minimally Invasive
- Hepato-Pancreatico-Biliary
- Trauma Surgery
- Vascular and Surgical Oncology

In addition, some complementary electives include critical care medicine, anaesthesia, gastroenterology, radiology, emergency, and other surgical specialties.

Specifics of Specialty

General Surgery has tons of variety of cases and medical conditions to offer students partaking in electives. It is a great first surgical elective for persons unsure about a career in surgery. While you're away on elective, you'll probably be assigned to one general surgery team. However, feel free to ask your senior if you're able to work with other general surgery teams if interested. This gives you the opportunity to meet and work with other staff and residents and also to see a wider range of general surgery during your elective. It's beneficial to get to work with the acute care surgery team for a day or two to help with consults in the emergency and urgent surgeries.

When doing consults, you need to answer two main questions:

- 1) Is this patient sick?**
- 2) Does this patient need surgery?**

These are usually the first things your resident/staff wants to know when you return from your consult. It is not uncommon to have an unstable patient with an acute abdomen on general surgery, so report back promptly to your superior.

For clinic and consults histories, brush up on risk factors for GI related cancers along with a detailed bowel/urinary history. If you're working in a subspecialty clinic, make sure to brush up on pertinent clinical guidelines and cancer staging systems. On physical exams, ensure that the patient is lying completely flat. Be comfortable with your abdominal examination especially looking for peritoneal signs of rigidity, guarding and rebound tenderness. Often people rush their abdominal exam, so ensure to take your time to find the area of maximal tenderness. Don't forget to check for inguinal hernias, especially in bowel obstruction presentations. Make sure you don't forget to complete your abdominal exam with a digital rectal examination when warranted. If debating whether the patient needs a DRE, do a DRE! This is something you should become very comfortable with by end of your surgery rotation. Majority of general surgeons say auscultating for bowel sounds isn't reliable, so skip this part of your exam. Drawing a picture of the abdomen on your consult note with surgical incisions, relevant cutaneous changes and point of maximal tenderness is helpful when reporting back. When reporting back, keep your presentation short and concise with important positives and negatives. Like other rotations, always attempt to come up with a management plan for this patient.

Some surgeons may also run a minor procedures clinic, which gives you some chance to practice procedural skills. I'd also try to see colonoscopies and endoscopies for a day if you haven't already and this may be a large part of your practice depending on your location. This could also be a great time to practice some IV's. However, on electives, your time may be more worthwhile in clinic, ward or in the operating room. Reading abdominal CTs can be quite challenging, so try to ask one of the residents if they have an approach to these. However, you should be comfortable reading abdominal radiographs and knowing signs of common pathology like bowel obstructions and perforated viscus.

Common Conditions

- Appendicitis
- Cholecystitis
- Bowel Obstructions
 - o Know top causes for small bowel vs large bowel obstructions
- Inguinal/Ventral Hernias
 - o There are many types of hernias, so make sure to know the most common types especially in the inguinal region.
- GI Bleeds
 - o Know classification of upper vs. lower and top 3 etiologies for each
- Diverticulitis
- Pancreatitis
- Inflammatory Bowel Disease
 - o Crohn's, Ulcerative Colitis
- Cancers
 - o Colorectal, Breast, Thyroid, Lung

Procedures

Depending on your experience, you may see some very specialized surgeries, however, these are bread and butter general surgery cases:

- Appendectomy
- Cholecystectomy
- Hernia Repairs
- Mastectomy/Lumpectomy
- Small Bowel Resections
- Hemicolectomy/Colectomies
- Hemorrhoidectomy
- Colonoscopies/Endoscopy/Bronchoscopy

- Suturing - be comfortable with subcuticular sutures and hand ties
- Nasogastric Tube placement
- Chest Tube Insertion
- Foley Catheter insertion
- Incision and Draining of Abscesses

Common Medications

Please see list in Surgery Advice for Elective Section.

Criteria

- Ranson's Criteria
- Alvarado Score
- Child-Pugh Score
- Charcot's triad, Raynaud's pentad
- Goodsall's Rule
- Cancer Staging-TMN
 - o There is very in depth cancer classification and types of cancers for different types of cancers (colorectal, breast, thyroid, lung). So try to be up to date if your elective is related to one of these.

Resources

- **Tarascon General Surgery Pocketbook**-most helpful book to carry on you
- Best Practice in General Surgery Website and Mobile App
- Canadian Journal of Surgery
- Surgical Recall
- Please see additional list in Surgery Advice in Elective Section

Here's a little humorous anecdote that I'm sure all of us can relate to at some point during surgery rotation:

“Breaking News: Medical Student Cuts Surgical Knot Too Short”

Medical student, Enzo Rossini, was disciplined Thursday for cutting a surgical knot “Too Short” during a skin closure.

“The surgeon told me to cut the knot, but not on the knot. He said to get right next to the knot itself,” said Rossini. After it was cut the surgeon burst out: “That’s too short! A little longer [please].”

The knot in question didn't have to be replaced and when careful analysis was completed post operatively by a third party, comparing the resident's knot cut with the medical student's, the main difference was the medical student is not a doctor.

“Enzo, what do you want to go into?” his resident asked him.

As every medical student answers this question during their clerkship rotation, is the service that they are on. “Probably surgery,” he responded.

“Ok give it another go,” his attending said. Luckily for Enzo he was awarded a second try. “Too LONG! That’s just too long.” the surgeon remarked.

Taken from “Gomer Blog” @ www.gomerblog.com/2014/05/surgical-knot (Internet). May 2014.

Site Description

The internal medicine core rotation at NOSM is in CTU (Clinical Teaching Unit). The CTU is an active adult general internal medicine unit that provides acute medicine and telemetry to patients. An interdisciplinary team consisting of a physician, residents, medical students and allied healthcare providers care for the acutely ill who are admitted to this unit.

The CTU is located on 5S and 6S, with the CTU classroom located on 6S (entry code 1234). The CTU is also responsible for some patients in the CCU step-down unit; however, clerks cannot go see these patients by themselves.

Summary Experiences

The CTU Team you will be working with is quite variable, but typically consists of one physician (which usually changes weekly), a senior medical resident (SMR), two junior medical residents (JMR), potential off-service residents (e.g.: family med) and then the medical students within your rotation. Each day the SMR sets the schedule. A typical day starts around 8am and varies by preceptor.

Teaching will either be scheduled through the school or will be an informal teaching session provided by the SMR or JMR. Following teaching you will receive hand-over from the overnight resident or physician on call whereby you'll hear of any overnight issues as well as new admissions to the CTU floor. Keep brief notes on pertinent information from handover, even if you are not taking on that particular patient. You may be on the floor during your shift and someone may ask or need information regarding another student's patient. It's always better to have that information on hand and never need it, than to be in a situation where you wish you knew exactly what was going on. Afterwards, the team will go through the patient list and divide any new patients as well as come up with a plan for patients throughout the day. Medical students are usually given anywhere between 3 and 5 patients to care for in the day.

After handover, the SMR will determine at what time afternoon rounds will occur. You are then free to go about the rest of your day seeing patients, arranging discharges, etc. At the evening rounds you are expected to briefly state how your patient is doing, what tests they have had done during the day and then briefly summarize disposition (whether the patient requires more time in the hospital, whether they can be discharged home shortly, etc.). Evening rounds usually occur between 3 and 5PM. Once completed, you are free to leave if there are no other active issues you need to take care of with your patients.

ELECTIVE INFORMATION

In General Internal Medicine, most electives take place in the clinical teaching unit (CTU) setting. Depending on the hospital, the CTU may also be referred to as the medical teaching unit (MTU) or the medical clinical teaching unit (MCTU). Other electives may take place as part of the medical consults service or hospitalist medicine service.

Specifics of Specialty

Managing Inpatients

During the CTU elective, you will be assigned to one of multiple medicine teams. Each team is composed of an attending physician, senior medicine resident, multiple junior medical residents, and typically one to two medical students. Each team is responsible for anywhere from 12 to 40 patients and this is very site specific. As a medical student, you will be responsible for roughly 2 to 8 patients. You need know all the details about your patient and their stay in-hospital. The attending will often ask you about the current medications and past medical history and you should know it off the top of your head or alternatively keep one page or a cue card with this information, so you can have a reference. You also want to keep record of pertinent lab work or diagnostic results on a daily basis. You will have to present at daily patient progress rounds and it is important to keep the information concise. It helps to have a one liner about the reason for admission and then run through the current issue list. For example, "First issue is CHF which is likely secondary to non-adherence to medications, the patient is still volume overloaded and I would like to increase the dose of IV Lasix from 40mg IV to 60mg. The second issue is hypokalemia, their potassium was 3.1 today most likely secondary to the Lasix and I would like to give 40mEq of K-Dur....". Keep track of issues like DVT prophylaxis, diet, activity orders and med renewals.

Throughout the day there may be multiple teaching sessions, so it is important to be efficient. Also, the more efficient you are, you may be given a higher patient volume that will go a long way with your evaluation. Lastly, ensure you are reading around your cases at night. There is a lot of content to cover but make sure you are on top of the conditions you are seeing. If you ever have questions about anything don't hesitate to talk to your team members as they are a great resource and you need to function well within the team setting.

Teaching Sessions

There are daily structured teaching sessions and depending on the site there may additional teaching sessions throughout the week. The presenter will ask questions, often directing them specifically to students and residents. It is nice to chime in, but you don't want to control all the airtime.

Emergency Consults

You will be required to do ER consults throughout the day or during call. If you are on the medical consults service, you will only be doing consults on patients admitted under other services. This is the best opportunity to display your knowledge and clinical skills. These are often complex patients and an important history and physical is vital. This is where a good resource like McGee's Evidence-Based Physical Diagnosis becomes important. Before you see the patient, check the EMR and gain as much information about them as possible. Look at their previous admission or discharge notes to gain information about their past medical history. Pay attention to the specific details regarding the past medical history. For example, if they have type II diabetes, are they insulin dependent, do they have retinopathy, nephropathy, or neuropathy. Also, if the patient has a chronic disease, they will want to know their baseline function, and this can be obtained from previous records. For example, if they have CKD, what is their baseline Cr, if they have heart failure, what did their last echocardiogram show (diastolic vs. systolic, what was the latest ejection fraction), for COPD, their last PFT's, and so on.

It is also important not to forget the social history because discharge planning will begin on admission and you want to know where they are living and if they are functioning well at home.

The Internal Medicine Presentation

Presenting a consultation to your attending in internal medicine is different than presenting to other specialties. The goal is to tell a concise story in a way that convinces the attending you have come to the right diagnosis. Becoming a concise, skilled presenter will make you stand out as a student. You will want to begin with a brief identification statement, the chief complaint, and why the patient was referred to you. For example, *“This is a 76-year-old male from long term care with a chief complaint of dyspnea and the reason for referral was admission for management of CHF”*. Note that the chief complaint is a subjective symptom that brought the patient to seek medical attention, not a diagnosis. After this, you will want to discuss the past medical history (in detail as eluded to earlier), medications, and allergies. You can then move on to the HPI.

When you structure your HPI, you should present pertinent positive and negative symptoms in clusters that correspond to a diagnosis in the differential. For example, in a patient presenting with chest pain you would state, *“There is no associated SOB, arm/jaw numbness, diaphoresis, palpitations, nausea or vomiting. They deny hemoptysis, any recent immobilization or surgeries, posterior calf tenderness or swelling”*. The attending would know you are thinking about ACS then PE when you cluster these symptoms. After the HPI comes the physical examination. Be focused and specific with the major findings that correspond to the chief complaint. Also include pertinent negative exam findings. If you did an examination that is non-contributory you can usually just state that it was benign and leave it at that. You should then present laboratory and diagnostic investigations. When you have a patient who has chronic diseases with laboratory changes, state the baseline level. For example, *“the Hgb was 90, which is down from their baseline of 105, MCV is 78”*.

Lastly, you will present your assessment and plan. You will want to start with a brief summary statement such as *“In summary, this is a 76-year-old male with a past medical history of ischemic cardiomyopathy who presents with increasing dyspnea, orthopnea, and peripheral edema”*. You should then present in an issue specific matter. You should state your differential for each issue and give information that supports or refutes each diagnosis. For example, *“Given the patient’s orthopnea, peripheral edema, dyspnea, bibasilar crackles, and pleural effusions on x-ray, the most likely diagnosis is acute decompensated heart failure secondary to medication non-adherence. There is no chest pain, exertional symptoms, diaphoresis, nausea/vomiting, or ST segment changes that suggest ACS”*. If there are investigations pending to rule in or out specific diagnoses say them at this time, *“We have ordered serial troponins to rule out an NSTEMI”*. After going through each issue, don’t forget to discuss other components such as DVT prophylaxis and disposition.

Initially, you will have to present to the resident on-call. They will usually help you out if you forget things and make sure you ask them any questions. They will often suggest ways to change your presentation when presenting to the attending. It will take time and different attending’s may have different preferences for presentations or want you to be more or less detailed. You just have to adapt based on whom you are working with. Remember you have the information, use your notes if it’s a complex patient or if you don’t feel comfortable. No one is expected to remember lab results on the top of their head.

Teaching/Walk Rounds

You will round as a team a few times a week. Once again, know your patients and be concise when presenting. Also, be engaged when you are rounding on other patients. You are often asked to perform a physical examination during bedside teaching. They are usually more specific and multi-system in nature. For example, they may ask you to perform a physical examination for evidence of heart failure. The key is to be confident and methodical, you will always forget things and that is okay. You just need to go about it in a systematic fashion and be very tedious in the way you exam. It never hurts to review these types of exams and which techniques or exams have the highest positive or negative likelihood.

Again, this is where McGee's Evidence-Based Physical Diagnosis is important: not only does it explain likelihood ratios, it also explains the physiology/pathophysiology behind various signs that we learn throughout school in less desirable resources like Bates.

Common Conditions

The following is a list of conditions that you may or may not see during your rotation, however they are constantly asked about:

- Acute Coronary Syndrome (STEMI, NSTEMI, Unstable Angina)
- Heart Failure
- Hypertensive Emergency
- Venous thromboembolic Event
- Diabetic Ketoacidosis (DKA)/Hyperosmolar Hyperglycemia State (HHS)
- Anemia or thrombocytopenia
- Hypo/hyponatremia and hypo/hyperkalemia
- Liver Disease/Cirrhosis
- Acute Kidney Injury/Chronic Kidney Disease
- Community-Acquired Pneumonia/Hospital Acquired Pneumonia
- Chronic Obstructive Pulmonary Disease Exacerbation
- Diarrhea Secondary to *C. diff* Infection
- Diabetic Foot Ulcers
- Sepsis
- Meningitis
- Osteomyelitis
- Vasculitis
- Delirium

Procedures

During your rotation you may be able to perform or view some of the following procedures:

- Lumbar Puncture
- Paracentesis
- Thoracentesis
- Arterial Blood Gas
- Bone Marrow Biopsy
- Nasopharyngeal Tube Insertion

Common Medications

- Antibiotics
 - o System specific, know all classes, particular attention to IV for broad spectrum coverage, know which cover pseudomonas and MRSA
- Anticoagulants
- Beta-blockers
- Antiplatelet Agents
- Antihypertensives (oral and IV): ACE inhibitors, ARBs

- Calcium channel blockers (dihydropyridine and non-dihydropyridine)
- Diabetes medications (metformin, insulin, SGLT2i, GLP-1 agonists, sulfonylureas, DPP-4i, etc.)
- PPIs
- Anti-emetics
- Anti-pyretics
- Systemic steroids

Criteria

Most criteria found off MedCalc (or other medical calculators)

- Modified Duke Criteria for infective endocarditis
- CHADS₂ and CHADS₂-VASc stroke risk in A-fib
- HAS-BLED (SPARC tool is useful)
- TIMI Score
- NYHA Functional Classification for heart failure
- MELD and Child-Pugh Scores for prognosis in liver disease
- Light's Criteria for assessing pleural effusions
- Serum-Ascites Albumin Gradient
- GOLD Classification for COPD
- KDIGO AKI Classification
- Ranson's Criteria
- CURB-65 for risk in pneumonia
- CIWA Protocol
- Framingham Risk Score / pooled-cohort calculator

Resources

- *Pocket Medicine: The Massachusetts General Hospital Handbook
- *Approach to Internal Medicine: A Resource for Clinical Practice by David Hui
- *McGee: Evidence based physical diagnosis (better than *JAMA Evidence: The Rational Clinical Examination* for several reasons)
- *ACP IM Essentials (good, concise, high-yield information; includes quizzes and flashcards)
- Sanford Guide to Antimicrobial Therapy
- Apps: MedCalc, UpToDate, DynaMed, Medscape, CCS (Antiplatelets, Heart Failure, Atrial Fibrillation, Lipids), Diagnosaurus, OnExam, Lexicomp Drug App
- Harrison's Book of Internal Medicine

Emergency Medicine

Site Description

The Emergency Medicine rotation is arguably the most varied and exciting rotation you will do this year. It includes shifts and teaching sessions by the ED staff that all take place at HSN. There are many entrances to the ED, the most direct being via the pedestrian door of the EMS garage. The code is “9111*”. There is also an ED lounge and lunchroom that is accessible using your ID badge. This is just behind the Red Zone in the ED and right by the EMS garage you will come in through. This is also where you will find the scrubs and changerooms.

The teaching sessions mostly take place in the Learner’s Lounge in the first week of your block. During this week, there are also two sessions in the Sim Lab at the HSN Outpatient Centre (old Memorial site) which provide a review of airway management, the ATLS approach to trauma and resuscitation, and other important skills you will use in the ED. Learning sessions **SUPERCEDE** your shifts and attendance is mandatory.

Summary of Experiences

Clerks complete 13-14 shifts in the ED. Shifts start at 05h, 08h, 10h, 12h, 14h, 16h, 18h, 20h, and 23h and last 6 to 8 hours on weekdays and weekends. Ensure you come prepared with a pen, clipboard, billing sheet, evaluation form, stethoscope, ID badge and comfortable, closed-toe shoes. Before the start of the shift the physician will likely sit down with you to outline their expectations and discuss your learning goals for the day (e.g. sick children, eye complaints, etc.). You should come prepared with specific goals – you will look organized and engaged, and if you do, most physicians will go out of their way to find the right patients for you.

The physician may sign you up for patients or give you the freedom to do so using the electronic whiteboard on the various workstations in the department. Once you’ve signed up for a patient, find their chart and grab the physician’s copy. Immediately indicate on the chart the time at which you started reviewing, sign your name with your level of training and **circle any abnormal vital signs at the top of the chart**. If your patient is unstable at any time, let your preceptor know. Take a sticker from the patient’s chart and place it on your billing sheet. Read the nurses’ assessment. NEVER walk away with the nurses’ copy of the chart (unless you tell them). Replace it in the slot and keep the physician’s copy. Armed with this, it’s worth quickly reviewing Meditech. Triage nurses may have already had blood work drawn, an ECG completed or X-rays that you can review. You can also do a quick review of previous hospital visits for some insight into the patient’s history.

When you’re finished with a patient, start to generate a differential diagnosis. One ED doc put it this way; “we don’t diagnose so much as we rule out.” That being said, your differential should include any etiology that could kill your patient (at least top 3) and the three most likely diagnoses (e.g. chest pain: MI, PE, dissection vs. MSK, GERD, psychosomatic). Once you formulate a differential, start to put together a management plan. Think about the different investigations that will allow you to narrow down your differential. You may suggest a treatment plan if you think you know the diagnosis. Don’t forget to treat pain and other symptoms while you wait for investigations! Your preceptors will expect you to find

them once you have seen your patient and formulated an assessment and plan. When working in the ED, try to keep your time with the patient within reasonable limits. The goal is not to optimize health but to address the specific reason for their visit to the ED today.

Your presentation skills are key to making a good impression in the ED. A good approach is:

- Patient info: Age, sex, **relevant** PMHx,
- CC: what is the patients main issues
- HPI: give pertinent positives and negatives. Keep it simple.
- Impression and plan: Ddx, quickly explain your logic. Management plan for further investigations and treatment. Don't forget to treat for pain!
 - o This is where you will stand out, if there is a rule (ex: Ottawa ankle rule) apply it when you justify your plan)
 - o It's alright to be completely wrong. Just be clear about why you thought you were right. Try to commit to the start of a plan! The more you practice this, the better you will get.
- Several physicians in the ED also like you to lead with a one-line statement about your patient and impression to then help put the rest of your presentation in context (ex: "This is a 49-year-old female with history of breast cancer presenting with sudden onset dyspnea and chest pain. I think she may have a PE." And then follow with your presentation as above).

EM docs think about disposition within seconds of seeing a patient. When you leave the room try to establish sick patient vs. not sick and admit vs. discharge. This is an important skill that takes time to develop.

- Part of this decision paradigm is risk-stratifying patients. This is in large part based on clinical gestalt, but there are also several evidence-based risk assessment tools to help you. When looking at the chest pain "possible cardiac" patient, try to determine is this patient low risk (going home), medium risk (speaking to cardiology), or high risk (being admitted). This is particularly important with broad conditions with a wide range of possible outcomes from benign to life-threatening.
- If you think the patient will be discharged, remember that follow-up is the key to outpatient management. Giving the patient clear discharge instructions is extremely important. Write your instructions on and be clear on when or why to seek reassessment in the ED. Always think about when that patient with the fracture is going to get their cast off, when the sutures need to be removed and when a follow-up is needed with the primary care physician.

It's important to keep track of your patients. You will have your clipboard with the MD copy of patient's charts and a billing sheet full of stickers. Once you've discharged/admitted a patient move their chart to the bottom of your pile. Follow-up with investigations and inform your preceptor once they're completed. If you give them treatment, be sure to reassess them. You are responsible for the patients you sign up for!

The ED staff is responsible for responding to code blues. A pager is passed around and preceptors are in charge of attending the code when they are the newest on shift. You are encouraged to respond to any code blue provided you're not in the middle of a procedure with a patient. If you can, let someone know you are leaving the department. When traumas come into the hospital, you're also encouraged to attend these. There is always a Trauma Team Leader (TTL) on call, which is an ED physician who will come in if there is a major trauma so that it doesn't "short-staff" the department of physicians. Be aware of who the TTL is and if a trauma comes in, you may ask your preceptor (first!) to step out with the TTL to participate. If they are in agreement, ask the TTL if you can work with them during the trauma. Do not attempt to leave for a trauma if you have several active patients under your name who

need ongoing management or frequent reassessment. During a trauma, try to stand in a location along the wall where you're out of the way of drawers, monitors or the view of support staff while they do their work. If they require your assistance, you'll be called upon (put some gloves on to be ready)!

On occasion you must consult a specialist. Don't panic! You're the person who knows the most about this patient at this point. Have the ward clerk page the desired specialty and tell them which phone you would like them to direct the page to. Once they call back, thank them for returning your call, introduce yourself, your title and your preceptor, ask them who you are speaking with (you will need to chart this) and provide the patient details (e.g. "otherwise healthy 54 y/o male with new onset chest pain four hours ago with positive TNI and ST elevation in II, III and AVF") and what interventions you've initiated at this time (e.g. "he had 325 of ASA, started on Clopidogrel, he's on O2 and is pain free with morphine"). Do not do a full case presentation from top to bottom like you might have done for your preceptor! Consultants are more interested in the key one-liner history, investigation results, impression and management, and they usually don't like to be on the phone with you for longer than necessary, even if they are kind about it. If for whatever reason you experience difficulty you can always say "my preceptor would like to speak with you" and have them take over the consult.

ELECTIVES INFORMATION

What electives to apply for

Because the emergency department is the safety net and the gateway to the hospital, a student considering a career in EM could justify almost any elective opportunity. Some suggestions include:

- Trauma (General Surgery, Orthopedics)
- Anesthesiology
- Critical/Intensive Care
- Pediatric EM / Pediatric Critical/Intensive Care
- Orthopedics
- Ophthalmology
- Surgery (Plastics, General, Ortho, Neuro, etc.)
- Internal Medicine (Cardiology, Nephrology, Respiriology, ID, etc.)
- Radiology
- Most importantly, there is no better place to learn emergency medicine than in the ED.

Emergency Medicine electives are great learning opportunities. All emergency departments are different and each elective you apply to will be set up differently. You usually get approximately 4-5 shifts per week. It might seem difficult to get a reference letter on an elective, but it is important to do so if you are considering matching to EM. Ask the coordinator to send you your schedule along with the list of doctors you will be working with early. Look on the department's website to figure out who these physicians are. Most schools give you one or two shifts with the program director. If you don't get one, request it! If you have a good shift early on with a doctor, ask to join them again on another one of their shifts. This might require you to make changes to your schedule or sacrifice your day off. EM electives are unique in the high number of preceptors you will work with in your 2 weeks. Physicians are usually understanding of this and willing to write you a reference letter after a short period of time. If you get good feedback and want to ask for a reference letter, don't hold back only because you think you haven't worked long enough with them. At least open the discussion. This is emerg; chances are they will understand and be happy to write you a letter.

Common Conditions

Emergency Medicine arguably involves the broadest spectrum of medicine. The best approach is to focus on approaches to common complaints or presentations rather than focusing on specific conditions. Prepare solid approaches to:

- Chest pain
- Dyspnea
- Abdominal pain
- Headache
- Pelvic pain
- Altered level of consciousness
- Delirium
- Seizures
- Syncope
- Joint / back pain
- Weakness/dizziness
- Shock
- Fever and sepsis
- Cardiac arrhythmias
- GI bleed
- Trauma and airway
- Allergic reactions
- Sore throat
- Painful/red eye
- Rash
- Substance abuse/toxidromes
- Common orthopedic injuries
- Suicidal/homicidal ideation
- Psychosis

Keep in mind that your differential will change depending on the patient's sex and age. With every complaint there are the common and the killers. With such a varied scope it's suggested to read the emergency medicine section of Toronto Notes or Case Files to provide a brief overview.

- ACLS, ATLS (know these well, it will help you keep up and stay involved)

Procedures

A great rotation to practice procedural skills. Include them in your objectives at the beginning of shift and your preceptors will be sure to help you find patients to support your learning. Some potential skills include:

- Advanced airway management
- Laceration repair
- Incision & drain
- Fracture / dislocation reduction
- Casting
- ECG interpretation

- Point of care ultrasound (FAST exam)
- Slit lamp exam
- Defibrillation/cardioversion
- Lumbar punctures
- Chest tubes
- Local anesthesia
- Procedural sedation

Common Medications

Medications vary widely depending on the patient's presentation. Ensure you have basic knowledge of:

- Antibiotics (e.g. the MUMS orange book)
- Anti-emetics
- Anti-pyretics
- WHO pain ladder
- ACLS medications
- Anxiolytics

Criteria

- Wells criteria (DVT and PE)
- Canadian CT Head rule /CATCH/PECARN rules
- Canadian C-spine rule/NEXUS C-spine rule
- Ottawa Ankle/Foot/Knee rules
- PERC Rule
- Centor Score
- Salter-Harris classification
- ABCD2
- CURB-65
- PESI
- CHA2DS2-VASc
- GCS and NIH stroke scales
- SOFA score
- Approach to chest, abdo, ankle, foot, hand, elbow X-ray
- Approach to CT Chest/Abdo/Pelvis, Head CT

Resources

Apps

- Cancer Care Ontario – Symptom Management Guides
- Canadian Cardiovascular Society (CCS) Antiplatelet Guidelines
- CCS Atrial Fibrillation Guidelines
- CCS Driving Guidelines
- CCS Heart Failure Guidelines
- Eye Chart Pro
- First Consult
- Neuro Localizer (dermatomes / myotomes)

- OnExam (complaint specific history, physical and special tests)
- UptoDate (drug reference in this app are Lexicomp)
- QX calculate (contains various predictive criteria)
- Peptid Toxicology App

Podcasts

- CrackCast
- EM Clerkship Podcast
- EM Basic
- ERCast
- EMCrit
- Emergency Medicine Cases
- EMRAP
- Free Emergency Medicine Talks
- BoringEM
- HippoEM videos
- Amal Mattu ECG videos of the week
- Emergency medicine cases - U of T podcast
- Emergency Orthopaedics by Robert R. Simon and Scott C. Sherman

Texts (available through nosm.ca/library):

- Atlas of emergency medicine
- Emergency medicine: clinical essentials
- Emergency Medicine Secrets
- Rosen's emergency medicine: concepts and clinical practice
- Tintinalli's emergency medicine: a comprehensive study guide
- Tarascon Pocket Pharmacopoeia
- Essentials of POC Ultrasound – Steve Socransky & Ray Wiss

Websites:

- www.cdemcurriculum.org – Includes medical student level case based approaches and differentials
- www.emrap.tv – free procedure videos and interesting cases
- www.freeemergencytalks.net – Includes talks on common emergency medicine topics from Temple University
- www.umem.org – University of Maryland EM site with procedures for medical students (student opportunities tab)
- www.nejm.org – videos in clinical medicine series
- www.pocketsnips.org – medical videos
- www.trauma.org – x-rays and trauma cases
- <http://ekgumem.tumblr.com> - free weekly videos on ECG interpretation
- <https://lifeinthefastlane.com/> - Life in the Fast Lane (LITFL blog)

Medical Subspecialties

Electives Information

Cardiology electives are generally separated into inpatient and/or outpatient experiences. Inpatient experiences include Cardiac Care Units (CCU), cardiology ward, and consult services. Cardiology often includes subspecialties with their own services including electrophysiology (EP), heart failure, interventional cardiology, general cardiology, and cardiac imaging. If assigned to a cardiology inpatient service, find out what the subspecialty of your preceptor is on the first day.

Complementary electives include any other internal medicine subspecialties including general internal medicine (CTU), infectious disease, and rheumatology. Other complementary electives include cardiac surgery, general surgery, emergency medicine, and critical care.

Specifics of Specialty

Like most internal medicine specialties, round on your patients, write daily notes, get orders co-signed, prepare and dictate discharges, and you may do consults as they pop up. Do not expect to have a lot of time in the cath lab (once you've seen one they aren't all that exciting). Ensure that patients have proper fluid status (importance of the physical exam and vitals), on appropriate medications, and has had proper risk factor investigations.

The workload can vary: on ward it may be like the CTU with all day to see 4-5 patients. In the CCU you may be required to pre-round on 3-4 patients before 9 am. If you do daily team rounding, try to be as efficient as possible. If you take 30 minutes to review each patient, rounds will last all day. You should be able to review each patient in 10-15 minutes. Ask important patient critical questions, leave minute detail non-urgent questions such as diet orders, insulin adjustments and discuss those with your resident/fellow afterwards once the busy staff is finished.

Know the ACS wonder drugs: low molecular weight heparin, antiplatelet therapy, statin, ACE, beta-blocker +/- nitrates.

In your notes always include a full ECG interpretation. For example, instead of saying "*ECG demonstrated ST elevation V3-6*" say instead "*ECG demonstrated normal sinus rhythm with rate of 75. Left axis deviation. PR interval normal. Left ventricular hypertrophy. ST elevation V3,4,5,6 without reciprocal ST depressions*". Review ECG interpretation prior to your rotation. Know which areas of the ECG represent which areas of the heart and their most likely coronary supply.

Always describe the murmur that you are hearing and then classify it. For example: Grade III mid systolic mid peak crescendo decrescendo ejection murmur heard loudest at the right second interspace radiating to the right carotid would be most consistent with aortic stenosis.

Make sure to know differences between Drug Eluting Stents (DESs) and Bare Metal Stents (BMSs). For example, DESs have a greater risk of in-stent thrombosis compared to BMSs, which occurs in the acute phase following PCI and so they require at least six months of dual antiplatelet therapy. DESs have a

general lower potential for restenosis than BMSs because the drugs elude substances which hinder endothelialization of the stent.

Coronary Dominance refers to whether the RCA or LCx supply the posterior circulation. 80% of people have right dominance, 15% left, and 5% dual supply.

Temporary Pacemakers must have their thresholds checked daily. During this the amplitude of the pacer is reduced until the pacer loses its capture. Then the pacer is set to at least 50% above the threshold for patient safety.

Common Conditions

You should be generally familiar with the following:

- ACS including unstable angina, NSTEMI, and STEMI
- Atrial fibrillation including rapid A. fib.
- Heart failure
- Cardiomyopathy (hypertrophic, restricted, dilated)
- Cardiac Arrest/ ROSC
- Valvular heart disease especially aortic stenosis
- Infective endocarditis
- Arrhythmias especially bradyarrhythmias
- Heart Block (Mobitz I [Wenkebach], Mobitz II, and Complete)
- Pericarditis (+/- tamponade)
- Myocarditis
- Hypertension

You should be able to provide WIDE differentials for the following:

- Chest Pain
- Syncope
- Dyspnea
- Edema
- Palpitations

Procedures

By the end of the rotation you should know the indications, preparation, risks/complications, diagnostic and/or therapeutic utility of:

- Cardiac Catheterization and Angiography
- Percutaneous Coronary Intervention
- Electrical Pacing
- Implantable Cardioverter Defibrillators
- Catheter Ablation
- Transthoracic vs Transesophageal echocardiography
- Chemical vs electrical cardioversion
- Know general principles of ventilators if working in CCU
- Transcatheter Aortic Valve Implantation (TAVI)
- Stress Testing

Common Medications

You will be expected to be familiar with classes of medications as well as one or two examples from each of the following:

- Angiotensin Converting Enzyme Inhibitors (ACE inhibitors): ramipril, perindopril
- Angiotensin Receptor Blockers: candesartan, valsartan
- Calcium Channel Blockers- dihydropyridines: amlodipine, nifedipine
- Calcium Channel Blockers- non-dihydropyridines: verapamil, diltiazem
- Loop Diuretics: Lasix/furosemide
- Thiazide diuretics: hydrochlorothiazide, chlorthalidone
- K-sparing diuretics/Aldosterone receptor antagonists: spironolactone, eplerenone
- Beta Blockers: metoprolol, bisoprolol
- Alpha antagonists
- Statins: atorvastatin, rosuvastatin
- Antiplatelet Agents: ASA, Clopidogrel (know when to use dual vs single antiplatelet)
- Anticoagulants (Warfarin vs NOACs)
- Low molecular weight heparin (enoxaparin), heparin, factor Xi (fondaparinux)
- Inotropes: digoxin, milrenone
- Nitrates: nitroglycerin patch, spray, drip
- Thrombolytics: TnK
- Antiarrhythmics: amiodarone, sotalol (also bblockers and CCB)
- Vasopressors: Norepinephrine (levophed), epinephrine, midrodine

Criteria

- ACS Criteria
- CHADS2 score
- HAS-BLED Score
- SPARC tool
- Killip Class
- Murmur Grading
- NYHA Class
- TIMI Score

Resources

- Hui, David. Approach to Internal Medicine: A resource Book for Clinical Practice.
- Pocket Medicine: The Massachusetts General Hospital Handbook for Internal Medicine
- Dubin, D. Rapid Interpretation of EKGs
- ACP IM Essentials: Cardiology
- McGee: Evidence-based Physical Diagnosis
- Qx Calculate App or MedCalc (or any other calculator you desire)
- <http://www.ccs.ca/index.php/en/guidelines/guidelines-library>

Electives Information

An intensivist is usually trained in internal medicine, surgery, emergency medicine or anesthesia. Each type of intensivist has a 2-year fellowship in critical care following their formal specialty. When contemplating a career in critical care it is important to explore elective opportunities in all the realms of this subspecialty. From a surgical perspective, electives in trauma, neurosurgery and general surgery would all be beneficial. From a medical perspective, one should consider electives in cardiology, respirology, nephrology and neurology. Electives in emergency medicine and anesthesiology would prepare you to recognize/manage acutely ill patients and to gain experience with the procedures performed in the ICU. Most importantly it is important to get exposure to the ICU with electives in critical care.

Specifics of Specialty

Every ICU is different. The patient population however can be easily divided into medical ICU patients or surgical ICU patients. It is important to know which type of ICU you are working in. No matter what type of ICU you are in, the ICU patient is very ill and may require surgical and/or medical support. Before beginning your elective, contact the department and inquire about the demographics of the patients you will be seeing so that you can read about relevant topics. Get a clear understanding of what their expectations are from you and find out where and who to meet on day one.

The first day of the elective can be quite intimidating and overwhelming. Don't worry, if you make it clear what level of training you are in, you will be assigned an appropriate role. Introduce yourself to each resident and fellow so that you know who to turn to for help and let them know you want to get as involved as possible.

The ICU is heavily based on teamwork. One of the most important members of the team is the ICU nurse. ICU patients receive 1:1 nursing care. Each nurse knows their patient inside and out. They will be your best resource. Treat them with respect, stay out of their way when they are busy, and offer help when you can (they might even let you gain valuable experience by helping with nursing procedures we generally are not exposed to as med students). If they tell you something about the patient DO NOT ignore it or brush it off, better yet, ask them why they are concerned about the issue. These nurses have a lot of experience and autonomy, which means that most of the time they have fixed a problem before you are aware of one. Pick their brains!

The main focus of the ICU in a teaching hospital is rounds. You will most likely be assigned a patient or two. KNOW YOUR PATIENT. This means:

- know the patient's history (what injuries/diseases/comorbidities do they have? What brought them into hospital? What have prior visits been about, and what major interventions have been done already?)
- what has been their course of treatment so far during this visit?
- what is the issues list (all the main problems that are being dealt with at this moment)?
- what investigations (labs, imaging, tests) have they had, what has been ordered and is pending?
- what medications are they on and why?
- what are their most recent vitals (note any highs or lows in the past 24hrs)?
- what are their neurovitals (GCS, reflexes)?

- ins/outs, what are they getting for nutrition?
- what support do they have (ventilator settings, lines, fluids, dialysis, sedatives, vasopressors, etc)?
- are they on DVT/ulcer prophylaxis?
- are they delirious?

An organized approach and well-structured notes are the mainstay of patient care in the ICU. These are very sick patients with multiple ongoing issues, frequently on top of a plethora of underlying comorbidities, and often many care providers from different corners of the hospital are involved. You will find it helpful to frame this list of questions and your notes by employing an itemized problem list, usually ordered from most pressing/serious to least. Know why each test/lab/imaging was/is being done, what information was/is being gathered, what was/is being ruled in/out, and, most importantly, how each test result informs your diagnosis and treatment plan moving forward.

Progress notes are to be done at least daily and whenever an assessment/intervention is required (i.e. when the nurse calls you with a concern). They generally follow the standard SOAP format, but again, itemize your list by active issue. It is common to start your SOAP note with an ID section referencing the patient demographics and active issues list. This provides a reference at the top of the page for you to organize the rest of your thoughts/notes, and organizing your note this way makes it clear to anyone else reading your note what your thought process was and why certain tests/interventions are being done. It also really helps when organizing your Discharge Summary as to when issues came to your attention, what and when interventions were necessary, providing a solid timeline of the patient's course in hospital.

During ICU rounds you will be expected to present your patients. Give a brief synopsis of their history (only relevant issues) and recent/current labs, investigations, and ongoing treatment. Depending on the staff you might be expected to present everything about the patient or the nurse will be asked about vitals, lines, etc. With that said, DO NOT depend on someone else to know the patient. If you do not know a detail about a patient, do not guess. Rounds are where most of the teaching takes place. Make sure you understand the management of your patient (for when you get pimped) and if you have questions this is a great time to ask. At the end of your patient rounds you will be asked to summarize the issues and plan (itemized by active issue).

Don't forget to review what orders are ongoing, which ones have been stopped, or require reassessment. Nursing and pharmacy are generally pretty good at leaving reminders (usually in the form of sticky-notes) in the chart to remind you or make you aware, but ultimately, it's not their job to do this, it's yours! There's nothing more frustrating than realizing that labs you are depending on for treatment decisions were not done because they simply weren't re-ordered (this will also make you look like a dummy in front of your preceptor – Oh! The horror! The shame!).

When rounding on someone else's patient it is important to get involved. Volunteer to write the orders or review the chart. This allows you to participate in the teaching around the case and keeps you up to date on the issues which will become very important when you are on-call.

The most important thing you can do as a medical student on ICU elective is to perform a physical exam on your patient every day. DO NOT rely on what others have told you about the patient. Assess their neurological status yourself and inspect all their line sites for sources of infection. Review the ventilator settings and what IV meds/fluids they are receiving. If nothing else, this is great opportunity to practice your physical exam skills and become familiar with common medication/equipment ranges/settings (the more often you see/review it, the more comfortable you will get in knowing what is high/low).

Call in the ICU is when the excitement really happens. Do as much call as possible and stay overnight if you can. This is when you will get to have some hands-on experience in procedures and some one-on-one teaching. You will get to know the residents very well and they will appreciate the extra help with consults.

Common Conditions

- Traumatic Brain Injury
- Stroke
- Respiratory Failure
- Pneumothorax/Hemothorax
- ARDS
- ACS/Heart Failure
- Arrhythmias
- AAA/thoracic AA
- Acute Kidney Injury
- Acute Liver Failure
- Sepsis
- SIRS
- Shock (types and management)
- Electrolyte Abnormalities
- Meningitis
- Rhabdomyolysis
- Pulmonary Embolisms
- Seizures
- Delirium
- Vasopressors, Antibiotics, Sedatives, Fluid Resuscitation,

Procedures

- Intubation/Airway Management (surgical airways)
- Bronchoscopy
- NG Tube Placement
- Peripheral and Central Venous Access
- Arterial Line Insertion, ABGs
- Cardioversion
- Fasciotomies

Criteria/Scales

- GCS Scale
- Sedation Scales
- NINDS Stroke Scale
- SOFA, Q.SOFA, SIRS criteria
- Fast HUG principles (review daily on your patient)
- Traumatic Brain Injury Protocols (Secondary Injury Prevention)
- Seizure Prophylaxis
- Ventilation Settings

- Vasopressors and Inotropes
- ACLS Protocols

Resources

The ICU is heavily evidence-based. For everything you do in the ICU there is probably a clinical trial. It is not important to memorize the most recent trials at the medical student level – focus on the recommendations/protocols/clinical practice guidelines that are the result of these studies. When a trial is brought up in round or teaching, make note of it and try to take away the essential points and the limitations of the trial. Keep a document of these trials organized by conditions and when you continue your training you will be able to refer to them to practice evidence-based medicine yourself.

The ICU Book (available through NOSM's library) is an easy read and covers many topics important to the ICU. Search through the NEJM – Critical Care Medicine journal (available through NOSM's library) for review articles on select ICU topics. The U of T Trauma app is very useful as well as the “Journals” app.

Gastroenterology

Electives Information

Gastroenterology electives are generally separated into inpatient and/or outpatient experiences. An elective that provides both experiences might help you showcase different skills and abilities. Some GI docs have special interests such as hepatology or IBD. Find out what the special interests of your preceptor are on the first day.

Complementary electives include any other internal medicine subspecialties including general internal medicine (CTU), infectious disease, and rheumatology. Other complementary electives include general surgery, and emergency medicine.

Specifics of Specialty

Like most internal medicine specialties, round on your patients, write daily notes, get orders co-signed, prepare and dictate discharges, and you may do consults as they pop up. Do not expect to have a lot of time actually learning to scope/watch scopes. Except for end-stage liver patients and perhaps a few others, most of your admissions will require some form of a scope. The key is for nothing to interfere with them getting their scope ASAP. A great clinical clerk will ensure that patients get their scopes booked, get their bowel prep, are properly made NPO, that anticoagulation is held appropriately, daily CBC/INRs are ordered and pain is controlled. A well functioning clerk should be able to manage at least 5 inpatients each day.

When doing a consult, regardless of the chief complaint, do an entire GI history. Every. Single. Time. An easy way to do this is gum to bum. For example: Tell me about what you eat. Do you have any difficulties chewing? Do you have any difficulties swallowing? Do you ever get acid or a sour taste in the back of your mouth? Do you ever feel as though food gets stuck in your throat? Do you cough a lot, especially at night? Do you belch a lot? Do you have any nausea? Vomiting? Hemoptysis? Any abdominal pain (OLDCARTS)? Tell me about your bowel movements. When was your last one? Any black, any blood, any mucus? Any diarrhea? Any undigested food? How often/ frequent are your movements? What consistency? Any jaundice? Any weight loss? Fevers? Chills? Don't forget risk factors depending on the presentation (alcohol, smoking, travel, sick contacts, new water sources).

Never underestimate the value of a digital rectal exam. Never overestimate the utility of a FOBT result.

Gastroenterologists are anal (pun intended) about C. Diff- so if you have a patient on isolation- make sure you follow infectious disease protocols to a tee.

Mobile patients make for pooping patients. Remember to involve physiotherapy early. Another great resource is dieticians. All newly diagnosed individuals with IBD, Celiac Disease, liver failure, and potentially other diseases should be linked with a dietician prior to discharge.

Common Conditions

You should be generally familiar with the following:

- GI bleed
- Acute Hepatitis (Viral, Autoimmune, Drug Induced)
- Cirrhosis/End Stage Liver Disease (including Hepatic Encephalopathy)
- Pancreatitis
- Inflammatory Bowel Disease (KNOW Crohn's vs. UC)
- Irritable Bowel Syndrome
- Celiac Disease
- GERD
- Peptic Ulcer Disease
- C. diff/ infectious diarrhea
- Primary Biliary Sclerosis
- Primary Sclerosing Cholangitis

You should be able to provide WIDE differentials for the following:

- Abdominal pain
- GI Bleed (upper vs lower)
- Nausea/vomiting
- Dyspepsia
- Diarrhea
- Constipation
- Jaundice
- Abnormal liver function

Procedures

By the end of the rotation you should know the indications, preparation, risks/complications, diagnostic and/or therapeutic utility of:

- Esophagogastroduodenoscopy (EGD)
- Colonoscopy
- Capsule endoscopy
- Double Balloon endoscopy
- ECRP/ MCRP
- Paracentesis (make sure you know what to order for a diagnostic tap!)

Common Medications

You will be expected to be familiar with classes of medications as well as one or two examples from each of the following:

- Proton Pump Inhibitors (eg. pantoprazole is newest gold standard, pantoloc infusions)
- Other GERD Medications (eg. Ranitidine, Tums)
- Antiplatelet Agents (eg. ASA, clopidogrel)
- Anticoagulants (eg. Warfarin, NOACs- Apixaban has best GI profile)
- Laxatives (eg. PEG for bowel prep, lactulose titrated to 3BM daily for HE)
- Diuretics (eg. Furosemide, Aldactone, limited utility of Albumin)
- Transfusion guidelines (Most Hgb <70, cardiac pt <90)

- IBD Agents: know the top down vs bottom up theories. (eg Mesalamine, 5-ASA)
- Immune Suppressants/Modulators (eg Prednisone, AZT, infliximab)
- SBP Prophylaxis (eg. Ciprofloxacin weekly)
- Antiplasminogen (eg. Octreotide)
- Antidiarrheal Agents (eg. loperimide)

Criteria

- Child Pugh Score for Liver Failure
- MELD Score for Liver Failure
- HAS-BLED Score for anticoagulation with A. Fib.
- CHADS2 Score for anticoagulation with A. Fib.
- Ranson Score for pancreatitis
- Rome Criteria for IBS
- BRISTOL STOOL CHART
- Colon Cancer Screening Guidelines
- Serum Ascites Albumin Gradient

Resources

- Hui, David. Approach to Internal Medicine: A resource Book for Clinical Practice.
- Pocket Medicine: The Massachusetts General Hospital Handbook for Internal Medicine
- Qx Calculate App
- <http://www.cag-acg.org/guidelines>

Electives Information

There are three main ways to pursue geriatrics as a career:

- 1) Geriatric Medicine: 3 years of Internal Medicine + 2 years Subspecialty in Geriatrics
- 2) Family Medicine: 2 years of Family Medicine + 1 year in Care of the Elderly
- 3) Geriatric Psychiatry: 5 years of Psychiatry + 1 year Subspecialty in Geriatric Psychiatry

Your elective choices will depend on the route that you want to pursue. If you are interested in geriatric psychiatry, then these could include general psychiatry along with complimentary neurology. For the IM route, you could do a geriatrics elective plus other IM electives like CTU, palliative care, cardiology, etc.

Note: Not all residency schools offer a subspecialty in geriatrics, you may want to look into which schools are currently offering the geriatrics subspecialty training and gear your selections appropriately.

Specifics of the Specialty

Inpatient Geriatric Medicine

The most common reason for consultation is evaluating delirium versus dementia versus depression. It is important to do a chart review before seeing these patients, as it may help inform you as to whether the patient is likely to be a reliable historian. Take the initiative to phone family members or nursing homes for collateral. Otherwise, the history and physical examination will be the same as for any other patient. Use the Confusion Assessment Method to add to an assessment for delirium. Medication review is very important: look for new added or changed medications while in hospital (including PRN narcotics). Patients with dementia or delirium will commonly not ask for medications, so schedule around the clock Tylenol to eliminate pain as a contributing factor. Hydromorphone (Dilaudid) can be used for more serious pain. At larger academic centres, there are also automatic consultations for geriatric hip fractures, as delirium is overwhelmingly common in this setting. It may be important to review Osteoporosis guidelines prior to an inpatient geriatric elective given this.

Outpatient Geriatric Medicine

Consultations can be for any condition, but common referring complaints include “memory loss” (review dementia and its subtypes) and neurological diseases such as Parkinson’s Disease. As geriatrics typically employs an inter-professional model, various allied health team members may be trained as “geriatric assessors” who perform initial geriatric assessments including chief complaint, history of presenting illness, past medical history, medications, social history (with an emphasis on living situation), nutritional status, and functional history (ADLs and IADLs). They will also complete cognitive and psychiatric testing where appropriate such as the MMSE, MoCA and Geriatric Depression Scale. They may also start with physical testing such as the Timed Up and Go (take an interest in these, look them up, and offer to do them). The geriatrician will focus on physical examination (including extensive neurological exam and orthostatic vitals), medication review and other relevant medical issues. Medications are reviewed and recommendations for medication changes usually occur at every initial visit (as outlined in BEERS criteria; minimize anticholinergic agents). Collateral history can be important to obtain in this context. Most geriatric patients are accompanied by a family member or close friend. Lengthy discussions about future living arrangements, substitute decision maker status, prognosis, and goals of care often occur with the patient and family members.

Geriatric Psychiatry

For this rotation, you may work in inpatient, outpatient or long term care settings. Study dementia, cognitive disorders, and the various antipsychotics used for responsive behaviours. There are not necessarily any “go-to” antipsychotics, as the psychiatrists have their preferences for various reasons, and they are not extensively studied in this patient population. Look up Behavioural Supports Ontario (BSO) – it is a program to enhance services for older people with responsive behaviours linked to cognitive impairments. “Responsive behaviours” is a newer term for aggressive and difficult behaviours. You may also be involved with assessing capacity and consent.

Care of the Elderly

Family physicians that have an interest in, or pursue extra training in, geriatrics mainly work in nursing homes. They see many patients per day, and each patient’s nurses typically knows them best. Apply the same principles as above, and make sure to review patients’ medications at every visit. Remember to consider urinary tract infections in your differentials - UTIs present in unusual ways in the geriatric population, especially when they cannot communicate well.

Common Conditions

- Delirium, dementia and depression **Differentiate the Three Ds of Cognitive Impairment**
- Polypharmacy
- Frailty
- Falls, osteoporosis and hip fracture post-op management
- Immunizations
- Elder abuse
- Gait disorders and Parkinson’s disease
- Constipation
- Incontinence, UTIs
- Malnutrition
- Presbycusis
- Pressure ulcers

Common Medications

- Pain control: Acetaminophen, Hydromorphone (Dilaudid)
- Cognitive enhancers: Donepezil (Aricept), Rivastigmine (Exelon), Memantine (Ebixa)
- Laxatives: Bran, Psyllium, Lactulose, Senna, Bisacodyl
- Sleeping medications: Trazodone, Zopiclone (Imovane), Temazepam, Oxazepam

Tools & Criteria

- Confusion Assessment Method (CAM) Score, MMSE, MoCA
- BEERS Criteria
- Geriatric Depression Scale
- Osteoporosis Guidelines
- Timed Up and Go Test

Resources

- Geriatrics at Your Fingertips – Pocketbook
- iGeriatrics (by American Geriatrics Society – units are American values but still a useful resource)

Electives Information

Hematology is a subspecialty of internal medicine. With regards to Hematology electives, one can apply to general hematology, hematology/oncology, paediatric hematology as well as thrombosis. However, since hematology is not direct-entry (you apply after three years of internal medicine), completing diverse IM subspecialty electives along with CTU is recommended. Hematological pathology is a related discipline (with elective exposure available) and has its own direct-entry program.

Specifics of Specialty

Hematology is the study of diseases related to blood- the quantity and quality of its cells and proteins, as well as the organs that produce (bone marrow, lymph node, thymus, kidney, liver) and destroy (spleen) the blood constituents. Hematologists study laboratory parameters, blood smears, bone marrow & node biopsies, flow cytometry data, etc. to determine the causes and prognoses of their patients' disorders. These range from benign to malignant, with therapeutic to palliative treatments.

Approaches to abnormal laboratory parameters are important in hematology. For hematology services or clinics, the most frequent consults are for cytopenias (anemia, thrombocytopenia, neutropenia; pancytopenia), cytos (leukocytosis), other abnormal lab values (e.g. high ferritin), bleeding disorders (bleeding diatheses or hypercoagulable states), etc. In each case, it is important to have a solid basic understanding of the differential diagnosis and an approach in order to order the necessary tests. Podcasts and videos can help solidify your general understanding and approach, and a solid pocket (or electronic) reference guide can help you make sure you're covering your bases without ordering extraneous testing. Popular resources are listed below in the **Resources** section.

Example: Approach to anemia

Broadly, anemia can be classified into decreased production and increased loss or destruction:

- 1) Decreased production
 - a. hemoglobin problem (defective *heme* or *globin* synthesis)
 - i. Δ heme: low iron (2° to dietary deficiency, malabsorption, chronic inflammation, chronic bleeding), sideroblastic
 - ii. Δ globin: thalassemias
 - b. bone marrow problem: low folate or B12 (DNA defect; 2° to diet, EtOH, meds), primary malignancy or infiltration, MDS, myelofibrosis...
- 2) Increased loss
 - a. Acute bleeding
 - b. Hemolysis:
 - i. Microangiopathic hemolytic anemias – HUS, TTP, DIC
 - ii. Autoimmune hemolytic (Coombs' positive) – warm and cold types
 - iii. Other (Coombs' negative) – sequestration (spleen), membrane defect, drugs...

A clinical approach to anemia would start with causes suspected based on the clinical presentation and history. Any ongoing or recent bleeding (GI, GU)? Signs, PMHx or FamHx suggesting coagulopathy? Other relevant signs or symptoms (constitutional symptoms, jaundice)? Dietary deficiencies? Suspected

causes of malabsorption (e.g. gastric bypass, celiac disease)? Chronic inflammatory or liver diseases, or medications? Social factors (EtOH, smoking, medications)? The laboratory workup is informative, specifically the severity (Hgb) and chronicity of the anemia, the cell size (based on MCV: micro-, normo- or macrocytic?), and whether other cell lines are affected. Other lab work may or may not have been ordered, and it's your job to determine which other investigations (if anything) need to be ordered to determine the cause and treatment for the anemia.

Try to develop similar approaches for the other cytopenias (including pancytopenia), as well as cytososes (particularly leukocytosis and hematological malignancies) prior to your elective in order to be well-prepared and shine. Some hospitals have separate specialized services for thrombosis, so you may not see much thrombosis on a general hematology elective (though it may still be helpful to review the coagulation cascade and common medications). You may have the opportunity to examine blood smears on your elective, so reviewing the "hematopoiesis tree" and knowing key cell-disorder associations is important (e.g. schistocytes in microangiopathic hemolytic anemia, Reed-Sternberg Cells in Hodgkin's Lymphoma, Auer Rods in AML; see **Resources**).

Common Conditions

- Iron deficiency anemia
- Anemia of chronic disease
- Sickle cell disease
- Immune thrombocytopenic purpura
- Heparin-induced thrombocytopenia
- Febrile neutropenia
- Myelodysplastic syndrome (MDS)
- Blood transfusions including specific components of blood and adverse reactions
- Myeloproliferative disorders
 - o Polycythemia vera (PV), Essential thrombocytosis (ET), Myelofibrosis (MF)
 - o Chronic myeloid leukemia (CML)
- Acute myeloid leukemia (AML) & FAB types: M0-M7
- Acute lymphocytic leukemia (ALL) & WHO classification
- Chronic lymphocytic leukemia (CLL) and non-Hodgkin lymphomas
- Hodgkin lymphomas
- Multiple myeloma
- Coagulopathies: Hemophilia A & B, von Willebrand Disease
- Hypercoagulable Disorders

Develop **approaches** to:

- anemia
- thrombocytopenia
- neutropenia
- pancytopenia
- leukocytosis
- thrombocytosis
- bleeding disorders (primary vs. secondary)

Procedures

- Bone marrow biopsy
- Lymph node biopsy interpretation (procedure often done by general or thoracic surgery)

Common Medications

- Iron replacement therapy: oral iron (different formulations), IV iron (Venofer)
- B12 injections, oral folate
- Neupogen (GM-CSF)
- Whole blood transfusions
- Blood products: platelets, FFP, clotting factors
- Anticoagulants
 - o Heparins: UFH, LMWH (Enoxparin, Tinzaparin), Fondaparinux
 - o Warfarin
 - o DOACs: Rivaroxaban, Apixaban, Dabigatran
- Antiplatelets: Aspirin, Clopidogrel, Ticagrelor...

Resources

- **Before your elective...**
 - o Podcasts:
 - Intern at Work (developed by McMaster IM Residents)
 - Louisville Lectures (e.g., “Approach to Anemia with Dr. Moffett”)
 - o Videos: FTPLectures, Osmosis, Lecturio...
 - o American Society of Hematology: Hematology Education Program
 - o Bloody Easy Series (Coagulation Simplified, Blood transfusions...)
 - o Bain BJ. “Diagnosis from the Blood Smear”. NEJM. 2005; 353:498-507.
- **On the wards...**
 - o Paperback pocket guides:
 - “Pocket Medicine: The Massachusetts General Hospital Handbook of IM”
 - “Approach to Internal Medicine” by David Hui (Canadian lab values)
 - o UpToDate
 - o Thrombosis Canada app

Electives Information

Nephrology is a subspecialty of internal medicine. If you are interested in Internal Medicine or a subspecialty of Internal Medicine, considering nephrology would be worthwhile. The reason for this is simple: nephrology is encountered daily in general internal medicine practice. If you are particularly interested in nephrology, then other electives to consider include any internal medicine subspecialty, critical care as well as general internal medicine. Urology is a surgical elective that may offer some relevant anatomy and physiology understanding. This extends to pediatrics.

Specifics of Specialty

A general approach to nephrology starts with understanding the main function of the nephron. Knowing the intricate relationship with the rest of the body is also important. As always in an internal medicine specialty, the pathophysiology is essential in understanding the diagnostic work-up and interpretation of results for the disease in question. You will never go wrong bulking up on your physiology knowledge prior to a nephrology elective.

Prior to starting your elective find out the scope of practice of the nephrologist you will be working with. Do they manage in-patients or run a clinic for outpatient referrals? Do they run the dialysis unit?

When addressing the complex nephrology patient, it is important to take a thorough history and perform a complete exam. As mentioned before, the kidneys are vital in the body's homeostasis. Ask a patient about lifestyle habits (screen for diabetes, hypertension, microvascular disease); ask about past medical history and (history of contrast use for imaging studies [although this is starting to be disproved in the literature, with the advent of more iso-osmolar dyes], history of **autoimmune** disorders, history of renal calculi); assess the patient for **medication compliance** and fluid restrictions; ask about SOB, orthopnea, PND, hemoptysis, swelling, gross hematuria, rashes, **joint pains**, CREST-like symptoms, infections, medications. In your physical exam consider the patient's fluid status (**JVP** and **peripheral edema**). A good knowledge on how to assess volume status is paramount.

Clinic

Clinic patients will present for follow up of chronic kidney disease or as new consults. This is a good place to practice your history and physical exam skills, particularly assessing **volume status** (learn proper technique to assess orthostatic vitals, and JVP). It is important to ask about blood pressure control. Many patients will have home BP cuffs and keep a log tracking BP and daily weights. Ask them about their salt intake and use of the "No Salt" seasoning which are very high in potassium. Regardless of the etiology, all patients with chronic kidney disease will end up on a final common pathway to dialysis. Each visit you will be asking for symptoms of uremia and following blood work looking for indications for dialysis (**AEIOU**). For new consults a full history is important, particularly for what reason was the consult made? Are they a diabetic patient with a mildly elevated albumin to creatinine ratio or were they referred for new onset generalized edema with massive proteinuria following a recent upper respiratory tract infection? Remember, by far the two most common etiologies of ESRD are hypertensive and diabetic nephropathies, respectively.

Consults

When performing a hospital consult always know the reason for the consult, who asked for the consult, and the patient's reason for admission. Their course in hospital is also important. Determine if the issue is acute or chronic. Look on EMR and read old consults, graph out lab values of electrolytes and renal function, and check old abdominal ultrasounds for changes in kidney size. A very important step is to determine the **baseline** of kidney function, as well as a baseline for all labs. Most patients will already have most standard blood work ordered including electrolytes, BUN/Creatinine, urinalysis and microscopy, albumin and fasting lipids. Nephrology will order other specific blood work depending on the history and physical exam you perform. Volume status is very important. One of the most important aspects of nephrology is looking at the **urine: know your urinalysis!** Check vitals (tachy + low BP/normal may, flat/low JVP = volume depleted). Check the chart for fluid input/output and daily weight. Assess volume status on physical exam and check orthostatic vitals. Is the patient on appropriate renal and diabetic diet? What meds is the patient on now and before hospital? Do any of their medications need to be adjusted for renal function? Always ask about **NSAID** use. Does this patient need dialysis right now (**AEIOU**)?

Cardiology will consult on the risk of contrast nephropathy before performing angiogram in patients with reduced renal function. The ER will consult on acute kidney injury or acute on chronic kidney injury. Medicine will consult on more complex cases that do not resolve with initial intervention (fluids and foley catheter placement). These may include various glomerular and tubulointerstitial diseases, scleroderma renal crisis, myeloma kidney, hepatorenal syndrome, and also patients requiring dialysis.

During your elective you will encounter patients who receive renal replacement therapy including hemodialysis and peritoneal dialysis. It will be important to learn the indications for dialysis (**AEIOU**). Patients on dialysis also need management of phosphate levels, and BP.

Common Conditions

- Acute Renal Failure (Pre-renal, renal, post-renal)
- Nephrotic and Nephritic Syndrome
- Chronic Kidney disease (diabetic and ischemic nephropathy)
- Indications for dialysis (**AEIOU**)
- Electrolyte abnormalities (Na, K, HCO₃, Phos, Ca, Mg)
- **Anemia** of chronic kidney disease (all patients with eGFR < 60 will eventually develop)
- Acid-base disturbances
- Hematuria (glomerular vs non-glomerular causes)
- Acute Tubular Necrosis
- Management of Hypertension

Procedures

- Renal biopsy (Cannot perform in patients with BP >140/90 due to risk of renal bleeding)

Common Medications

- Anti-hypertensive (loop diuretics, thiazide diuretics, potassium sparing diuretics, ACEI, ARBs)
- Phosphate binders (Tums-Calcium Carbonate, Renagel-Sevelamer)
- Calcineurin inhibitors (cyclosporine, tacrolimus)

- Darbepoetin alfa (Aranesp)

Resources

- Hui – Approach to Internal Medicine (4th ed.)
- McGee – Evidence-Based Physical Diagnosis (volume status, etc.)
- ACP IM Essentials: Nephrology section
- MDCalc (or any other medical calculator)
- Dr. Najeeb's lectures: www.drnajeeblectures.com
- MedCram videos on acid-base metabolism and acute kidney injury
- Tortura or Guyton and Hall Physiology

Electives Information

For neurology, you can apply to adult or paediatric neurology (or both) depending on your interests. If you are interested in paediatric neurology then a general paediatrics elective could be helpful. If you have a specific interest in a subspecialty of neurology (for example, epileptology) you could try to arrange an elective in that. I think it's probably most beneficial to do general neurology electives, which would allow you to get exposure to a wider variety of conditions. Trying to arrange both inpatient and outpatient experiences can allow you to see a wider variety of neurological problems as well. In terms of complimentary electives, radiology, internal medicine (and even some subspecialties like infectious disease or hematology), physical rehabilitation medicine and neuropathology are all good options.

Specifics of Specialty

Ward Management

Forming a good problem list during your first encounter with the patient is extremely helpful so that when you continue to see the patient every day you have something to prompt you on the key issues that need to be addressed with this patient. Keeping the problem list updated as certain issues resolve and others appear is a good way to stay organized. Sometimes the patients can be quite complicated and keeping a nice concise list is the easiest way to ensure you don't forget anything.

It is always important to consider disposition. In order to do this, you need to have established baseline functioning of your patient before he/she was admitted to hospital. Once you know this, you can then consider how far the patient is from baseline. This will influence whether they can return home or if they need more intensive rehabilitation.

Though it is not necessary to memorize all the details about your patients, it is helpful to know some pertinent past medical history without having to refer to the chart. These are often things that the staff may forget and may ask you about during rounds. In the case of a stroke patient for example, remembering which stroke risk factors the patient has would be relevant to remember.

Consults

It is most useful to start with a quick search of the patient on the hospital's system (once you've ensured the patient is stable). This helps you quickly get an idea of the patient's past medical history and can clue you in on some key things to ensure you address those during your encounter. As a medical student, your history and physical examination should be thorough. **Have your own reflex hammer, tuning fork, eye chart, and safety pins** with you when you go see a consult. These items are almost impossible to find in the emergency department and on the floor and without these tools you really can't accurately complete a full neurological assessment. All are reasonably priced on amazon. Always try to localize the lesion- brain, spinal cord, peripheral nerve. Even if you are wrong, residents and preceptors prefer to see that you have at least given it some thought and tried to consider what might be going on. Questions specific to neuro: handedness! Always start off your presentation with this is a 50 year old right/left handed patient.

Clinic

If you are seeing a new consult, approach it similar to how you would approach the in-patient consults. If it is a follow-up appointment this can be trickier. If you know the day before you will be helping out with a follow-up clinic it's a good idea to ask if you can pick out some patients that you'd like to see and review their files ahead of time. This allows you to have some idea of what you'll need to cover during the visit and gives you a chance to read up on anything about their case that you are unfamiliar with.

Common Conditions

- Stroke/ TIA
- Headaches
- Multiple Sclerosis
- Epilepsy & Status Epilepticus
- Parkinson's/ Parkinson's Plus Syndromes
- Guillain-Barré Syndrome
- Neuropathies
- Meningitis/ Encephalitis
- Vertigo/ "Dizziness"
- Post- Concussion Syndrome
- Dementias
- Motor Neuron diseases

Procedures

- Lumbar punctures: indications, contraindications, relevant anatomy, steps of the procedure. Your participation will vary depending on comfort level of your residents/preceptors
- EMG and nerve conduction studies: anatomy is key here. Review the distributions of myotomes and dermatomes as well and the peripheral nerve distributions. Know which muscles would be relevant for testing certain peripheral nerves or nerve roots. The actual interpretation of the testing is not as important.
- EEG: indications, awake vs. sleep deprived, relevance of a negative test. Actual interpretation of the wave patterns would not be expected.
- Imaging: the most common images you will encounter are CT/MRI head. You may also see some MRI of the spine. Be familiar with anatomy, know the expected appearance of different types of extracranial vs. intracranial bleeds, and be familiar with what acute vs. chronic bleeds would look like.

Common Medications

- tPA- indications, contraindications, dosing, window for administration
- Anticonvulsants- commonly encountered: Dilantin, Keppra, Lamotrigine, Valproic Acid, Carbamazepine, Topiramate, Lacosamide. Helpful to know common side effects and any testing necessary. Also important to consider teratogenicity.
- Drug therapies for MS- Tecfidera, Gilenya, Avonex, Rebif, Tysabri. Just be familiar with the names, have an idea about mechanism of action and adverse effects.

- Anti-Parkinson medications- levodopa/carbidopa is the big one here, have a general sense of dosing and titration practices
- Medications used for migraines vs. tension vs. cluster headaches (including prophylactics)
- Acetylcholinesterase inhibitors as cognitive enhancers – Donepezil (Aricept), Rivastigmine (Exelon), Galatamine (Remenyl), memantine

Criteria

- NIH score
- MMSE/MoCA/ToRCA/BNA-SF
- CHADS2/ CHADS2VAsc
- HAS-BLED
- ABCD2

Resources

- Neurological Examination Made Easy – Geraint Fuller
- The Four-minute Neurologic Exam – Stephen Goldberg
- Clinical Neuroanatomy Made Ridiculously Simple – Stephen Goldberg
- Neuroanatomy Through Clinical Cases- Hal Blumenfeld

Surgical Subspecialties

The surgery section of this guide is laid out in two parts. The first part is general advice, which applies to all surgical specialties in the guide. The 2nd part goes into more detail of each subspecialty and the specifics to help you be successful on your elective.

Specifics of Surgery

The general advice for surgery is grouped according to day-to-day duties on surgery, which encompass: Clinic, Operating Room, Rounding/Ward Management, and On-Call.

Clinic

This is probably the best learning/teaching you'll get during your surgery electives. It is a great place to see new consults and to see the follow-up patients of common conditions and to get face time with your staff. There may be also small procedures to be done. Just like other consults, take your time, it is better to take a few more minutes to be thorough, than trying to be quick and missing pertinent information. A good tip is to always come up with a management plan for your patient. Use guidelines or other resources before you review with your staff if you are unsure of the exact plan. Often, you may have to wait for your staff to review, this is a great opportunity to start your formal clinical note on the EMR if need be. Also, make sure to ask to complete the dictation on your staff's behalf.

Operating Room

Depending on what size hospital your involvement in surgeries may differ. Regardless, preparation is the key. If you are operating the next day, make sure to check the OR list the previous day to see what cases your surgeon is performing. Surgeons love anatomy and these are commonly the questions you may get asked in the OR. A general guide is to look up the potential nearby vasculature, muscles, nerves that you may encounter in the surgery as well as a brief history on these patients the night before. Come in early before OR starts and introduce yourself to the nurses. Put your name, year, and glove size on the whiteboard. Other duties include helping transfer patients, get pertinent imaging up on the EMR before the surgery, placing the Foley catheter, writing the OR note, and writing post-op orders. Most people won't expect you to get all the orders correct, but attempting shows good initiative! A helpful tip is to take a picture of the completed post op orders, so you have a better idea for next time! Feel free to ask questions intra-op, but make sure it's during an appropriate time. Hopefully you'll get to do some suturing and make sure to take your time! Many learners worry about slowing down the surgery and try to suture quickly and often make mistakes, so take the time to do it properly the first time. This is probably the first skill you'll get to do in the OR, so make sure you've practiced and feel comfortable suturing. This will gain your preceptors trust and they may allow you to do more in future surgeries. Feel free to ask and explore the surgical simulation labs while you're on elective.

Rounding/Ward Management

Rounding in the morning for surgery can sometimes be quite chaotic. Most teams might be in a rush to make sure they get to clinic/OR in time. To be a helpful elective student, come in a bit early print off patient lists for the team and get the charts organized into the cart. If you want to go the extra mile, writing down yesterday's labs, vital signs, ins and outs on patients and photocopying this list is greatly appreciated! Organization is the key during morning rounds and for ward management! Make sure to write the SOAP note in the patient's room while your team is seeing them. Keep your patient list updated

throughout rounds and the day keeping a to do list for each patient and assign yourself a few of these tasks after rounds. Also, little things like letting your seniors know about important imaging and blood work results as the day goes on go a long way!

On-Call

As an elective student, taking a few call shifts during your elective is a absolute must as this is usually the time you'll get more OR time, run consults, general responsibility, and more 1 on 1 time with staff. Especially if you're in a larger centre, there is less team members around and you'll get to have a ton more responsibilities. Try to get an on-call room early as they always seem to be limited numbers for clerks. Make sure to pack some snacks, stay hydrated throughout the night, even something like a new pair of socks/scrubs can give you a second wind on call. In general, even if you aren't on call try to stick around in the evenings if there is interesting ORs going on. Staff and residents definitely notice the time commitment students put into their surgery electives and staying late a few extra days definitely reflects positively on you.

Common Medications

Analgesia

- Acetaminophen, Tylenol #3, Percocet, Diclofenac, Morphine, Hydromorphone, PCA as per acute pain service

Antibiotics

- Cefazolin, Metronidazole, Ceftriaxone, Ciprofloxacin, Pip-Tazo, Vancomycin

Antiemetics

- Gravol, Metoclopramide, Ondansetron

Anticoagulation

- Heparin (Lovenox, Fragmin)

Bowel Regimen

- Colace, Senna, Lactulose, Milk of Magnesia, PEG, Loperamide

Resources

For medical students, the following resources are the most useful regardless of what surgical specialty you are interested in. This list is more than enough for what you need during your surgical electives and medical school. However, there are most in depth resources listed for each specialty under their section.

Textbooks/Pocketbooks

- Surgical Recall-Great for commonly asked questions by staff, there is also an advanced version of this book
- First AID Clerkship Surgery
- Toronto Notes
- Tarascon Pocketbooks-have different versions depending on specialty.
- Schwartz's Principles of Surgery-very in depth surgical textbook
- Sabiston's-Textbook of Surgery-also very in depth, used by residents/surgeons
- Lange Current Diagnosis and Treatment Surgery
- Greenfield Surgery

Anatomy Textbooks

- Zollinger's Atlas of Surgical Operations-step by step of operations
- Color Atlas of Anatomy by Rothen-more realist approach to anatomy with cadaveric images
- Atlas of Human Anatomy by Netter
- Clinically Oriented Anatomy by Moore-great for explanation of clinical conditions related to anatomy

Internet Resources

- Medscape-great for in depth walkthroughs of common surgeries
- <http://www.nlm.nih.gov/medlineplus/surgeryvideos.html> - in depth surgery videos
- www.surgiwiki.ucsf.edu -videos of general surgery operations

Apps

- Surgery 101 Podcasts-great to listen to on long car rides

Electives Information

For Orthopaedic Surgery, one could apply to many of the subspecialties such as Arthroplasty, Paediatrics, Upper Extremity, Sports, Foot and Ankle, Spine, Trauma, and Oncology. In addition, complementary electives for Orthopaedics would include Rheumatology, Sports Medicine, Physiatry, MSK Radiology, and other surgical specialties.

Specifics of Specialty

Orthopaedic surgery is a great broad elective for medical students to do regardless if you're interested in surgery or not. There are great skills for students interested in emergency medicine, family medicine, sports medicine, and physiatry. Keep this in mind as well when applying and establishing your goals on your elective. If you are doing the elective to know how to better manage fractures in the ED, it may be worthwhile to ask to spend time in the Fracture Clinic where fractures are managed. You could also ask to see most of the ED consults. This way you can practice your history/physical exam, approach to imaging, and presentation skills for common orthopaedic injuries. If you want more of a perspective on management of chronic degenerative joint conditions for family medicine, clinic may be more beneficial as well. Make sure to be aware if your orthopaedic surgeon has a subspecialty in order to brush up on these topics before start of your elective. Orthopaedic trauma electives will give you the widest range of orthopaedic injuries to be exposed to in the ED and operating room.

Orthopaedic surgeons also love their anatomy and having a thorough knowledge of bones, landmarks, muscles and nerves can go a long way. Obviously, this is quite a bit of anatomy to memorize, therefore a quick tip is to keep these muscle charts origin, insertion, action, nerve innervation handy on your phone. Furthermore, prior to a surgical case reading on the operation and knowing common anatomical landmarks, neurovascular bundles to avoid, and a basic overview of steps will be extremely useful. Common questions include; "what nerve should I watch out for here?", "what muscle are we spitting?". I suggest also getting a good clinical anatomy textbook to help understand the common injuries associated with each joint and limb.

For clinic, one should be comfortable with MSK physical exams for upper and lower limbs. Netter's Concise Orthopaedic Anatomy (listed below) is great for this. Also, be comfortable with neurovascular exams for upper and lower limbs. Ensuring that a patient is neurovascular intact is expected on all physical exams. There are many special tests and maneuvers to help rule in or out certain MSK injuries. One of the most common presentations in clinic is osteoarthritis of a joint so make sure you're comfortable with taking an in-depth MSK history along with risk factors. Clinic is a great place to take initiative as one can get plenty of hands on skills by giving cortisone injections and casting independently. Be familiar with the list of eponymous fracture types, which is commonly, pimpled questions during orthopaedics.

When on call expect to see numerous consults with varying injuries. Most commonly seen consults are; hip fractures, ankle fractures, and wrist fractures. It is paramount on history to get a detailed mechanism of injury (how fast, how high was the fall etc.). Identify if there was head trauma, any LOC, or any further injuries to any other areas. As mentioned above, on physical examination ensure the patient is

neurovascularly intact, and examine the joint above and below the injury. Furthermore, ensure to rule out compartment syndrome. Be sure to still to do a concise chest and respiratory examination, this can determine whether the patient is fit for surgery.

Just like other surgical specialties, radiology is always intertwined with surgery. An essential skill for any medical student is an approach to describe fractures on radiographs. Approach should characterize bone, fracture type, alignment, angulation, rotation, displacement etc. A handy tip is a person should be able to visualize the radiograph through your description of the fracture.

Common Conditions

- Be comfortable describing fractures (commonly wrist, hip, ankle)
- Arthritis Types
- Compartment Syndrome
- Bone Tumours
- Osteomyelitis
- Shoulder Dislocations/Rotator Cuff Injuries
- Ligament Tears/Sprains
- Achilles Tendon Rupture

Procedures

There a wide range of orthopedic surgeries that can be grouped according to joint/bone.

- Knee-Replacement, arthroscopy, meniscectomy, ACL repair
- Hip-Replacement, arthroscopy, repair of femoral neck/shaft/trochanteric fractures
- Shoulder-replacement, arthroscopy, rotator cuff tendon repair
- Spine-Laminectomy, Discectomy, Spinal Fusions
- Long bones-ORIF
- Joint injections
- Casting
- Suturing
- Reducing Fractures

Criteria

- Classification and Eponyms of Fractures-best to study these by joint/limb.
- Salter-Harris Classification
- Gustillo Anderson Classification
- Canadian C-Spine and CT Head Rules
- Ottawa Ankle/Knee Rules
- Danis-Weber Classification

Resources

- Tarascon Pocket Orthopedica
- www.orthobullets.com- Great in depth, quick, free resource (#1 resource to use)
- AO Surgery Principles – Foundations of fracture fixation (great way to impress)

- Orthopedics Made Ridiculously Simple
- Netter's Concise Orthopaedic Anatomy
- Gowned and Glove Orthopaedics
- <http://radiologymasterclass.co.uk> - Great walk through on interpreting radiographs and visualizing fracture findings.
- radiopedia.org - In-depth description of specific radiological findings
- Surgical Exposures in Orthopaedics by Stanley Hoppenfeld – great explanations and photos of surgical anatomy by approach. Very useful to review prior to surgical cases.
- Handbook of Fractures by Koval and Zuckerman

Electives Information

When applying to neurosurgery, one can consider applying to general neurosurgery or subspecialties such as paediatric neurosurgery, interventional neurosurgery, spine, and neuro-oncology. Furthermore, complementary electives to neurosurgery include neurology, neuro-physiatry, radiology, intensive care, anesthesia and other surgical specialties.

Specifics of Specialty

Neurosurgery clinic offers a chance to see referrals for both essential and elective procedures. The degree of variability you see will depend on the area of interest or subspecialty of the neurosurgeon you are working with. For adults, the most common encounter for the generalist neurosurgeon will be for lower back pain refractory to medical treatment. Be sure to know about the surgically correctable causes of low back pain and the workup for these cases. In addition to this, be familiar with pain management strategies for neuropathic pain.

Elective procedures that are frequently encountered include carpal tunnel release, ulnar nerve transposition, cervical discectomy and laminectomies. At the other end of the spectrum, you will see patients being referred from clinic/other specialists who have been worked up for central lesions. These patients are usually referred for surgical opinion and involve a multidisciplinary approach. Going over the most common types of benign and malignant lesions that a neurosurgeon would see (for example, meningiomas and glioblastoma multiforme) is recommended.

Be sure to know the neurological exam thoroughly. Be able to assess strength, sensation, and reflexes for upper and lower extremities. Also know the cranial nerve exam and cerebellar exam well as these will comprise the majority of your physical exam. Be comfortable with dermatomes for cervical, thoracic, lumbar, and sacral regions and understanding what areas of a body are associated with each nerve bundles. For example, decreased sensation to lateral malleolus along with decreased plantar reflex is associated with S1 and potentially nerve root compression or Degenerative Disc Disease between L5-S1. Make sure you can always relate your sensory and motor exams to specific nerve bundles. This may also help you localize intracranial space occupying lesions (ie. positive findings on cerebellar exams may correlate to cerebellar tumour). While reviewing your neuro exam it is important to practice your understanding of which spinal tracts are associated with the modalities you test for (vibration, pain, fine touch etc.).

A unique feature of neurosurgery is imaging. Neurosurgeons read their own MRIs and are very familiar with interpreting imaging. It's worth looking through introductory radiology, with a specific focus on MRI imaging for central and peripheral lesions.

Common Conditions

Brain

- Intracranial Hemorrhages (Epidural, Subdural, Subarachnoid)
- Increased Intracranial Pressure and Monitoring
- Primary Brain Tumours and Classification

- Basilar and Skull Fractures
- Arteriovenous Malformations / Aneurysms
- Traumatic Brain Injury

Spine

- Degenerative Disc Disease, Disc Herniations
- Spinal Cord Trauma
- Cervical and Lumbar Spinal Stenosis
- Spine Fractures
- Spinal Tumours
- Cauda Equina Syndrome
- Neurogenic Claudication

Paediatrics

- Hydrocephalus
- Craniosynostosis
- Spina Bifida, Meningocele, Myelomeningocele
- Arnold-Chiari Malformations

Procedures

Brain

- Craniotomy
- Tumour Excision
- Aneurysm Repair Open vs. Endovascular Approaches
- Decompression of Intracranial Hemorrhage
- External ventricular drain/ Ventriculoperitoneal Shunt

Spine

- Lumbar Laminectomy Discectomy
- Spinal Fusions
- Anterior Cervical Discectomy and Fusion

Peripheral

- Carpal Tunnel Release
- Transposition of Ulnar Nerve

Common Medications

- Anticonvulsants-Carbamazepine, Phenytoin
- Dexamethasone-cerebral edema
- Mannitol-ICP

Criteria

- Glasgow Coma Scale
- Dermatomes
- Cushing's Triad
- Monro-Kelly Doctrine

Resources

- Handbook of Neurosurgery by Greenberg

- Textbook of Neuroanatomy by Patestas
- The Radiology Assistant

Vascular Surgery

Electives Information

Electives should mainly be related to vascular surgery. Other complementary electives include intensive care medicine, cardiology, anesthesia, interventional radiology and other surgical specialties like cardiovascular surgery, general surgery, and thoracic surgery.

Specifics of Specialty

Having a solid knowledge base of vasculature including arteries, veins, and lymphatic systems is key for vascular surgery. This especially comes in handy when reviewing imaging such as angiograms and in the catheter lab. Also, take some time to brush up on complications of chronic diseases as many of these patients have poorly controlled hypertension, diabetes, and hyperlipidemia.

For clinic, know the risk factors for peripheral vascular disease and symptoms of claudication that is a common patient presentation. Take your time during your physical exams to be efficient in palpating pulses of upper and lower limb and how to palpate for abdominal aortic aneurysms. This extends to learning to use a Doppler for difficult to find or non-palpable pulses. Brush up on some signs of venous vs. arterial insufficiency and special tests to perform during your physical examination such as Buerger's test. Be able to describe wounds in detail as some of these patients have chronic wounds and ulcers. You can also learn some hands-on skills in clinic debriding out wounds and learning appropriate wound/dressing management. For OR, read up on the criteria indications to operative on conditions such as AAA and carotid stenosis. Depending on your centre, you may get a chance to assist in the cath lab as well performing some endovascular procedures.

In terms of anatomy, get to know the differences between arteries and veins. Understand the general layout of the peripheral vascular system including the arterial, and superficial/deep venous system. In terms of physiology, brush up on flow (how occlusion alters flow) as well as how diabetes and hyperlipidemia affects the vasculature. A general understanding of ischemia and tissue damage is important, as is dry and wet gangrene.

Common Conditions

- Aortic Aneurysm
- Limb Ischemia
- Peripheral Vascular Disease
- Carotid Stenosis
- Deep Venous Thrombosis
- Thrombophlebitis/Varicose Veins
- Lymphedema Types
- Raynaud's syndrome
- Scleroderma
- Diabetes Complications
- Wound Management

Procedures

- Surgeries
 - Endovascular vs. Open AAA repair
 - Carotid Endarterectomy
 - Amputations (Toe, Transmetatarsal, Syme, Below Knee, Above Knee)
 - Thrombolectomy
 - Femoral/Popliteal Bypass Grafts
- Ankle-brachial index
- Using a Doppler to detect pulses
- Angiograms
- Pulse Volume Recordings

Common Medications

Antihypertensives

- ACE inhibitors, ARBs, Calcium Channel Blockers, Diuretics

Lipid Control

- Atorvastatin, Rosuvastatin

Anticoagulants

- Heparin, Coumadin, Direct Thrombin Inhibitors (Dabigatran), Direct Factor X1 inhibitors (Rivaroxaban)

Criteria

Well's Criteria

Framingham Risk Score

Bleeding Risk Scores-HAS-BLED

Vascular Study Group Cardiac Risk Index-Carotid Endarterectomy, Lower Extremity Bypass, Open Infrarenal or Endovascular AAA Repair.

Resources

www.vascularweb.org- great resource for clinical practice guidelines

Journal of Vascular Surgery

Canadian Society for Vascular Surgery

Vascular Surgery by Rutherford

Elective Information

For persons interested in cardiothoracics, most of your electives will probably be based in either of these two surgical specialties (thoracics and cardiovascular surgery). However, if you wanted some complementary electives try doing general surgery, anesthesia, respirology, cardiology, radiology, and other surgical specialties.

Specifics of Specialty

Cardiothoracic surgery is a subspecialty that focuses on surgical treatment of disease within the thoracic cavity. Therefore, having knowledge of anatomy relating to heart and lungs is important.

For thoracics, one can divide mediastinum into four compartments, and be familiar with the masses relating to each of these. For clinic purposes, you'll see a wide variety of intrathoracic conditions from solitary pulmonary nodules to esophageal motility disorders to malignancies. Be familiar with the risk factors for lung cancer. Unlike other surgical specialties, make sure to bring your stethoscope and be comfortable with your respiratory exam and special tests for thoracic outlet syndrome. It would be wise to brush on your pulmonary function tests as well and know pre-op criteria for someone undergoing lung surgery.

In terms of ward management, for thoracics there are many hands on skills to learn on elective. This is a great time to practice with chest tube insertions, thoracentesis, learning how to manage chest tubes including testing for air leak, when to pull them and performing bedside pleurodesis using talc. Try to get some time observing endoscopy and bronchoscopy to appreciate the anatomy involved with thoracics surgery. Some of the most interesting surgical cases are in cardiothoracics, so make sure to get some time assisting in the OR.

The cardiac OR is one of the most interesting operating room experiences you may ever have in training. These patients are undergoing major procedures (valve replacements, coronary bypass, etc.) and in the adult setting they will be staying in the cardiac care unit. Be sure to arrive very early and take the opportunity to see the patients before they go to the OR. It helps to get a functional assessment of their condition prior to going to the OR, and makes it easier to follow them post-operatively. If the anesthesia team will allow, try to get in on some procedures there. These patients often have multiple arterial and central lines to give access for large fluid infusions, inotrope drips, and administration of anesthetic agents. This may be the most procedural thing you get to do for an elective case.

Throughout the procedure, there is limited space in the operative field given that two surgeons typically operate on either side and the scrub nurse fits in with a giant instrument tray; as such, don't expect to scrub. You may have the opportunity to close or be involved with vein harvesting from the limbs early in the procedure. There's still lots to do during the procedure so don't get down about not being able to scrub. Again, the anesthesia team will do transesophageal echocardiography to monitor parameters around valvular and myocardial function, and it's a great physiology lesson when you get to view TEE in real time with an anesthesiologist to describe it throughout. Additionally, these procedures typically involve cardiopulmonary bypass where there is extracorporeal oxygenation of the blood and stopping

the heart with cardioplegics. During this part of the procedure, when the heart is stopped for actual surgical repair, go over with the perfusionists who run the bypass machine and ask tons of questions about everything they do. They can explain cell saving strategies, cardioplegics, the anesthetic control, fluid and blood product administration, and a ton of other useful things. These are mainly focused on the adult OR, and although the general happenings will be the same in the paediatric setting, there are a number of differences. The paediatric cardiac OR focused more on repair of congenital anomalies and occurs in the neonatal/infancy period when physiology and anatomy are largely different. The adult setting will see more degenerative changes from a lifetime of BPMs. As with all elective experiences, check out the OR list the day before and read up on the unique procedures you will be seeing in the adult or paediatric setting.

Common Conditions

Cardio

- Valvular Stenosis - Mitral, tricuspid, pulmonary, **aortic
- Valvular insufficiency - **Mitral, tricuspid, pulmonary, **aortic
- Coronary Artery Disease
- Ventricular wall aneurysm
- Coarctation of the Aorta
- Membranous and muscular VSD as well as ASD
- Transposition of the great vessels
- Tetralogy of Fallot

Thoracics

- Mediastinal Masses
- Lung & Esophageal Cancer
- Thoracic Outlet Syndrome
- Pleural Effusions/Pneumothorax/Hemothorax
- Solitary Pulmonary Nodules including differential
- Achalasia and Esophageal Dysmotility Disorders
- Thoracoabdominal Aneurysms
- Hiatal Hernias Types
- Esophageal Perforation
- COPD

Procedures

Cardio

- Valve replacement
- Coronary Artery bypass grafts
- Myomectomies
- Pericardial window surgeries
- Depending on the institution - Root, ascending, and thoracic aorta repairs
- Coarctation repairs - proximal root dilatation procedures
- Mustard procedure
- Transposition of great vessels
- VSD repair

Thoracics

- Surgeries
 - o Video Assisted Thoracic Surgery Lobectomy
 - o Pneumonectomy
 - o Mediastinal Mass Removal
 - o Esophagectomies
 - o Nissen Fundoplication
- Thoracentesis
- Bronchoscopy
- Chest tube insertion and management - Pleurodesis
- Suturing
- Pulmonary Function Tests

Criteria

- Light's Criteria
- Pulmonary Function Tests
- NYHA functional classification
- Anticoagulation criteria for prosthetic/tissue valves

Common Medications

Cardiac

- Antiplatelet agents
- Lipid Lowering Agents
- Beta Blockers
- ACE Inhibitors
- Anticoagulation
- Potassium Sparing Diuretics
- Cardiac Aminoglycosides

Thoracics

Short and Long Acting Beta Agonists

- Albuterol (Ventolin), Salmeterol (Serevent)

Inhaled Corticosteroids

- Fluticasone (Flovent)

Combination LABA + ICS

- Formeterol/budesonide (Symbicort), Salmeterol/fluticasone (Advair)

Resources

- Thoracic Surgery Secrets by Karamanoukian
- Atlas of Thoracic Surgical Techniques by Townsend

Otolaryngology

Electives Information

Otolaryngology is a surgical subspecialty with additional subspecialties within it. It is an interesting field of medicine in that it has a hugely variable clinical component as well; some otolaryngologists have a purely referral practice with no OR time and manage medical head and neck conditions. In addition to general otolaryngology, try to get experience in Otology, Paediatric ENT, head and neck oncology, and rhinology. Plastic surgery is a valuable adjunct elective, and Neurosurgery is useful for learning about base of skull procedures. Many tracheal and laryngeal procedures involve shared airway control with anesthesia, so this is a useful elective to get familiar with the special anesthetic considerations of otolaryngology.

Specifics of Specialty

ENT is a specialty with a great degree of variability in the scope of practice. It offers a balance of medicine and surgery, as well as relatively minor procedures to extremely complex multidisciplinary surgeries. It's also useful for family medicine hopefuls as it will strengthen your approach to many primary care encounters and solidify your head and neck exam. Before starting the rotation, check out what type of otolaryngology your preceptors practice and brush up on these areas before working with them. For example, a general ENT with a focus in thyroid surgery will see completely different scope than a paediatric otologist. Clinic will be variable depending on the focus of the otolaryngologist you are working with, but one thing that remains constant is your history and physical exam.

For the physical exam, develop a meaningful systematic approach. Know the otoscopic exam very well and be able to identify external anatomical landmarks as well as the layout of the tympanic membrane. Know how different conditions will appear (cholesteatoma vs. serous vs. suppurative OM). Make sure to do a nasal exam and comment on the airway, septum and turbinates. Again, know the anatomy. Do a thorough oral cavity exam and be sure to work from the outside in (lips, buccal mucosa, gingiva, tongue, tonsils) and be sure to use a gloved hand to actually feel inside the mouth for lumps. Know the lymph node chains and do a thorough palpation for these. Don't forget a good cranial nerve exam and thyroid exam too.

You'll also want to review the anatomy and superior view of the larynx. One of the procedures done almost routinely on consultation is a flexible laryngoscopy. This looks like a gastroscope but is done by inserting a camera through the nare and down into the pharynx. While the staff or resident does the scope, the room usually goes quiet and they pimp you on what structures you are seeing. If you know the landmarks they'll usually spend that silent time teaching you instead of waiting for answers.

Enjoy the experience; it's a great chance to explore fairly common clinical conditions. If you can walk away with a good approach to Otitis Media, Neck masses, Primary Hyperparathyroidism, Thyroid Nodules, and feel comfortable with doing a history and thorough physical exam, then you'll have a great tool kit coming out of ENT.

Common Conditions

- Approach to recurrent Otitis Media
- Approach to recurrent Tonsillitis
- Obstructive Sleep Apnea - Diagnosis and Treatment, know indications for surgery

- Approach to neck masses
- Thyroid Nodules - diagnostic approach
- Know how to read an audiogram to identify sensorineural vs. conductive hearing loss
- Peritonsillar cellulitis vs. Peritonsillar / parapharyngeal / retropharyngeal abscess
- Foreign bodies - any orifice that a human being could possibly lodge an object into from the clavicle up.
- Epistaxis
- Stridor - in children know the main causes and timelines (laryngospasm vs vocal cord paralysis, laryngomalacia)
- Thyroid cancer - know the 4 main types and how this affects management
- Velopharyngeal Insufficiency (VPI)
- Floor of Mouth and Tongue cancers

Procedures

Fairly Common

- Know how to do a flexible laryngoscopy
- How to remove cerumen and foreign bodies under microscope
- Epistaxis management
- Peritonsillar abscess drainage - anatomical approach
- Myringotomy and Tympanostomy - Indications
- Tonsillectomy and Adenoidectomy – Indications

More in depth

- Laryngotracheal Reconstruction (Paeds) - Anatomy
- Laryngotracheal cleft repair (Paeds) - Know anatomy and classification of clefts
- Cleft Palate repair (Paeds) - Know anatomy and classification of clefts
- Cholesteatoma removal (Paeds)
- Cochlear Implant (Paeds Otology)
- Thyroidectomy and hemithyroidectomy (Adult / Oncology)
- Total Laryngectomy (Oncology) - very complicated, just know basics and when this is necessary
- Foreign body in the airway vs. esophagus (Usually Paeds)- procedural approach

Common Medications

Not many medications to know here, but know what antibiotics to use and when. Also be aware of different eardrops and their composition, know which ones are safe to use with perforated TMs.

Criteria

- Paradise Criteria for Adenoidectomy/Tonsillectomy
- Levels of neck for neck dissection

Resources

Primary Care Otolaryngology - free resource with excellent walkthrough of common clinical presentations, <http://www.entnet.org/sites/default/files/Oto-Primary-Care-WEB.pdf>

Plastic Surgery

Electives Information

For persons interested in plastics surgery, I would plan to do as many as my electives in plastics surgery. This specialty is known to be highly competitive, and schools want to see that you've dedicated most of your elective time to plastic surgery. Most schools prefer to interview students who did a formal elective at their school. If you do get the chance to do other electives, one should consider ENT, orthopedics, anesthesia, dermatology, and other surgical specialties.

Specifics of Specialty

Plastic surgeons have a wide variety of conditions that they manage, so make sure to be familiar with the focus or subspecialty of your preceptor. While on electives, if possible, try to work with a few surgeons as you can see a wide variety of surgical cases. This may also give you the opportunity to see both reconstructive and cosmetic plastic surgery.

In general, hands are HIGH YIELD in plastic surgery. Having a solid knowledge base of hand anatomy (bones, muscles, vascular supply, and innervation) will help you greatly. Do not try to memorize these. Sit down, and make sense of the anatomy, as it can be quite complex, and review it over and over until you have it down pat. For example, review the anatomy in compartments, and look at anatomy textbooks/online programs to be able to visualize where each muscle and their tendons run in relation to each other. Review nerve palsies, and make sense of why these palsies result in their particular symptoms. Understand why pathologies occur, instead of just memorizing, so that you will actually be able to apply your anatomy knowledge to any hand MSK problem you encounter. For physical examinations, make sure you take your time palpating all relevant anatomy and landmarks and walking through ROM of all joints/fingers including testing for the muscles of the forearm.

It is also important to be able to confidently take a craniofacial history and physical. Much of the emergency consults you will see will be facial fractures. Make sure you develop a systematic approach for your physical exam, and be sure to rule out red flag symptoms. Try to get some practice reading hand X-rays and gain an appreciation for facial bones on CT.

Make sure you have a strong approach to describing skin lesions in detail, which includes ulcers and burns. Even if you're unsure what the skin lesion is, being able to describe one is essential if interested in plastic surgery. This is also a great place to practice your procedural skills with skin excisions/biopsies and suturing techniques. Make sure to ask for feedback on your suturing technique, as these surgeons tend to stress more about aesthetics. Be sure to know the different types of sutures available and their appropriate use. To go along with these, be aware of different skin infections and antibiotic treatment.

Plastics is one area of surgery where wound appearance and strength are of paramount importance. It's useful to review the stages of wound healing and remodeling, as well as the strength of wounds over time.

Common Conditions

Head/Neck

- Cleft Lip/Palate
- Craniosynostosis
- Facial Fractures-Orbital Floor, Maxillary (Le Fort I-III), Zygomatic, Nasal
- Facial Dystoses
-

Skin Lesions

- BCC, SCC, Melanoma (staging and margins used for excisions)
- Seborrhic/Actinic Keratosis
- Skin Grafts (know the 3 stages of skin graft take)
- Flaps – read up on the different types of flaps and when each would be used to cover skin defects.
- Know the three stages of wound healing

Breast

- Reconstruction – read up on the different types of flaps used (ie. DIEP flap vs thoracodorsal flap) and know the breast anatomy (landmark borders, blood supply, innervation)
- Chest Wall Reconstruction

Upper Extremity

- Hand Fractures-Boxer's, Bennett's, Rolando's
- Flexor Tendon Injuries-Zones
- Congenital Hand Deformities
- Dupuytren's Contracture
- Trigger Finger
- Brachial Plexus Injuries
- Carpal Tunnel Syndrome

Lower Extremity

- Types and classification of ulcers
- Anatomy of the compartments of the leg.

Burns

- Know different degrees and types of burn injuries
- Know burn tissue histology (three zones)
- Know about some common dressings that are used for different degrees of burns (every surgeon has their preference in dressings, but try to know a few common ones used)
- Parkland's formula

Aesthetics

- Face-Rhinoplasty, Blepharoplasty
- Breast-Mammoplasty, Augmentation, Reduction, Tissue Expanders
- Liposuction, Body Contouring

Common Medications

- Lidocaine and Bupivacaine including toxicity doses +/- epinephrine

- Antibiotics for skin infections

Criteria

- Rule of 9s for Burns
- ABCDE mnemonic for Melanoma
- Kanavel's Four Cardinal Signs for Tenosynovitis
- Stages of Wound Healing
- Classification Le Fort Fractures I-III
- Langer Lines

Resources

- Essentials for Students-Plastic Surgery (downloadable online)
- Michigan Manual of Plastic Surgery by Brown and Borschel
- Grabb and Smith's Plastic Surgery
- Janis Essentials of Plastic Surgery
- Plastic Surgery Emergency Cases

Electives Information

For urology, one should complete the majority of their electives within the specialty. The competitive nature of the field means that prospective medical students should spend time with as many programs as possible. These are small programs, and it is essentially impossible to match to a program without having done an elective (or at least a site visit) there. With that said, it is important to show that you are well rounded. Complementary electives for urology would include nephrology and uro-radiology.

Specifics of Specialty

Clinic

In the clinical setting, a medical student should have a strong grasp of some of the more common urological disease processes, such as BPH, stone disease, incontinence, prostate CA, bladder CA, renal CA, and erectile dysfunction. You should develop an approach to each of the common clinical issues and be able to take a focused urological history and physical examination (FUNWISE is a great acronym for BPH). Be concise in your presentation to your staff - a surgeon doesn't want a lengthy case presentation, in contrast to an internist. Show initiative and perform a DRE, post-void residual, or uroflow prior to reviewing the case with your staff. You should develop a good differential and have a good sense of the appropriate investigations for common clinical complaints. If you really want to impress, review the CUA guidelines prior to your elective and present a management plan as a part of your case presentation. Familiarize yourself with the most recent PSA screening guidelines.

OR

Expectations are low as a medical student in the operating room. Do the little things that will help out the team. This may include bringing up images in the OR at the beginning of the case, writing orders and an OR note, and helping transfer the patient. Practice basic suturing techniques (simple interrupted, running subcuticular, running subcutaneous, fascia closure) as you may have a chance to help out with closure. You will almost certainly be asked to insert a Foley prior to the start of the case; ensure you are well prepared to do so efficiently. Probably the best way to impress the staff is to read up about the patient before the case. Know about their medical history and understand why the patient is having the procedure; review the imaging to give some context to the case. It is also helpful to review the procedure the night before so you are at least familiar with the relevant anatomy.

Cystoscopy

During your elective you may spend time in the cystoscopy suite. Know your bladder anatomy and physiology. Have a good knowledge base on bladder carcinoma, including various types, grading/staging, and treatment guidelines. You may have the chance to use the cystoscope. If so, just be teachable and do your best.

Consults

Similar to the clinic subsection. Take a focused history and physical examination. Review relevant imaging/labs and prior urologic history for that patient. Present a very concise case presentation to the

resident/staff. Show initiative and offer suggestions regarding further work-up or treatment, if you feel comfortable doing so.

Common Conditions

Most commonly encountered urological diseases:

- Benign Prostatic Hyperplasia
- Urinary incontinence
- Renal/ureteral stone disease
- Bladder cancer
- Renal cancer
- Prostate cancer
- Erectile dysfunction
- Hydrocele/spermatocele
- Testicular torsion
- Phimosis

Most common consults:

- Acute urinary retention
- Hematuria
- Difficult foley catheterization
- Nephrolithiasis
- Elevated PSA
- Scrotal mass
- Obstructive voiding symptoms
- Urinary Incontinence
- Incidental renal/adrenal mass

Procedures

- Foley catheter insertion
- Bladder irrigation
- Cystoscopy
- Urodynamics
- Circumcision
- Transurethral resection of prostate (TURP)
- Transurethral resection of bladder tumour (TURBT)
- Ureteroscopy + laser lithotripsy (for stone disease)
- Extracorporeal shockwave lithotripsy (EWSL)
- Cystectomy
- Prostatectomy
- Nephrectomy (Radical vs. partial)
- Orchidopexy
- Orchiectomy
- Renal transplant

Common Medications

Androgen

- Testosterone (Androderm, Androgel, Depo-Testosterone)

Antibiotics

- Trimethoprim/sulfamethoxazole (Bactrim, Septra)
- Ciprofloxacin
- Nitrofurantoin (Macrobid)

Anti-inflammatory, local (interstitial cystitis)

- Elmiron (Pentosan)

Antineoplastic

- Eligard (Leuprolide)
- Lupron (Leuprolide)
- Trelstar (Triptorelin)

Antispasmodics

- Anticholinergics (oxybutynin/Ditropan, solifenacin/VESIcare, fesoterodine/Toviaz, tolterodine/Detrol)
- Beta-3 agonists (mirabegron/Myrbetriq)
- Botulinum A toxin (bladder injections)

BPH therapy agents

- Alpha-1 blockers (Tamsulosin/Flomax, doxazosin/Cardura, terazosin/Hytrin, sidolisin/Rapaflo)
- 5-alpha reductase inhibitors (finasteride/Proscar, Dutasteride/Avodart)

Erectile Dysfunction therapy agents

- PDE-5 inhibitors (sildenafil/Viagra, tadalafil/Cialis, vardenafil/Levitra)
- Prostaglandins – injectable (alprostadil/Caverject)

Immunobiologics

- BCG (Bacillus Calmette-Guerin (BCG) Vaccine)

Urinary Alkalinizing Agent

- Urocit-K (Potassium Citrate)

Criteria

- International Prostate Symptom Score (IPSS)
- Bosniak classification of renal cystic masses
- Grading of VUR

Resources

- Pocket Guide to Urology (Dr. Wieder) – Best resource available – order online
- The Little Black Book of Urology (Dr. Ellsworth) – quick reference for common urologic diseases
- Canadian Undergraduate Urology Curriculum (CanUUC) - <https://www.cua.org/en/canucc>
- AUA Medical Student Curriculum - <http://www.auanet.org/education/auauniversity/education-and-career-resources/for-medical-students/medical-student-curriculum>
- Smith's Urology

Electives Information

Ophthalmology is a very unique subspecialty with a blend of surgery and medicine. While many subspecialties in Ophthalmology exist, most schools across Canada offer a comprehensive ophthalmology elective that rotates you between specialties and preceptors. During your ophthalmology elective, you will be exposed to a variety of subspecialties, the most common being: general ophthalmology, cornea/anterior chamber, medical/surgical retina, neuro-ophthalmology and glaucoma. Some large tertiary centers will also offer students exposure to paediatric ophthalmology, oculoplastics, ocular oncology and ocular pathology. While subspecialty exposure is important, a medical student should be spending at least half of their time on elective focusing on general ophthalmology to solidify their foundation of knowledge of common ocular conditions.

Due to the highly competitive nature of ophthalmology residency programs, one should book at least half of their electives in this specialty. Other electives that are complementary to field include neurology, plastic surgery and emergency medicine.

Specifics of Specialty

The eye has been called the most complex organ in our body, so before starting an ophthalmology elective, reviewing your eye anatomy is very important. For many of you, this might actually be learning eye anatomy for the first time so start with something you are familiar with, such as the structures of the bony orbit. Next you should focus on the structures of the eye, followed by the visual pathway and the extraocular muscles. Learning the layers of the cornea, layers of the retina and nasolacrimal system will also be very beneficial.

As ophthalmology is a field all about vision, it's only natural that most of your learning will be visual. If your vision is corrected, you should know your prescription as well as your pupil diameter (helpful for calibrating microscopes and ophthalmoscopes).

Like any other elective, being eager to learn and having a positive attitude will be more important than how much you actually know. Very little ophthalmology is taught in medical school, so don't be discouraged if everything seems foreign in your first week. Ophthalmology is not an elective where you can just hit the ground running like in emergency medicine or internal medicine. Even the "basic" physical exam skills needed for most patients require weeks to be comfortable with and years to master.

The ocular exam and history is very different than in the standard clinical encounter, learning the abbreviations and how to chart an ocular history can be daunting at first. Start here (<http://www.opthobook.com/chapters/historyphysical>) if it's your first ophthalmology elective.

Having a good foundation of physical exam skills is key so a certain level of competency should be obtained with basic exam tools before moving on to more difficult tasks. If this is your first ophthalmology elective, your goals should be to become comfortable with the slit lamp exam, applanation tonometry and using the ophthalmoscope. While ophthalmologists do take eye pressure by tonometer for certain patients, it is not commonly used due to its low accuracy. If you have the chance, ask an ER physician during CCC/core rotation to show you how to use the tonometer and slit lamp.

For the more experienced clerks, you should become comfortable with the "90 diopter lens" slit lamp indirect ophthalmoscopy and gonioscopy. The "20 diopter lens" indirect ophthalmoscopy exam is very challenging and your aim should be to produce a focused image with it by the end of medical school.

Common Conditions

During your elective, clerks will most commonly see anterior segment diseases such as conjunctivitis, keratitis and corneal abrasions. Posterior segment disease which you will see a lot of include glaucoma, macular degeneration and diabetic retinopathy. A differential and an approach to eye pain, vision loss and diplopia will come in handy on your elective.

While it's important to read about common conditions, you should also be familiar with the signs and symptoms of ocular emergencies such as acute angle closure glaucoma, ruptured globe, detached retina and endophthalmitis.

Some very common facts you will be asked about on elective include:

- The typical adult eye has a diameter of **~2.5cm**, circumference of **~8cm**, volume of **~6CCs**
- Typical intraocular pressure range from **10-21mmhg**, the normal cup to disk ratio is **~0.3**
- Normal corneal thickness is about **540 nm** at the center and thinner in the peripheries
- A visual acuity of **20/50** (in either eye) is required to drive a motor vehicle in Ontario.

Procedures

Very few procedures in Ophthalmology will be carried out by the medical student. The procedure most commonly done by medical students on service would be removing corneal foreign bodies/rust rings. Learning the use of a corneal debridement drill in the ER will be beneficial. You should know how to properly instill eye drops, eye ointments and put in contact lenses.

Although Ophthalmology is a surgical specialty, most clerks and junior residents will focus on the medical side of the specialty. Don't be discouraged if you are observing most of your surgeries rather than actively participating in them. If you are observing through a teaching microscope, make sure it is in focus. In ophthalmology, a good view of the patient's eye is paramount so don't be afraid to ask the preceptor how to adjust the microscope's focus and adjust the pupil diameter to your eyes before you start. If you are assisting (usually in a cataract surgery), make sure you know the different steps in a cataract surgery, the instruments involved and perhaps even how to prime the phaco machine. Some preceptors will teach you how to prep and drape the patient which is a good skill to learn.

Common Medications

The most common medications encountered on electives include topical antibiotics, steroids and glaucoma medication.

- Artificial tears / Lacri-lube
- Gatifloxacin (Zymar)
- Erythromycin drops/ointment
- Moxifloxacin 0.5% solution (Vigamox)
- Trifluridine 1% (Virotopic)
- Tropicamide (Mydracyl) 0.5%, 1%
- Phenylephrine 2.5% (Mydrin; AK-Dilate)

- Pilocarpine
- Bimatoprost (Lumigan)
- Levobunolol (Betagan)
- Brinzolamide (Azopt)
- Acetazolamide (Diamox)
- Dexamethasone 0.1% (Maxidex)
- Fluorometholone 0.1% (FML)
- AREDS (Age Related Eye Disease Study) vitamin formulation

Resources

The "bible" for an ophthalmology clerk is **The Wills Eye Manual 6ed**. It's small, light and comes with a lot of good pictures. Don't forget to read the chapters on differentials of ocular signs, imaging modalities and different procedures as they are also very useful. For anatomy, your favourite anatomy text's chapter on eyes will do the trick.

The Root Eye network developed by Dr. Timony Root is one of the best websites for medical students. It has very high yield topics and videos found here: <http://www.opthobook.com/>. Start in this section if it's your first elective: <http://www.opthobook.com/chapters/historyphysical>

For a specific guide on gonioscopy, the Atlas of Gonioscopy by the University of Iwoa is a comprehensive resource: <http://www.gonioscopy.org/>.

Just for fun (and some learning), check out this game for the steps in a cataract surgery: <http://www.agame.com/game/operate-now-eye-surgery>

Other Subspecialties

Electives Information

Anesthesia encompasses many specialties in perioperative care. Although the operating room is the most common setting in which anesthesiologists work, many are also involved in the management of acute and chronic pain. As the in-house airway support service, the emergency department is often a site where anesthesiologists are urgently consulted.

Given that their training gives them a solid foundation in physiology and allows for the development of expert procedural skills, many anesthesiologists pursue fellowship training in critical care. In terms of electives, perioperative care involves evaluating a patient's underlying health status, and as such, electives in Cardiology and Respiriology are very strong supporting experiences. In addition, any surgical subspecialty will offer a unique perspective of the anesthetic considerations for that given field. Electives to consider include: Emergency Medicine, Critical Care, Cardiology, Respiriology, Chronic Pain Clinic, and any surgical subspecialty (i.e. vascular or general surgery).

Specifics of Specialty

When doing an anesthesia elective, the vast majority of your time will be in the operating room. Before the elective starts, e-mail your resident or staff and ask them where to meet on the first day. If your point of contact is the resident, ask them how you can help them prep before the day starts. Each site will allow you to do variable things, but for most placements, there are three main things you can do before the OR starts:

- Prep the rescue drugs – phenylephrine (10mg/mL), ephedrine (50mg/mL), and atropine (0.6mg/mL).
- Prepare equipment for an intubation – mnemonics are useful here (i.e. STOP IC BARS or A BASIC MAD POSTER).
- Check the anesthesia machine, telemetry, and the warmer.

At the end of the OR day, make sure you check the list for the next day. This will give you an opportunity to read up on the anesthetic considerations for the cases, and will allow you to gather pertinent background information on each patient. Anesthesia is all about predicting and planning - the more prepared you are with a plan, the more the staff will be impressed. Once the day gets started, there will be plenty of time to sit down with the staff/resident and go through your plans, the specifics of the procedure, and get pimped on anesthesia in general.

Below are a few favourites that you should be prepared to discuss:

- Factors that predict difficult BVM ventilation (BONES mnemonic)
- Factors that predict a difficult airway (LEMON mnemonic)
- Dosing and MOA of common pharmacology
- Management of IV fluids
 - o Calculation of maintenance rates (4:2:1 rule)
 - o Calculation of fluid deficit (Maintenance x # of hours NPO)
- Malignant hyperthermia
- Pseudocholinesterase deficiency
- Indications and complications of blood transfusions

- Calculation of estimated allowable blood loss
- Rapid sequence induction/intubation (RSI)
- Anything and everything to do with cardiac and respiratory physiology

When each case is done, stick around and help out. Transfer the IV bag, help move the patient, do whatever you can to help - it goes a long way. Follow the patient to the post-anesthetic care unit (PACU) and be ready to offer a summary of the patient and the procedure.

- Patient profile
- Procedure done and why
- Relevant PMHx
- Any intraoperative complications
- Drugs on board
- PRN drug orders
- Disposition

Another essential skill is to know how to do a preoperative assessment. Many resources offer an approach—for the most part you need to make one that feels right to you. If you follow the anesthesia form you'll cover most of your bases.

- Procedure being done & why it's being done
- PMHx and PSx
- Cardiovascular status (functional METS)
- Previous post-op complications
- Hx of MH or pseudocholinesterase deficiency (in individual or FHx)
- Medications
- Allergies
- # of hours NPO
- Focused physical exam
 - Airway assessment
 - Mallampati Score
 - Thyromental distance
 - TMJ mobility (i.e. mouth opening)
 - Mandibular protrusion
 - Cervical ROM
 - Auscultate the chest & lung fields

Common Conditions

- Intraoperative hypotension
 - Causes and treatment
- Management of increased intracranial pressure (ICP)
- Induction of anesthesia
 - Common drugs and pharmacology
- Intraoperative anesthesia and paralysis
- Management of IV fluids
- Malignant hypertension and pseudocholinesterase deficiency
- Postoperative nausea and vomiting
- Airway anatomy
- Pharmacology of common drugs used in anesthesia

Procedures

- How to prep/conduct intubation through direct laryngoscopy - nasal and oral
- How to administer a spinal anesthetic & epidural
- How to start IVs
- How to draw medications and convert dosages

Common Medications

- Induction Agents
 - o Propofol, Etomidate, Ketamine
- Inhaled Anesthetics
 - o Desflurane, Sevoflurane
- Antiemetics
 - o Dexamethasone, Dimenhydrinate, Ondansetron, Metoclopramide
- Paralytics
 - o Rocuronium, Succinylcholine
- Narcotics
 - o Fentanyl, remi-fentanyl, morphine
- Vasopressors and Inotropes
 - o Phenylephrine, Ephedrine, Epinephrine, Norepinephrine, Dobutamine,
- Benzodiazepines
 - o Midazolam
- Local Anesthetics
 - o Bupivacaine, Lidocaine

Criteria & Classifications

- ASA Classification
- Mallampatti Score
- Cormack and Lehane Grading Scale
- Ramsay Sedation Score
- NYHA Heart Failure Score
- LVEF Grading
- Functional METS
- Revised Cardiac Risk Index

Resources

- *Ottawa Anesthesia Primer* - One of the best and most concise books for an anesthesia elective. Available as an iPad app or a book from amazon (15-40\$).
- *Lange Clinical Anesthesia* - Available through access medicine. Has chapters dedicated to each type of anesthesia and procedures. Much above the level expected of an MS3 or 4 but a great way to familiarize yourself with the cases and standout.

Mnemonics for Intubation Set-Up

“A BASIC MAD POSTER”

Assessment

Bag valve mask

Airway

Suction

Intravenous

Capnometry

Monitors

Audible tone

Drugs

Positioning

Oxygen

Stylet

Tape

ETT, laryngoscope

Rescue- back- up airway and drugs

Factors that Predict Difficult Ventilation

“BONES”

Beard

Obesity (BMI >26)

No teeth

Elderly (age>55)

Snorning Hx (sleep apnea)

Factors the Predict a Difficult Airway

“LEMON”

Look—obesity, beard, dental/facial abnormalities, facial/neck trauma

Evaluate- 3-2-1 Rule

- Thyromental distance > 3 finger breadths
- Mouth opening > 2 finger breadths
- Anterior jaw subluxation > 1 finger breadth
 - o Alternatively, the patient should be able to bite their upper lip with their bottom teeth

Mallampati Score

Obstruction- stridor, foreign bodies

Neck mobility

“STOP IC BARS”

Suction

Tubes (predicted size and ½ size smaller)

Oxygen delivery

Pharmacology

IV fluids

Confirmation (i.e. capnometry)

Best look laryngoscopy, Blade, Bougie

Alternative technique (i.e. Glidescope)

Rescue device (i.e. LMA, King LT)

Surgical airway

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Electives Information

Depending on the school, you may find opportunities to apply to either Community Dermatology, or General Dermatology in the hospital setting. There are advantages and disadvantages to both clinical settings (greater one-on-one time with your preceptor + cosmetic Dermatology vs multiple preceptors but plenty of time with residents + academic sessions). Some schools also offer electives in Paediatric Dermatology, which are also usually in the hospital.

Complementary electives in Dermatology include Plastic Surgery, Dermatopathology (or general pathology), General Internal Medicine (CTU), Infectious Diseases/Tropical Medicine, Rheumatology, Allergy and Immunology, and to a lesser extent, Family Medicine, Paediatrics, and Emergency Medicine.

Specifics of Speciality

The clinical setting partially dictates the types of patients and interactions that you will face on a day-to-day basis. In community Dermatology, you will most often (though not always), encounter chronic conditions, as well individuals presenting with concerning or changing lesions that are potentially malignant. In the community setting, you may have the chance to observe or participate in cosmetic procedures as well, such as Botox or filler injections, laser treatments, and minor surgeries. Despite being in the community, you should ask your preceptor if you can attend any academic sessions put on by the school, or who to contact in order to get more information about such sessions.

While in the hospital setting, you will work in an outpatient Dermatology clinic. Such clinics are often led by a rotating group of Dermatologists, and as such, you might have a different preceptor every day. The clinics are usually general, but speciality clinics do occur at times, during which most of the patients present with similar issues (e.g. psoriasis clinic, or hemangioma clinic in Paediatric Dermatology). You are also more likely to see complex cases in the hospital setting.

Regardless of the setting, when given the chance to see patients, you should attempt to get a thorough but concise history, perform a focused physical exam (learn how to do a full skin exam, and develop a fixed routine, so that you don't forget to check any parts of the body!), and come up with a tentative differential diagnosis. You will, with time, start to know the basic approach to treatment for many chronic conditions that present frequently. That being said, your ability to describe your findings and recognize patterns are your greatest assets in Dermatology at this level of training. You should spend some time learning the different morphological terms used in Dermatology (macule, patch, papule, plaque, vesicle, bulla, pustule, nodule, tumour, wheal, erosion, ulcer, crust), and their possible distribution (isolated, linear, grouped, diffuse, targetoid, etc.). Practice describing a variety of lesions and eruptions, as this will be very important in both presenting to your preceptor, and charting (though drawing pictures is always helpful as well!).

Common Conditions

In adult Dermatology (conditions that are common in paediatric populations in *italics*):

- Benign skin lesions
 - o Seborrheic keratosis
 - o Nevus (acquired vs congenital; junctional, dermal, compound, *Spitz*)
 - o Solar lentigo
 - o Angioma
 - o Dermatofibroma
 - o Keratosis pilaris
 - o Epidermoid cyst
 - o Sebaceous hyperplasia
 - o Pyogenic granuloma
 - o Keloid vs hypertrophic scar
 - o *Hemangioma*
- Pre-malignant/malignant lesions
 - o Actinic keratosis → squamous carcinoma in situ (Bowen's disease)
 - o Non-melanoma skin cancer (i.e. basal cell carcinoma, squamous cell carcinoma)
 - o Melanoma skin cancer
- Chronic conditions
 - o Psoriasis
 - o Dermatitis (*atopic*, seborrheic, allergic contact vs irritant contact, nummular, dyshidrotic)
 - o Hidradenitis suppurativa
 - o Lichen planus
 - o Lichen sclerosis
 - o Rosacea vs perioral dermatitis
 - o *Acne vulgaris*
- Autoimmune/genetic bullous conditions
 - o Vitiligo
 - o Pemphigus vulgaris vs pemphigus foliaceus vs bullous pemphigoid
- Disorders of hair/nails
 - o Alopecia (*areata* vs totalis vs universalis; scarring vs non-scarring)
 - o Telogen effluvium
 - o Onychomycosis
- Miscellaneous
 - o Steven-Johnson Syndrome → Toxic Epidermal Necrolysis
 - o Erythema multiforme
 - o *Molluscum contagiosum*
 - o *Impetigo*
 - o Tinea (*versicolour*, *pedis*, *capitis*)
 - o *Scabies*
 - o Urticaria (chronic vs acute)

Procedures to know

- Cryotherapy (liquid nitrogen)
- Intralesional injections
- Biopsy (shave, punch, excisional); learn both the procedure and the choice materials involved

Common Medications

Corticosteroids

- Oral: Dexamethasone, Prednisone
- Intralesional: Triamcinolone (Kenolog)
- Topical: know a few from each potency category, and the different mediums in which they come (this can influence potency!), but be aware that most Dermatologists have their favourites

Retinoids/Vitamin A derivatives (often used in acne and psoriasis)

- Acitretin (Soriatane)
- Tretinoin (Retin-A Micro)
- Isotretinoin (Accutane)

Calcineurin inhibitors/steroid-sparing topicals

- Tacrolimus (Protopic)
- Pimecrolimus (Elidel)

Antibacterial/antifungals/antiparasitic/antivirals

- Metronidazole (Flagyl)
- Terbinafine (Lamisil)
- Tetracyclines (most often doxycycline or minocycline, often used in the treatment of acne)
- Permethrin (Nix); Ivermectin (Rosiver)

Biologic agents (often used in psoriasis, hidradenitis suppurativa, or atopic dermatitis)

- TNF-alpha inhibitors: Infliximab (Remicade), Etanercept (Enbrel), Adalimumab (Humira)
- IL-12/23 inhibitor: Ustekinumab (Stelara) vs IL-23 inhibitor: Guselkumab (Tremfya)
- IL-17 inhibitor: Secukinumab (Cosentyx)
- IL-4 inhibitor (for atopic dermatitis + asthma): Dupilumab (Dupixent)

Additional agents/condition specific options:

- Hair loss: Minoxidil (Rogaine); Dutasteride (Avodart), Finasteride (Proscar), or spironolactone (Aldactone) for women if hormonal in nature
- Psoriasis: Methotrexate, Cyclosporine (short term), Dovobet/Enstilar (vitamin D + betamethasone), Apremilast (Otezla); also, phototherapy (UVB vs PUVA)
- Atopic dermatitis: Azathioprine (Imuran)
- Actinic keratosis/superficial BCC: Imiquimod (Aldara, Zyclara), Fluorouracil (Efudex)

Criteria to know

- SCALDA lesion description: Size, Colour, Arrangement, Lesion Morphology, Distribution, Adjacent structures
- ABCDEs of Melanoma (+ Breslow Depth/Thickness; just be aware of what it is and its use)
- Fitzpatrick skin types (1-6)

Top Resources/Apps to have

Online resources

- <https://www.aad.org/education/basic-derm-curriculum>: free lectures from the American Academy of Dermatology!
- <https://www.dermnetnz.org>: great, concise summaries + pictures on most dermatologic conditions!

Textbooks

- Fitzpatrick's Color Atlas and Synopsis of Clinical Dermatology: concise 2-3 pages summaries

- Fitzpatrick's Dermatology in General Medicine: much more in-depth explanation of pathophysiology
- Toronto Notes (section on Dermatology)

Apps

- Fitzpatrick's Dermatology Flashcards
- UpToDate
- Lexicomp

Family Medicine

Specifics of Specialty

Family Medicine is the ultimate generalist specialty and has the greatest breadth and variability of practice among its physicians. This is definitely reflected in the family medicine elective experience, which is largely heterogeneous and dependent on the site and preceptor you will have. Think about your goals when choosing a site and preceptor for your elective. Do you want to do rural or urban family medicine? Do you want a preceptor with special interests in obstetrics, emergency medicine, palliative care, hospitalist, etc? Do you want to be in an academic centre? The list is endless, and this is actually one of the great things about family medicine. If you schedule an elective with a preceptor with a special interest in a subspecialty like obstetrics, use the other chapters in this guide for tips on how to perform in those fields. This section will focus on two common Family Medicine settings: clinic and hospitalist.

Family Medicine clinic is in the *outpatient* setting. You start in the morning with a list, usually with appointments running until 4-5pm. Appointments last approximately 15 minutes, so time management and patient redirection is key to staying on schedule. Before starting in clinic, ask if you can get a 15-minute crash course on the EMR to learn the quick shortcuts (how to insert a new soap note, how to insert stamps for specific visits, how to print).

When you're done the interview and physical exam, make sure your note is done, formulate an impression/differential, prepare a management plan and ***commit*** to it. Whether or not your plan is correct and adopted, it shows good initiative. Remember that you are not a CCC student anymore even though the setting of learning may be similar; you are now in your final year of medical school, and consequently, more is expected of you. In clinic, you'll usually be doing chronic disease management so brush up on guidelines and common questions to cover (for example, the three-month diabetic visit) This is bread and butter FM. You should know all your screening guidelines by heart if you choose to do an FM clinic elective. Know your history and physical exam for common complaints in FM and the management strategies for each. The best part about FM that you can follow patients over time. Most problems won't be solved on the first visit, but there's time to try different strategies on follow-up appointments. Remember to consider follow-up in your management plan and to discuss this with your preceptor and patient. It's the key to appropriate outpatient management.

Hospitalist care is FM in an *inpatient* setting. These are usually patients who are medically stable enough not to warrant a stay in hospital under a specialist, but not medically stable enough to go home from clinic or the emergency department (some family doctors have direct admission privileges and can admit patients from the community without an ED visit). Alternatively, in rural care settings that are lacking specialists, all admitted patients may be under the care of FM with distance specialist support. Hospitalist care can be organized in a few different ways. If you have an FM/Hospitalist elective, you will likely be working with the Hospitalist Team at the hospital, which is a group of family physicians caring for patients who do not have a family physician or whose family physicians do not round in hospital. You may also be exposed to hospitalist care with family physicians who care for their own patients in hospital, or physicians working on a call schedule with coverage for the entire family health team. When you show up in the morning take a look at the list of patients. For any new admissions, read through the admission history and physical. In some hospitals, the ED will transfer care to the Hospitalist Team or the family physician and you will be the one responsible to complete the admission note and orders. It would be

recommended to tackle these patients first (unless you have concerns of have been called about another patient) because they can be on holding orders that have expired or their med reconciliation may not have been done. This means that they could be left without adequate treatment or their usual prescription medications if you wait until later in the day to complete the admission. For any admissions you've been following, check lab work and investigations you've ordered from previous days. If you jot this down before starting rounds, you'll have it on hand and it's much faster to put this in the chart. Again, ask about expectations for the day. Should you be rounding on your own and reviewing each patient at the end, or focusing on one or two and reviewing them as you go? Hospitalist is a good rotation to familiarize yourself with community services for patients and the transition out of hospital.

For rounding, you can use a traditional SOAP note to document in the chart. Make sure to review with the nurses to see if there were any issues overnight. In the A/P section, it helps to keep a bulleted list of new and ongoing issues so you can comment on specific management plans and problems that have resolved. In hospitalist patients, be very familiar with screening for delirium and comfortable with a differential for this. Also become familiar with services that inpatients have access to (for example: PT/OT to help mobilize inpatients, swallowing assessment from SLP for any patient with concerns for dysphagia). Once again, make a plan and commit to it; have it written out and ready to go with your orders drafted and any requisitions prepared.

For more tips on how to succeed on a hospitalist elective, you may read through the Internal Medicine section of the guide.

ELECTIVE INFORMATION

Because of the breadth of FM, you can't really go wrong in applying for electives to support your learning and career goals. Depending on your personal strengths and weaknesses, you can tailor your chosen electives to improve your clinical acumen for FM. As a student from NOSM with CCC under your belt, completing 1 to 3 FM electives to show interest and commitment to the field should be sufficient. Programs do want to see a breadth of experience in a variety of settings and specialties. If FM is truly your first and only choice, be wary of then choosing your other electives in one other dominant specialty; it would not be advantageous to look like you are using FM as a back-up. Again, breadth is key. Be authentic to your interests, your weaknesses and the practice style you hope to build, and choose your electives accordingly. Fourth year is an exciting time when you're preparing for an application for FM. While several of your classmates are already specializing, you will have an entirely different experience by learning in a completely different field every 2-4 weeks. Enjoy the process!

Useful electives to supplement to your skills and knowledge in FM include *Dermatology, Geriatrics, Palliative Care, Pediatrics, Emergency Medicine, Internal Medicine and any medical/surgical subspecialties*. It can also be a great experience to complete electives in Family Medicine "subspecialties", which gives you the chance to acquire some more specialized knowledge, consider the possibilities of practice and still work with mentors who are FM-trained. Options include FM/EM, FM/Palliative, FM/Sports Med, FM/Addictions, FM/Anesthesia, etc. This is neither exhaustive nor comprehensive; you can be as creative and personal as you want in building a FM residency application.

Common Conditions

Almost anything can walk through the door for family medicine. Some of the bread and butter:

- Chronic disease management (DM, COPD, CAD, PVD, post-CVA, dyslipidemia, chronic pain)

- Back pain
- Depression
- Abdominal pain
- Chest pain
- Dyspnea
- Prenatal visit
- Children's health visit
- Dementia
- Abnormal uterine bleeding
- Weakness
- Wound care management & suturing
- Hypothyroidism
- UTI
- Headache

Procedures

- Suturing lacerations and suture removal
- IM & SubQ injections
- Joint injections
- MMSE or MOCA administration
- IUD insertion, endometrial biopsies
- Pap testing
- Punch/excisional biopsy
- Pessary insertion/removal

Common Medications

Too many to list here, but for some of the more common conditions have a tiered approach ready and know when to ramp up therapy (for example, someone with poor glycemic control despite reaching maximum dose on metformin and gliclazide, where do you go from here?)

- Antihyperglycemics
- Lipid lowering agents
- Antihypertensives
- Agents for unipolar depression
- WHO approach to pain management, know NSAIDs, Opioids and other analgesics.

Criteria

There are many different screening tools and risk stratification tools you should be familiar with in the family medicine clinic, here are a few of them:

- Screening guidelines (breast, cervical and colorectal cancer, DM, dyslipidemia, AAA)
- Hypertension Canada guidelines
- Framingham risk score
- Anticoagulation/Antiplatelet therapy guidelines (including CHA2DS2-VASC)
- Bone mineral density guidelines
- Canadian Diabetes Association screening and management guidelines
- SNAP-4 tools for ADHD

- Depression scales
- Vaccination schedules

Resources

Online & Textbooks

- Family Medicine Notes – Summaries and algorithms of the 99 topics
- FP notebook - free online resource
- CMA – CPG Infobase: Clinical Practice Guidelines - <https://www.cma.ca/En/Pages/clinical-practice-guidelines.aspx>
- The Well – Evidence-based clinical tools - <https://thewellhealth.ca/tools/>
- CDA clinical practice guidelines - <http://guidelines.diabetes.ca/>
- Hypertension Canada Guidelines - <http://guidelines.hypertension.ca/>

Apps

- OnExam
- Hypertension Canada Guidelines
- Thrombosis Canada
- Diabetes Canada CPG
- Kidney Wise
- FP Notebook

Specifics of Specialty

Palliative care is “a care approach that aims to relieve suffering and improve the quality of living and dying in those patients diagnosed with life threatening or life limiting illnesses” (Pallium Canada, 2018). In light of this commonly accepted definition, it is important to bear in mind two common misconceptions of palliative care. First, it’s important to note that palliative care is an approach to care that can and should be applied to all ages. It is not a subset of geriatric care nor does it specifically apply to that population. Second, a large part of palliative care practice is dedicated to symptom management. This implies that though many of your patients will be in the terminal stages of their life, many will not be. It is imperative not to make that assumption. Palliative care can be provided by various clinicians in Canada, though there are formal streams of training (FM PGY3 and IM subspecialization).

Elective information

When planning an elective in palliative care, you will either be working with family physicians who have done a PGY3 training in palliative care or with internists who are subspecialized in the field. Your elective could take place in a number of settings. Palliative care typically occurs in four locations: in hospital, in outpatient clinic, in hospice or at home. Depending on the site of your elective and the medical condition of your patient, you may see inpatients in a Palliative Care Unit or consult and follow patients who are admitted in different departments of the hospital. Hospices are separate facilities that are specific to end-of-life palliative care (often days to weeks). They are staffed by a multitude of professionals, such as palliative care physicians, nurses, PSWs, social workers, and chaplains. The hospice environment endeavors to distance itself from medicalization of care. This means that hospices are often not equipped to provide certain types of care or treatments, such as the management of IVs, feeding tubes, etc. They also typically don’t monitor vital signs. This is very important for the patient and their loved ones to be aware of before decisions on disposition are made. It can be very distressing for patients, but especially for family to perceive that they or their loved one are not fed or hydrated or that they are not being monitored with vitals anymore.

When seeing a patient for a new consultation, it’s helpful to identify your role as being part of the “palliative care and symptom management team”. Patients and families are often under the impression that the involvement of the palliative care team means that they or their loved ones are in the final stages of life and that medical treatment will be ceased, which is often false. Take time to explain why you’ve been asked to see the patient.

The palliative care consultation should include the following elements:

1. Patient identification and reason for referral
2. History of presenting illness (including thorough chart review)
3. Past medical history
4. Meds (**make sure to review MAR and calculate how many PRNs were given over last 24h)
5. Social history (family, supports, living arrangements, personhood, spirituality/culture)
6. Symptom assessment
 - a. Pain

- b. Dyspnea
 - c. Constipation/diarrhea
 - d. Nausea/vomiting
 - e. Delirium
 - f. Fatigue/weakness
 - g. Anxiety and mood
 - h. Etc.
7. Understanding of disease
 8. Goals of care and living (including review of code status)
 9. Physical exam
 10. Review of latest investigations
 11. Assessment and plan / recommendations (addressing every symptom)

When following-up on a palliative care patient, you want to again complete a symptoms assessment and reassess your plan to address every symptom. Be sure to talk to their nurse and their family members for their input and to check the MAR again to quantify the use of PRN medications. Disposition and goals of care should also be reassessed when necessary. Be sure to check in with your patient's emotional state as well when rounding. Take the time to be present, sit with them and discuss their fears, anxieties, concerns. These conversations are also important to chart in palliative care.

Family meetings around disposition and care planning is an extremely important aspect to palliative care. It is important to be aware of the intricacies of care with different options and of the different facilities and support services available in the community. I would encourage you to familiarize yourself with the palliative services specific to the community before or early in your elective.

Addressing the patient and family's holistic needs is critical! Assessing a family's need for respite greatly eases their stress and consequently the undo stress on the patient. Family is a very useful resource when it comes to gathering information, however it's important to remember that the patient is the 'patient'. Try to get the family members to step out of the room if you are concerned that the patient is unable to be heard.

Palliative care continues to be an uncomfortable, unaccepted or misunderstood medical subspecialty for many. Consequently, some staff (and family) may adopt the notion that the medical community is "giving up" on the patient. It's part of your role to help the patient and family understand your role in improving the quality of life, which can often count for more than the quantity of life. You may also need to advocate on this principle for your patients as they make decisions on their goals of care and decline interventions from other medical specialties.

Common Conditions

- Cancer
- Heart failure
- COPD
- Pleural effusions (malignant)
- Bowel obstructions (malignant)
- Pain
- Nausea/vomiting (review pathophysiology/pharmacology)
- Delirium
- Constipation

- Diarrhea

Procedures

- Lumbar puncture
 - Nasogastric tube insertion
 - Wound care, stoma care and disimpaction.
 - CADD pump initiation
- Other procedures may need to be considered depending on the patient's chronic conditions.

Common Medications

- Opioids (be familiar with different routes, conversions, approach to titration, CADD pumps)
- NSAIDs
- Antipyretics
- Antipsychotic (off-label uses, e.g. olanzapine for nausea)
- Benzodiazepines
- Antiemetics
- Laxatives
- Antidiarrheals
- Corticosteroids
- Antibiotics among others; understanding pharmacokinetics is critical in this patient population of polypharmacy, renal failure, limited enteral intake, and active disease (e.g. multiple myeloma and hypocalcaemia)

Criteria

- Palliative Performance Scale (PPSv2)
- Edmonton Symptom Assessment System (ESAS-R)
- other disease specific scales (e.g. Child-Pugh score for liver cirrhosis)

Resources

Textbooks

- Doing Right: A practical guide to ethics for medical trainees and physicians
- The Pallium Palliative Pocketbook
- A Caregiver's Guide: A handbook about end-of-life care
- Palliative Care: Core Skills and Clinical Competence
- Practical guide to Palliative Care

Apps:

- Pallium App
- Cancer Care Ontario – Symptom Management Guides
- Neuro Localizer (dermatomes/myotomes)

Websites:

- Practical Pain Management (Opioid calculator)
<https://opioidcalculator.practicalpainmanagement.com/index.php>
- Pallium Canada (free e-modules) <https://pallium.ca/equip-yourself/>
- Canadian Hospice Palliative Care Association
- Cancer Care Ontario

References

Pallium Canada (2018). *The Pallium Palliative Pocketbook*. 2nd ed. Ottawa: Pallium Canada.

Electives Information

For physiatry, there are a lot of elective opportunities not only with subspecialties, but at times with related practices. Within physiatry there are opportunities in prosthetics and orthotics, MSK rehab, outpatient clinics, brain injury and spinal cord injuries. Quite a few schools will offer specific subspecialties like these, but others will offer a more generalized rotation where you may spend time in each. Other beneficial electives can be seen with plastic surgery, orthopedics, sports medicine, rheumatology and vascular surgery, as well as developmental pediatrics.

Specifics of Specialty

Physical Medicine and Rehabilitation is very much a specialty that focuses on the functional aspects of medicine. A lot of the outpatient clinics, such as the MSK clinics, provide good education around a wide variety of issues, many common to family practice as well. Issues such as migraines, carpal tunnel, chronic pain and weakness are all common referrals to a physiatrist (depending on their practice). The more rehab centered practices are unique in that many experiences will allow you to work with a hospitalist providing internal medicine practice as well. Depending on the rehabilitation type, it can also help provide context to some other specialties like internal medicine, neurology, plastic surgery, vascular surgery and orthopaedics, as you will see patients that are coming post-surgery from these specialties.

One of the biggest benefits to an elective in this specialty outside of interest in the field is the practice that you will get with physical examinations. Upper extremity and lower extremity examinations are used consistently, and there are often additional techniques that can be done to aid the examinations further that you will learn.

To prepare for an elective in this specialty, a knowledge of general MSK anatomy, and more importantly neuroanatomy will be very useful. Particularly with EMG clinics, it would be advised to have an easily accessible list of muscles and their innervation, both root and peripheral nerve. This is important in a lot of the diagnostic approach that is taken. Finally, an understanding of the dermatomes for sensory testing would be recommended. Most common questions do come from this, whether it is asking what nerve provides innervation to the muscle, or what roots are involved with the muscle.

For generalist hospital physiatry, there can be a reasonable mix of presentations, with the importance on history. Many physiatrists want to know where the patient was at functionally prior to the medical event, the services/supports they have, and where they are at now following the medical event. This difference in functionality, and whether or not it can be reduced or eliminated is what will determine whether someone will be admitted into a physiatrists care. For subspecialties, many of the presentations are similar in terms of background, but a thorough history, again focusing on function before and after the medical event is vital. It is important that the patient is medically stable as well, and that should factor into your evaluation as well.

One of the nicest aspects of most physiatry electives is that it is generally a relaxed environment, with little to no call. Outpatient clinics tend to have a slower pace to them and give plenty of time for you to do a full history and physical and discuss the case with your preceptor. Inpatient consultations are similar

to this in that there is no urgency other than your preceptors schedule. Only if your preceptor is also serving as the hospitalist for inpatients is there more of an urgency. It is important that you are prepared to work with a collaborative team environment, as in almost all situation as least physiotherapy and occupational therapy. Other allied health members, such as social workers, psychologists and those specializing in making prosthetics and orthotics may also be involved as appropriate.

Common Conditions

Will vary by subspecialty:

- Carpal Tunnel and median nerve entrapments
- Ulnar Nerve entrapments
- Reasons for amputations (vascular, congenital, cancer related, trauma)
- Contractures (caused by bone, connective tissue, soft tissue, skin, etc.)
- Stroke and the physical presentation of patients post-stroke
- Neck and back pain
- Sudden weakness – Gillian Barre Syndrome
- Mononeuropathy presentations
- Radiculopathy presentations
- Diabetic Polyneuropathy (length dependent polyneuropathies)
- Brain Injury
- Concussion

Procedures

Nerve Conduction Studies and EMG
Cortisone Injections
Trigger Point Injections
Botox Injections (spasticity)

Criteria

- Oxford Scale for Muscle Strength
- IADL's and ADL's
- Deep Tendon Reflex Scale
- Cerebral Palsy and Stroke Classifications
- Modified Ashworth Scale

Resources

- Geekymedics.com has a lot of resources regarding muscle innervation
- Any Netter's anatomy book
- Aids to Examination of the Peripheral Nervous System
- Bates guide to physical examination to brush up on upper and lower extremity history and physicals
- Ask your preceptor/physiatry resident! Many have very good resources and handouts for how they practice, and the resources otherwise can be difficult to find/expensive.

Electives Information

For radiology, many programs are looking for students who have completed a broad range of electives including radiology. Because of the breadth of various patients (age and gender) and pathologies, any elective outside of radiology will have a benefit to your application. I.e. ENT elective would come in handy when interpreting a CT of the neck; as you would be familiar with the anatomy and potential pathologies.

Within your radiology elective, many programs run their electives differently in terms of your experience. Most schools try to diversify your experience by giving you exposure to the various imaging modalities and procedures as you rotate amongst different attendings and residents during your elective. Be prepared to spend time observing a resident or staff interpret images. It can be beneficial to your learning and show initiative to ask for your own work station if available. This way you can review cases on your own, work on your approach, and then review with your resident or staff.

Specifics of Specialty

The key to the radiology elective is ANATOMY (know it!).

- **Neuroradiology:** Interpreting CT/MRI Head and Spine
- **Body:** CT and plain film. Depending on the attending, they may give you some AXR to interpret on your own and then review with them later.
- **Chest:** CT and plain films. Depending on the attending, they may give you some CXR to interpret on your own and then review with them later.
- **MSK:** MRI shoulder and knee, U/S shoulder and Achilles are also common. Plain film approaches to the ankle and wrist.
- **Paediatrics:** CXR, AXR, extremities are the most common
- **Interventional:** Hands-on procedures ranging from PICC lines to drain placement done under U/S, CT and fluoroscopy. The scope of procedures in interventional is vast, therefore it is wise to ask for the days list of procedures so you can direct your reading the night before.
- **Trauma:** Spending time in the ER interpreting cases covering plain film, CT and ultrasound.
- **Breast:** Understanding BI-RADS and how mammography is performed

Common Conditions

Have a basic understanding of the anatomy for each region:

- Neuroradiology:** stroke, intracranial bleed (epidural, subdural, parenchymal, ventricular), fractures (skull and vertebra (cervical spine-sacrum))
- Body:** adrenal masses (adenoma/myelolipoma/pheochromocytoma/carcinoma/mets), liver lesions (cysts/hemangiomas/carcinoma/mets/fatty liver dx), small/ large bowel obstructions, kidney lesions (cysts/angiomyelolipoma/carcinoma), appendicitis, diverticulosis/diverticulitis, renal colic
- Chest:** pneumonia, nodules, atelectasis, pulmonary embolism, pneumothorax, pleural effusion
- MSK:** fractures and how to describe them

-**Paediatrics:** fractures and SALTER-HARRIS and elbow fractures (know when your ossification centers are supposed to appear)

Procedures

It is important to know the anatomy and general approach to the procedures listed below. It is helpful to also know indications, approaches and potential complications of the procedures:

- PICC line insertion
- Biopsy
- Joint injections (i.e. SI, hip, shoulder, knee joints)
- Drains/tube insertions

Common Medications

Anaphylactic rescue medications and their doses (in the event of contrast reactions)

Criteria

- CT Head rules
- Ottawa knee/ankle/foot rules
- Fleischner criteria for pulmonary nodules
- LI-RADS, BI-RADS, PI-RADS are some common guidelines for imaging recommendations (don't need to memorize, just good to know what they are as they come up in discussion)
- Have an approach to reading a CXR, AXR, head CT, MSK plain film

Resources

- Radiology Made Ridiculously Simple→ It's a great starter book
- Learning Radiology→ Book and website full of information
- Radiologymasterclass
- Radiopedia
- The Radiology Assistant (Available in app form as well)

Radiation Oncology

Electives Information

Radiation oncology is the discipline of medicine focused on the treatment of disease, primarily malignant, using ionizing radiation delivered by external beam or sealed-sources. It is a direct-entry speciality of approximately 5 years. The first two years of residency are quite general in disciplines complementary to oncology in general and radiation oncology in particular. Most time spent is on various relevant surgical disciplines, medical oncology, hematology, and internal medicine. The remaining 3 or so years are focused on rotating through tumour sites for clinical radiation oncology training.

Radiation oncology works closely with surgeons and medical oncologists/hematologists. There is a special relationship with surgeons because much of the approach to radiation therapy planning is contingent on the surgical context, such as surgical margins, lymph node involvement, etc.

Surgical electives that are especially related to radiation oncology include otolaryngology, urology, thoracic surgery, general surgical oncology (especially breast), gynecology-oncology, and hepatobiliary surgery. Additionally, medical oncology, hematology, and palliative care would be appropriate electives.

Specifics of Specialty

The day-to-day of radiation oncology is fairly routine. Obviously specific schedules are site-specific.

Usually 2-3 days per week you will spend either full or half-days in the clinic, seeing either follow-ups or consult cases. Some radiation oncologists have days dedicated to a particular site they treat (for example breast clinic, gyne clinic, genitourinary clinic, head & neck clinic, etc.). The approach here is to do focused histories and physical exams exploring the burden of disease with which they are presenting (i.e. symptoms, functional impairment, etc.), and the various risk-factors relevant to the disease in question (e.g., smoking, estrogenic factors, etc.).

During half-days, radiation oncologists will have dedicated time for radiation treatment planning, which entails reviewing images and using dedicated software to trace tumour volume and review modified plans from radiation therapists and dosimetrists. This involves mostly observation. Some preceptors dismiss you for the day unless you're interested in seeing and actually contouring tumours. Read up on some anatomy for these. For extra credit, you can read up on what the actual treatment dose will be for a particular site.

Other half-days will entail review clinics (usually on a Friday), which are clinics dedicated to seeing patients currently on radiation therapy. These are very focused histories and physicals related to the side-effects of treatment (e.g., pain, nausea/vomiting).

At various times throughout the week, you'll have multidisciplinary rounds. These are for observation only. Here oncologists and surgeons meet to discuss interesting/complicated cases and decide course of treatment.

Finally, residency programs have academic half-days. You should attend these when you can, to get a sense of the academic program at the school.

Common Conditions

The most common sites treated are breast, lung, gynecologic, genitourinary, and head & neck. Choose a few sites and read up around general approach to these, including role of radiation.

Common Medications

- Tamoxifen
- Letrozole
- Herceptin
- Bicalutamide
- Abiraterone, and Pembrolizumab. Dexamethasone is also often used for a variety of reasons, including nausea, pain, inflammation, reducing mass-effect of tumours, headaches, etc.

Resources

- Uptodate gives you most of the standard approaches to treatment for common cancers, including by stage, and documents radiation therapy in that context.
- Handbook of Evidence-Based Radiation Oncology is the main textbook for clinical radiation oncology.

DISCLAIMER: We hope you have enjoyed using the Clerkship Survival Guide and it has helped you throughout medical school! The editors of this guide have attempted to ensure that its information is accurate and up the standards accepted at the time of publication. Please note due to the possibility of human error and the ever-changing nature of medicine, the authors encourage you to use this information with scrutiny. The authors and editors are not responsible for errors or omissions or for any consequences from using this information in this guide in a clinical setting. We do not guarantee the currency, completeness or accuracy of the information in this application. Therefore, the editors are not liable for any consequential or exemplary damages resulting in user's use and reliance of this material.