General Surgery
Resident Handbook

Mount Sinai Hospital
Division of General Surgery
Updated December, 2017

Compiled by:
Alifiya Goriawala, CCPA & Saira Rashid, CCPA

Updated December, 2017
## Useful contact information

<table>
<thead>
<tr>
<th>Department</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locating</td>
<td>5133</td>
</tr>
<tr>
<td>14 North</td>
<td>4588</td>
</tr>
<tr>
<td>14 South</td>
<td>4590</td>
</tr>
<tr>
<td>14 Surgical step down</td>
<td>4448</td>
</tr>
<tr>
<td>OR desk</td>
<td>4400</td>
</tr>
<tr>
<td>PACU</td>
<td>5272</td>
</tr>
<tr>
<td>Emergency department</td>
<td>5054</td>
</tr>
<tr>
<td>ICU</td>
<td>4610</td>
</tr>
<tr>
<td>Interventional radiology</td>
<td>4419 or 2247</td>
</tr>
<tr>
<td>CT scan</td>
<td>5281</td>
</tr>
<tr>
<td>CT reporting</td>
<td>6814 or 5278</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>4495</td>
</tr>
<tr>
<td>Gastrics (pouchogram/enemas)</td>
<td>7738</td>
</tr>
<tr>
<td>MRI</td>
<td>4987</td>
</tr>
<tr>
<td>MRI reporting</td>
<td>16-5669</td>
</tr>
<tr>
<td>TPN pharmacy</td>
<td>2313</td>
</tr>
<tr>
<td>Microbiology</td>
<td>4496</td>
</tr>
<tr>
<td>Palliative care consult</td>
<td>7884</td>
</tr>
<tr>
<td>Psychiatry consult</td>
<td>8419</td>
</tr>
<tr>
<td>ETN—Julie Tjan</td>
<td>2812</td>
</tr>
<tr>
<td>ETN—Monica Freca</td>
<td>2613</td>
</tr>
<tr>
<td>CCAC</td>
<td>8732</td>
</tr>
<tr>
<td>Endoscopy</td>
<td>4443</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>4688</td>
</tr>
<tr>
<td>UHN locating</td>
<td>14-3155</td>
</tr>
<tr>
<td>Dr. P. Kortan at SMH</td>
<td>P: 416.864.3094 or F: 416.864.5619</td>
</tr>
<tr>
<td>Dr. G. May at SMH</td>
<td>P: 416.864.5345 or F: 416.864.5749</td>
</tr>
<tr>
<td>Thrombosis clinic</td>
<td>P: 416.340.3423 or F: 416.340.5682</td>
</tr>
</tbody>
</table>
Office numbers for General Surgery staff

<table>
<thead>
<tr>
<th>Staff</th>
<th>Secretary</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Z. Cohen</td>
<td>Rina</td>
<td>1555</td>
</tr>
<tr>
<td>Dr. M. Brar</td>
<td>Natalie</td>
<td>4702</td>
</tr>
<tr>
<td>Dr. E. Kennedy</td>
<td>David</td>
<td>6872</td>
</tr>
<tr>
<td>Dr. A. De Buck Van Overstraeten</td>
<td>Rina</td>
<td>6600</td>
</tr>
<tr>
<td>Dr. A. Easson</td>
<td>Maryrose</td>
<td>16-2328</td>
</tr>
<tr>
<td>Dr. A. Govindarajan</td>
<td>Lina</td>
<td>7163</td>
</tr>
<tr>
<td>Dr. A. McCart</td>
<td>Ingrid</td>
<td>4552</td>
</tr>
<tr>
<td>Dr. D. Bischof</td>
<td>Ingrid</td>
<td>4552</td>
</tr>
<tr>
<td>Dr. C. Swallow</td>
<td>Dionne</td>
<td>1558</td>
</tr>
<tr>
<td>Dr. S. Brar</td>
<td>Natalie</td>
<td>1982</td>
</tr>
<tr>
<td>Dr. H. MacRae</td>
<td>Firdeza</td>
<td>2836</td>
</tr>
<tr>
<td>Dr. R. Gryfe</td>
<td>Ruth</td>
<td>5088</td>
</tr>
<tr>
<td>Dr. R. Gladdy</td>
<td>Hamsa</td>
<td>3812</td>
</tr>
</tbody>
</table>

Other phone extensions could be found at MSH intranet directory:

Link: http://info2/staffdir/

What are the different surgical teams?

<table>
<thead>
<tr>
<th>Team Colour</th>
<th>Staff Surgeons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red (colorectal)</td>
<td>Z. Cohen, E. Kennedy, M. Brar, A. De Buck Van Overstraeten</td>
</tr>
<tr>
<td>Orange (colorectal)</td>
<td>R. Gyrfe, H. MacRae</td>
</tr>
<tr>
<td>Aqua (breast, surgical oncology)</td>
<td>A. Easson, J. Escallon, W. Leong, (M. Reedijk, T. Cil) A. McCart, D. Bischof, A. Govindarajan</td>
</tr>
<tr>
<td>Blue (surgical oncology)</td>
<td>S. Brar, R. Gladdy, C. Swallow</td>
</tr>
</tbody>
</table>
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General Surgery Physician Assistants

- Orange/Red and Aqua teams each have a Physician Assistant (PA)
- PA work hours are **Monday to Friday 6:30 a.m. to 2:30 p.m.**
- PA duties include: attending ward rounds, providing handover to the charge nurse, liaising with allied health professionals, discharge planning, attending clinics and assisting in the O.R as needed.
- PAs can help residents with clinical work however residents are primarily responsible for timely completion of home care forms, discharge summaries and attendance in family meetings and palliative care rounds.
- The PAs may not be the SOLE representative for the team at: family meetings, morning report or other interdisciplinary team meetings, unless ALL residents for the team are either at teaching or are required in the OR (1 resident/OR).
- The PAs should not be the SOLE representative from the team rounding on patients in the morning and making decisions about post-operative care and/or discharge planning.
- The expectation is that all discharge summaries and home care referrals are **EQUALLY** distributed between the resident team and the PA.
- All orders put into PowerChart by the PAs including Home Care forms require co-signature by a resident team member.
- PAs should not be given resident PowerChart passwords to use as a method for the PA to co-signing their own orders.
- If a resident is paged directly by the nursing staff, the resident should manage the issue and not redirect the page/issue to the PA.
- Senior residents should assist the PAs to help them prioritize their responsibilities for the day.

*Please also note that the **PA STUDENTS** (i.e. not PAs) cannot attend any morning report or interdisciplinary meeting on their own, see any patients independently. They are basically at the level of a 1st year medical student.*
What are my responsibilities as a JR resident?

- Read team specific objectives
  [http://generalsurgery.utoronto.ca/academic/shsc/trainees.htm](http://generalsurgery.utoronto.ca/academic/shsc/trainees.htm)
- Identify learning objectives for this rotation
- Attend morning rounds with team
- Attend teaching rounds
- Assist in patient care including:
  - Timely in-patient order entry
  - Timely completion of home care referrals
  - Completion of discharge summaries within 48 hours of discharge
    - NB: discharge summaries are required for all admissions through the emergency department but are not required for elective admissions with less than 72 hours in hospital stay (i.e. mastectomy patients)
  - Completion of all weekend discharge summaries
  - Frequent check of “scut list” (requests from nursing/allied health that do not warrant urgent physician attention)
- Solicit and obtain midterm and final evaluation from your supervising physician
- Attend clinic and scrub into O.R.
- Familiarize yourself with cases before scrubbing into O.R.

Orientation videos

- A series of entertaining videos are available on YouTube for demonstration of expected JR resident responsibilities
  [http://www.youtube.com/playlist?list=PLBoWzQ2ht55AuEKyXOs84zPVvZV9DOybS](http://www.youtube.com/playlist?list=PLBoWzQ2ht55AuEKyXOs84zPVvZV9DOybS)

Evaluations

- Plan ahead and make an evaluations appointment to be held during the last week of your rotation with your preceptor.
- If the duration of your rotation is longer than one month, your preceptor will be from the team on which you have been on most recently. Preceptors are as follows:
  - Red: Dr. Kennedy
  - Orange: Dr. Macrae
  - Aqua: Dr. Govindarajan
  - Blue: Dr. Swallow/ Dr. Brar
What will my weekly schedule look like?

<table>
<thead>
<tr>
<th>Team</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Clinic</td>
<td>OR</td>
<td>Endo/ Clinic</td>
<td>OR</td>
<td>Endo/Clinic</td>
</tr>
<tr>
<td>Orange</td>
<td>-</td>
<td>OR, Clinic</td>
<td>OR, Endo</td>
<td>OR</td>
<td>OR, Clinic</td>
</tr>
<tr>
<td>Blue</td>
<td>OR</td>
<td>Clinic</td>
<td>Clinic</td>
<td>OR</td>
<td>OR</td>
</tr>
<tr>
<td>Aqua</td>
<td>OR, Clinic</td>
<td>OR, Clinic</td>
<td>OR, Clinic</td>
<td>Clinic</td>
<td>OR, Clinic</td>
</tr>
</tbody>
</table>

When are teaching rounds?

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>5:00 p.m.</td>
<td>Sarcoma tumour board or IBD rounds</td>
<td>14th floor, classroom</td>
</tr>
<tr>
<td>Tuesday</td>
<td>5:00 p.m.</td>
<td>GI tumour board</td>
<td>6th floor, pathology conference room</td>
</tr>
<tr>
<td>Wednesday</td>
<td>4:00 p.m.</td>
<td>Rectal tumour board</td>
<td>3rd floor, PMH Rm 976</td>
</tr>
<tr>
<td></td>
<td>4:00 p.m.</td>
<td>Breast tumour board</td>
<td>12th floor, breast unit classroom</td>
</tr>
<tr>
<td></td>
<td>5:00 p.m.</td>
<td>GI imaging rounds (first Wednesday of the month) or Socratic/core teaching</td>
<td>5th floor, Rm 580</td>
</tr>
<tr>
<td>Friday</td>
<td>7:30 a.m.</td>
<td>University rounds (first Friday of the month) or Quality of care rounds</td>
<td>TGH level B ELLISCR room or 14th floor, classroom</td>
</tr>
</tbody>
</table>

When are interdisciplinary team rounds?

<table>
<thead>
<tr>
<th>Rounds</th>
<th>Team</th>
<th>Location &amp; Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interdisciplinary</td>
<td>Red, Orange, Blue and Aqua</td>
<td>Monday 1:00 p.m., 14S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monday 1:15 p.m., 14S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monday 9:30 a.m., 14N</td>
</tr>
<tr>
<td>TPN</td>
<td>ALL</td>
<td>Tuesdays 9:00 AM, 14N Rm 1425A</td>
</tr>
<tr>
<td>Palliative</td>
<td>ALL</td>
<td>Thursdays 9:00 AM, 14N nursing station</td>
</tr>
</tbody>
</table>
What will my call shift be like?

♦ Call rooms
  ◊ Senior— 17th floor, Rm 7707 (door code 534)
  ◊ Junior— 14th floor, Rm 1437 (door code 12-45)
  ◊ Clerk— 5th floor, anesthesia corridor in O.R. suite (door code 1542)

♦ Call coverage
  ◊ On call shifts are 7 a.m. to 7 a.m. the following day
  ◊ Be sure to receive handover in person from the junior resident on each team the previous night
  ◊ Overnight handover is facilitated by a sign out email (see below)
  ◊ Junior residents are to round with their team after call shift and address ward issues before leaving hospital
  ◊ General surgery junior residents are to leave by 12 p.m. post call
  ◊ All non-general surgery junior residents are to leave by 10 a.m. post call
  ◊ Medical students are to leave by 10 a.m. post call
  ◊ Senior residents are to leave by 12 p.m. post call, however may stay beyond noon for unique learning opportunities only

♦ Surgical consults
  ◊ Medical students can see E.R. consults first at the discretion of junior resident
  ◊ Junior on call is to see all E.R. and inpatient consults as they are received and review with the senior/fellow on-call
  ◊ New admissions are admitted to the staff surgeon on call unless they are well known to another staff surgeon
  ◊ Review general surgery consult guidelines (pg. 10)

♦ Sign out
  ◊ Junior on call is expected to email all residents, staff on call and Dr. Swallow the list of consults, ward issues, and emergent operations before 6:30 a.m. rounds

♦ Weekend rounds
  ◊ Weekend junior on call is expected to round with the covering senior resident. Be sure to confirm with the senior resident covering when rounds begin
How do I ensure a patient is ready for surgery?

- Signed consent for procedure and blood transfusion (if patient is not capable of consenting, obtain consent from a family member and witness in person or over the telephone. If you are not comfortable obtaining consent, defer to the senior resident for advice)
- Blood group and screen
- Cross match units of blood (if applicable)
- Coagulation studies
- CBC, electrolytes, creatinine
- ECG (patients >50 yrs or if clinically indicated)
- CXR (patients >50 yrs or if clinically indicated)
- Foley catheter to monitor fluid status (if applicable)
- NPO status
- Anesthesia consult (if applicable)
- Reserved monitored bed post-operatively (if applicable)

What time does the elective O.R. list start?

- 7:45 a.m. Monday to Thursday and 8:45 a.m. Friday

How do I book an emergent O.R. case?

- Define priority code
  - A: Risk of loss of life/limb; requires surgical intervention within 2 hr
  - B: Risk of loss of life/limb; requires surgical intervention within 2-8 hr
  - C: Risk of loss of life/limb; requires surgical intervention within 8-48 hr
- Go to O.R. desk and complete O.R. booking form. Bring patient demographics with you
  - Emergent cases are done in order of booking time and priority code. Be sure to book case as soon as you are aware patient will need surgery and to confirm with SR resident prior to booking
    - 7:30 a.m. to 5:00 p.m. Monday to Thursday
    - 8:30 a.m. to 4:00 p.m. Friday
    - 8:00 a.m. to 4:00 p.m. weekends and holidays
- Outside these hours, only priority A and B cases will be accepted and need to be communicated directly to the O.R. Nurse Team Leader (x 4400). If booking a case after 11:00 pm contact OR Clinical Nurse Manager (NCM) via locating (5133)
Emergency OR Case Booking Algorithms

A Case

NB: These algorithms are also available on the OR desk
B Case

NB: These algorithms are also available on the OR desk
A typical day on general surgery

C Case

NB: These algorithms are also available on the OR desk
Communication Algorithm for booking A or B cases after-hours and on weekends

Surgical team has A or B case to book

Call OR at ext. 4400

OR nurse answers
- Surgeon informs nurse who will give an estimate of when case can be called for
  - Come to OR and complete the booking form

OR nurse does not answer
- Call locating and identify need to book an OR case
  - Locating will connect surgeon to OR nurse if they are still in the hospital
  - Locating will connect surgeon to NCM if OR team has signed out of the hospital
    - Surgeon discusses booking case with NCM who will apply ER case algorithm
      - NCM informs surgeon whether the case will go at 8AM or if NCM will instruct locating to call nurses and anesthesiologist back

*Note: C cases and hip fractures are booked at the OR desk by submitting a booking form. There is no need to call***

***Surgical team is to call anesthesiologist directly only if they need advice prior to booking the case or prior to the patient’s arrival at the OR. There is no need for courtesy calls.***
Consulting services

**General Surgery Consult Guidelines**

♦ Consults on new referrals from the Emergency Department (patients who are unknown to any general surgery staff at MSH) should be reviewed with the staff surgeon on call, or her/his designate (e.g. Clinical Associate).

♦ Consults on patients who have previously been evaluated or operated upon for IBD or cancer by one of the MSH general surgery staff should be reviewed with the general surgeon on call, and that individual will determine whether to admit the patient directly to him/herself, or will contact the other surgeon to determine if the patient should instead be admitted under him/her. The default should be to admit the patient under the staff on call.

♦ When a staff surgeon will be unavailable to answer queries about her/his patients, the surgeon should inform locating and housestaff of the plan for coverage.

♦ The Peritoneal Malignancy Service (McCart, Govindarajan, Bischof) has instituted a designated “surgeon of the week” system. The rota will be provided to Locating and to the general surgery staff and house staff.

♦ Urgent transfer of a patient from another hospital to MSH should be arranged by the staff surgeon on call. The staff surgeon is responsible for the decision to accept the patient in transfer, and must verify that a bed at the required level of care is available at MSH. The staff surgeon is to notify admitting (x4496) of the patient’s name and admitting diagnosis, and email the flow coordinator Carolyn Farquharson - CFarquharson@mtsinal.on.ca

♦ Patients with chest tubes: Thoracic surgery will provide consultation where requested. If they have no beds or do not feel the patient requires their service to admit them, they will consult General Surgery here to request admission here

♦ The General surgery service will only be involved in the care of patients who swallow foreign bodies if there is evidence or concern for perforation. If patient requires admission, Medicine should admit with GI and or general surgery consulting, if applicable.
PMH patients: We should receive advance notification regarding patients referred from PMH. If the patient has no prior affiliation with Mount Sinai they should go to TGH. If they require a service we can’t provide (eg neurosurgery) they should not come here. If they clearly need admission the referring physician should also speak to the admitting team on call as a courtesy (but not as a direct, see policy on "directs to medicine" on MSH intranet).

Lower GI bleeds without significant co-morbidity should be referred to General Surgery

Small bowel obstruction (partial or complete) in a patient with previous surgery should go to Surgery. Patients with IBD, a mass and SBO should go to GI.

Intra-abdominal process, like partial SBO in a cancer patient should go to Surgery. If the case will not require surgical treatment and is undergoing active therapy by a medical oncologist, then this patient can be admitted to Medicine. If the patient is undergoing active treatment by a surgeon the patient should be admitted to Surgery. If the patient is purely palliative they should go to the service that last actively treated the patient.

All patients with suspected complications of IBD should be referred to GI (unless they need Surgical consultation first, eg SBO as above). If the GI service feels they are more appropriate for admission to Medicine they should speak with Medicine.

Pancreatitis should go to Surgery (alcoholic and gallstones).

The benign general surgery clinic referral form is for the Emergency MD's to use for patients that need to be seen on an out-patient basis by general surgery, but that don't need a general surgery consultation in the emergency department. If the general surgery team is consulted, the benign general surgery clinic referral form should NOT be used and follow-up should be arranged as per the staff surgeon on call. If the patient is being referred to another surgeon then a direct referral to that surgeon should be made.

How do I contact UHN consulting services?

UHN locating from MSH phone 14-3155

UHN consults are required for the following consulting services: plastic surgery, radiation oncology, transplant, thoracic surgery, neurosurgery, vascular surgery, and hepatobiliary
How do I arrange for a palliative care consult?

- Palliative care consult service assists in managing patients with life-threatening illness
- Typical indications for consults
  - Pain and symptom management i.e., nausea, pain, fatigue
  - Discharge planning i.e., palliative care unit, home, LTC
  - Psychosocial distress i.e., diagnosis, management
- Patients do NOT necessarily need a prognosis < 3 months, DNR status or diagnosis of cancer for referral
- Consult via telephone 8:30 a.m.—4:30 p.m. ext. 7884
- Consultations after these hours via on-call palliative care physician

How do I arrange an Interventional Radiology (IR) procedure?

- Common IR procedures:
  - Percutaneous drainage of intra-abdominal collection
  - Sinogram (to check position of a percutaneous drain)
  - Fistulogram (to delineate the anatomy of a fistula)
  - Tissue biopsy
  - Insertion of PICC line or Port-a-cath
- Enter the IR order in Powerchart and clearly state the reason for exam
- Ensure patient has a recent INR/PTT (within last 72 hours)
- Hold thromboprophylaxis and make the patient NPO on the morning of IR procedure
- Call IR to speak with radiologist and provide brief history and indication for the procedure (x 4419 or 2247)

How do I arrange for interpreter services?

Monday to Friday 7:30 a.m. to 5:00 p.m. Call Volunteer Services at Local 8200. After 5:00 p.m. and on weekends, call Language Services Toronto at 416-504-4LST (4578).

Always record in the patient's chart that an interpreter has been used, or that you attempted to find an interpreter.
How do I arrange TPN for a patient?

♦ Total parenteral nutrition is typically provided after 7-10 days of NPO status in previously well-nourished patients

♦ GI TPN staff must be consulted before noon in order for TPN to start that evening

♦ New TPN consults are not accepted on weekends and holidays

♦ Patients require a double lumen PICC line (inserted by interventional radiology) and pre-TPN bloodwork ordered in powerchart

♦ For home TPN, please see discharge services section, pg. 19

How do I arrange an ERCP?

♦ For all patients requiring an ERCP, you must fax the following to Dr. P. Kortan's or Dr. G. May’s office:
  ◊ Completed referral sheet clearly stating history of presenting illness and indication for the procedure
  ◊ Relevant ancillary investigation (i.e. ultrasound results, lab results)
  ◊ Recent INR

♦ Ensure that the patient is NPO at midnight and thromboprophylaxis is held the day of procedure

How do I write an inpatient progress note?

Template progress note

General Surgery
Date
Patient identification (i.e. post-operative day/post-admission day #)
Status of vital signs (i.e. Tmax, tachycardic, hypotensive, oxygenation or AVSS)
Outputs (i.e. urine, stoma, drains, bowel movements, vomitus)
Brief patient subjective history
Objective physical exam findings
Overall impression of patient status
   (This is critical for communication to other services involved)
Plans
   Document daily changes to orders or anticipated direction of patient care (i.e. advance diet, follow up leukocytosis)
   Resident name and designation
   Surgical team colour

Updated December, 2017
Inpatient care

**Where can I find access to BPIGS and ERAS?**

- Follow the link below or download the BPIGS app (Apple only):
  
  [http://www.bpigs.ca/](http://www.bpigs.ca/)


**How do I premedicate a patient with contrast dye allergy for a CT scan?**

<table>
<thead>
<tr>
<th>Time Pre-examination</th>
<th>Medication</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 hrs pre-examination</td>
<td>Prednisone 50 mg PO x 1 dose or 40 mg solumedrol IV (if patient cannot tolerate PO)</td>
<td></td>
</tr>
<tr>
<td>1 hr pre-examination</td>
<td>Prednisone 50 mg PO x 1 dose or 40 mg solumedrol IV (if patient cannot tolerate PO) Benadryl 50 mg PO x 1 dose (50 mg IV if patient cannot tolerate PO)</td>
<td></td>
</tr>
</tbody>
</table>

**How do I manage perioperative pain?**

- **The Acute Pain Service (APS)**
  - Manages acute pain in surgical patients admitted to hospital
  - There is 24 hour coverage and the Anesthesiologist can be reached by pager via Locating (Ext. 5133).
  - **IMPORTANT**: General Surgery team **CANNOT** order any analgesics, drugs with sedating properties (ie. hs sedation, anti-anxiety medications, antidepressants), antiemetics, or antipruritics while the patient is being managed by the APS.

**Commonly used opioid analgesic doses:**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Oral dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codeine</td>
<td>100 mg</td>
</tr>
<tr>
<td>Morphine</td>
<td>10 mg</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>5 mg</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>2 mg</td>
</tr>
<tr>
<td><strong>Tylenol #1</strong></td>
<td>300 mg acetaminophen &amp; 8 mg codeine</td>
</tr>
<tr>
<td><strong>Tylenol #2</strong></td>
<td>300 mg acetaminophen &amp; 15 mg codeine</td>
</tr>
<tr>
<td><strong>Tylenol #3</strong></td>
<td>300 mg acetaminophen &amp; 30 mg codeine</td>
</tr>
<tr>
<td><strong>Percocet</strong></td>
<td>325 mg acetaminophen &amp; 5 mg oxycodone</td>
</tr>
</tbody>
</table>

Tylenol #2 is equivalent to ≈ 3 mg of morphine + 300 mg acetaminophen

Percocet is equivalent to ≈ 10 mg of morphine + 325 mg acetaminophen

- First line drug is morphine. Use hydromorphone in the elder or renal impaired
- Oral to parenteral conversion is approximately 2:1
  - Routine doses of immediate release opiates should be Q4h
  - Breakthrough (PRN) should be 1/2 the Q4h dose Q1-2h PO
  - Monitor and titrate frequently. Check the frequency of PRN use over 24h and adjust Q4h dosing accordingly
- Do not start sustained release or transdermal patches until pain control is achieved for several days on stable doses of immediate release opiates
- Always give an antiemetic bowel reand consider gimen with opiates

**How do I provide anti-coagulation?**

- Prescribe to all admitted patients regardless of age or risk factors, operative versus non-operative management
- Patients receive daily low molecular weight heparin dosed according to body weight and renal function (pg. 10)
- The first dose is administered intra-operatively (if applicable) and daily thereafter
- Low risk patients undergoing day surgery or minor procedures (i.e. lumpectomy, anorectal procedures) do not require thromboprophylaxis

**When should I withhold anticoagulation?**

- There are certain clinical situations where anticoagulation should be temporarily suspended to avoid bleeding risk:
  - Interventional radiological procedures (i.e. insertion of percutaneous drain, biopsy)
  - Withhold on day of procedure, provide post-procedure
Inpatient care

◊ Insertion and removal of an epidural catheter
  ◊ Administer LMWH 2-8 hours after insertion and 2 hours following removal (defer to anesthesia’s preference)
  ◊ Evidence of acute GI bleed

**How do I manage patients on steroids requiring surgery?**

♦ Perioperative adrenal insufficiency is an uncommon but serious complication of surgery
  ◊ Patients taking ≥ 10 mg of prednisone daily (or steroid equivalent) within 3 months of surgery require perioperative stress dosing
  ◊ If they have been off steroids > 3 months, they likely have an adequate adrenal response and do not require steroid coverage

<table>
<thead>
<tr>
<th>Pre-operative Prednisone dose</th>
<th>Stress steroid regimen</th>
<th>Duration of therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 30 mg daily</td>
<td>Hydrocortisone 100 mg IV Q12h then Hydrocortisone 50 mg IV Q12h then Resume oral prednisone</td>
<td>X 4 doses (first dose intraoperatively) X 4 doses Begin tapering (unless continued therapy indicated)</td>
</tr>
<tr>
<td>10-25 mg daily</td>
<td>Hydrocortisone 50 mg IV Q12h then Resume oral prednisone</td>
<td>X 6 doses Begin tapering (unless continued therapy indicated)</td>
</tr>
</tbody>
</table>

**How do I taper steroids postoperatively?**

♦ Most often patients may discontinue steroids but require weaning to avoid symptoms associated with HPA axis suppression (unexplained hypoglycemia, hypotension, shock)
Inpatient care

How do I arrange an urinalysis and urine culture?

- Urinalysis and Urine culture is ordered in Powerchart.
- Microbiology does not automatically process all urine cultures as most positive urine cultures without indwelling catheter represent asymptomatic bacteriuria. Microbiology needs to be called at ext: 4432 within 48 hours in order to process the urine for culture.

How do I order fluid biochemistry?

There are location specific fluid biochemistry order sets on Powerchart:

- Ascites Order Set
- Ileostomy Fluid Order Set
- Fistula Drainage
- Joint Fluid Analysis Set
- Peritoneal Fluid Procedure Set
- Pleural Fluid aspiration Set
- Wound Drainage Biochemistry Set

How do I manage electrolyte deficiencies?

**Phosphate**

Normal level 0.9-1.45 mmol/L

<table>
<thead>
<tr>
<th>Duration of steroid use</th>
<th>Weaning regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 month</td>
<td>Decrease dose by 5 mg weekly</td>
</tr>
<tr>
<td>&gt; 1 month</td>
<td>Decrease dose by 5 mg every 2 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normal renal function (Cr Cl &gt; 50 mL/min)</th>
<th>Impaired renal function (Cr Cl &lt; 50 mL/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO/NG 500 mg BID x 2-4 doses or IV 15 mmol in 500mL NS over 5 hr</td>
<td>PO/NG 500 mg BID x 2-4 doses or IV 15 mmol in 500mL NS over 5 hr</td>
</tr>
<tr>
<td>IV 15 mmol in 500mL NS over 5 hr x 2 doses</td>
<td>IV 15 mmol in 500mL NS over 5 hr x 1-2 doses</td>
</tr>
<tr>
<td>IV 15 mmol in 500mL NS over 5 hr x 3 doses</td>
<td></td>
</tr>
</tbody>
</table>
Inpatient care

### Options

**PO/NG phosphate Novartis**
- IV potassium phosphate (5 mL = 15 mmol PO$_4^-$ and 22 mEq K)
  - If K > 4.0, consider NaPO$_4$  
- IV sodium phosphate (5 mL = 15 mmol PO$_4^-$ and 20 mmol Na)
  - If K < 3.5, consider KPO$_4$

### Magnesium

**Normal level 0.71-1.10 mmol/L**

<table>
<thead>
<tr>
<th></th>
<th>Normal renal function</th>
<th>Impaired renal function (Cr Cl &lt; 50 mL/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.55-0.70</td>
<td>PO/NG 30 mL Q6h x 4 doses or IV 2 g in 100 mL NS over 2 hr</td>
<td>PO/NG 30 mL Q6h x 4 doses or IV 2 g in 100 mL NS over 2 hr</td>
</tr>
<tr>
<td>Mild</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.40-0.54</td>
<td>IV 2 g in 100 mL NS over 2 hr x 2 doses</td>
<td>IV 2 g in 100 mL NS over 2 hr x 2 doses</td>
</tr>
<tr>
<td>Moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 0.39</td>
<td>Day 1: IV 2 g in 100 mL NS Q4h over 2 hr x 4 doses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Day 2: IV 2 g in 100 mL NS Q12h over 2 hr x 2 doses, then reassess</td>
<td>Day 1: IV 2 g in 100 mL NS Q8h over 2 hr x 3 doses</td>
</tr>
<tr>
<td></td>
<td>Day 2: IV 2 g in 100 mL NS Q12h over 2 hr x 2 doses, then reassess</td>
<td>Day 2: IV 2 g in 100 mL NS over 2 hr, then reassess</td>
</tr>
<tr>
<td>&lt; 0.39</td>
<td>Day 1: IV 2 g in 100 mL NS Q4h over 2 hr x 4 doses then; IV 2 g in 100 mL NS Q6h over 2 hr x 2 doses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Day 2: IV 2 g in 100 mL NS Q12h over 2 hr x 2 doses, then reassess</td>
<td>Day 1: IV 2 g in 100 mL NS Q4h over 2 hr x 3 doses</td>
</tr>
<tr>
<td></td>
<td>Day 2: IV 2 g in 100 mL NS over 2 hr, then reassess</td>
<td>Day 2: IV 2 g in 100 mL NS over 2 hr, then reassess</td>
</tr>
</tbody>
</table>

**Options**

**PO magnesium Rougier (1500 mg/15 mL = 75 mg elemental Mg)**

**IV magnesium sulfate (1 g = 2mL MgSO$_4$ in NS)**
**Calcium**

Normal level 2.20-2.60 mmol/IL (ensure to correct for hypoalbuminemia)

<table>
<thead>
<tr>
<th></th>
<th>Normal renal function</th>
<th>Impaired renal function (Cr Cl &lt; 50 mL/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.0-2.19</strong></td>
<td>PO/NG 1250 mg 2 tabs TID x 6 doses</td>
<td>If PO₄ &lt; 2.0, PO/NG 1250 mg 2 tabs TID x 3 doses</td>
</tr>
<tr>
<td><strong>1.7-1.99</strong></td>
<td>IV 1 g in 100 mL NS over 60 min</td>
<td>If PO₄ &lt; 2.0, IV 1 g in 100 mL NS over 60 min</td>
</tr>
<tr>
<td><strong>&lt; 1.7</strong></td>
<td>IV 1 g in 100 mL NS over 30-60 min</td>
<td>If PO₄ &lt; 2.0, IV 1 g in 100 mL NS over 30-60 min</td>
</tr>
</tbody>
</table>

**Options**

PO calcium carbonate (1 g = 400 mg elemental Ca)

IV calcium gluconate (1 g = 2.33 mmol Ca)

**Potassium**

Normal level 3.5-5.0 mmol/IL

<table>
<thead>
<tr>
<th></th>
<th>Normal renal function</th>
<th>Impaired renal function (Cr Cl &lt; 50 mL/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1-3.5</strong></td>
<td>PO 40 mEq</td>
<td>PO 20 mEq</td>
</tr>
<tr>
<td><strong>2.6-3.0</strong></td>
<td>PO 40 mEq x 2 doses</td>
<td>PO 20 mEq</td>
</tr>
<tr>
<td><strong>&lt; 2.5</strong></td>
<td>PO 40 mEq x 2 doses and consider adding 40 mEq KCl to IVF</td>
<td>PO 40 mEq</td>
</tr>
</tbody>
</table>

**Options**

PO potassium chloride (KDur)

IV KCl is *not* available on the surgical ward
Discharge planning

What services are involved in discharge planning?

♦ Physiotherapy, occupational therapy, social work, and other consulting services
♦ Assessments and progress notes from allied health can be found on Powerchart (under Clinical Documentation tab)
♦ All teams have rounds with allied health weekly to liaise and discuss patient care (see Interdisciplinary Rounds section pg. 7)

How do I write a discharge letter?

<table>
<thead>
<tr>
<th>Patient demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Dear Doctor:’”</td>
</tr>
<tr>
<td>Patient identification</td>
</tr>
<tr>
<td>Reason for admission</td>
</tr>
<tr>
<td>PMHx</td>
</tr>
<tr>
<td>Course of hospitalization</td>
</tr>
<tr>
<td>Discharge instructions</td>
</tr>
</tbody>
</table>
  - Follow up plans including those for surgical drains, etc.
  - Anticipated homecare requirements after discharge from facility |
| Resident name and designation |
| Attending staff letter is sent on behalf of _________ |
♦ Patient transfer to alternative care facility require a doctor’s letter
♦ Template may also be used for dictating discharge summaries

How do I prescribe narcotic medications?

♦ Stamp patients blue card to have health card number on the prescription
♦ Always specify the total dispensing quantity and strength of the drug if there is more than one strength available
  ◊ i.e. Morphine 5-10 mg PO Q4h PRN for pain
  Mitte: 40 tablets of 5 mg tablets
♦ Narcotic prescriptions including Codeine, Fentanyl patch, Hydromorphone, Morphine, Oxycodone, Percocet and Lomotil, prescriptions must be written or faxed i.e. no verbal prescriptions
  ◊ Refills are not permitted
  ◊ May be written as part-fills and dispensed in divided portions
How do I arrange thrombosis follow up?

- For thrombosis clinic follow up, fax a completed referral form to thrombosis clinic at TGH (link: http://documents.uhn.ca/sites/uhn/Thrombosis/Formulary/Referral.pdf)
- Patients are usually seen in thrombosis clinic within 3-4 weeks of discharge
- Ensure anticoagulation prescription is provided to the patient for minimum 3-4 weeks upon discharge
- For urgent appointments, page Sue Jenkins at 416.790.7860

How do I complete homecare (CCAC) referrals?

- Complete referrals before 9:00 a.m. on day of discharge
- Ensure to liaise with nurse team leader on the morning of discharge that patient is going home and requires CCAC
- Arrangements for VAC therapy requires coordination with the ETN and may take 2-3 business days
- Mount Sinai Hospital has approved the following CCAC pathways for common interventions:
  - JP drain care in breast surgery
  - JP drain care in colorectal surgery
  - Percutaneous drain care in colorectal surgery
  - Simple wound packing in colorectal surgery
- The templates can be applied under the “Medical Treatment Order” tab, Please choose the desired protocol and edit as required

How do I arrange for Home TPN?

- The TPN team will cycle the patient’s TPN (if not already done) over a minimum of 3 days
- CALL (Resident or Charge Nurse) CCAC to see if home TPN is available in the patient’s community. Some smaller CCACs may need to organize special resources to provide home TPN.
- REQUEST home TPN consult from Dr. Hillary Steinhart (x5121) - even if patient is currently an inpatient on TPN - and PROVIDE the following information:
  - Anticipated time patient will be on home TPN. GI TPN is only able to follow someone for up to 3 months.
Discharge planning

◊ Plan for readmission (eg surgery) or stopping of TPN within 3 months.

♦ Inform the appropriate dietitian for your team and/or the TPN pharmacist of the plan for home TPN.

♦ If a longer duration of TPN (>3months) is required/anticipated a referral must be made to the long term HTPN program at TGH (Dr Johane Allard ext 14-5159). COPY Dr. Steinhart on this letter.

♦ Complete CCAC referral for TPN (found under Medical Treatment Orders/Medication & Hydration/TPN – order: “please see TPN prescription faxed to CCAC” and “flush PICC as per MSH protocol)

♦ The TPN prescription will be finalized by Dr Steinhart ONLY when labs are stable and patient is otherwise ready for discharge, after which it takes 3-5 business days to prepare the TPN bags. CCAC will inform you of the probable discharge date.

What are some important discharge instructions for patients?

Patients should be notified of:

♦ How and when to arrange follow up appointments

♦ Dietary restrictions

♦ Exercise/activity restrictions
   ◊ Lifting greater than 15-20 lbs for 6 weeks
   ◊ Encouraging light aerobic exercise within the limits of pain tolerance
   ◊ Driving while on narcotic medications

♦ Incision care
   ◊ Showering 48 hr post-operatively is safe. Avoidance of bathing for 2 weeks. Allow steri-strips to fall off on their own or 7-10 days post-op, if applicable
   ◊ Timing of staple removal

♦ Medication
   ◊ Resuming home medications unless instructed
   ◊ Prescribing new medications and management of these

♦ When to return to the ED
   ◊ If experiencing fevers, chills, persistent nausea or vomiting, shortness of breath, chest pain, no flatus for more than 2 days, worsening severe abdominal pain or persistent diarrhea
What are some useful tips for the different surgical teams?

**All Teams**

How do I manage a small bowel obstruction?

♦ Etiology
  ◊ Postoperative adhesions
  ◊ Hernia (abdominal wall, groin, incisional)
  ◊ Inflammatory bowel disease
  ◊ Volvulus
  ◊ Intussusception (typically inflammatory mass or neoplasm)
  ◊ Gallstone ileus

♦ May be complete or partial

♦ Tachycardia, fever, localized or generalized abdominal tenderness, rebound tenderness and leukocytosis are concerning signs of bowel compromise

♦ If any of these signs are present, discuss urgently with senior resident and/or staff surgeon

  ◊ XR - air fluid levels, distended proximal loops proximal, collapsed distal bowel, no air in colon and rectum in complete obstruction
  ◊ CT scan
  ◊ Upper GI series in inflammatory bowel disease

♦ Management
  ◊ Fluid and electrolyte resuscitation- often preexisting profound losses through decreased absorption, increased secretions, vomiting and transudation of fluid into the peritoneal cavity
  ◊ Urgent operative management if SBO in virgin abdomen
  ◊ Gut decompression - NG tube
  ◊ Serial exams for monitoring of progression or resolution

How do I manage a large bowel obstruction?

♦ Less common than SBO (15% of bowel obstructions)

♦ Etiology
  ◊ Cancer
  ◊ Diverticular stricture
Surgical team pearls

◇ Volvulus (sigmoid or cecum)
◇ Ischemic or inflammatory stricture
◇ Faecoloma Hernia
◇ Foreign body

♦ May be complete or partial

♦ Investigations

◇ XR - distended proximal loops proximal, collapsed distal bowel
  ◇ If the ileocecal valve is incompetent, may have associated SB dilatation
  ◇ If the ileocecal valve is competent, a closed-loop obstruction may result and greater risk of perforation

◇ CT scan

♦ Management

◇ Fluid and electrolyte resuscitation
◇ Consider urgent operative management if cecum > 9 cm, signs of perforation or strangulation, generalized sepsis
◇ Gut decompression - NG tube, rectal tube if distal obstruction
◇ Colonic stent
◇ Sigmoidoscopy (for sigmoid volvulus)

**Aqua team**

*Breast surgery*

♦ Day surgeries

◇ Lumpectomy ± sentinel lymph node biopsy
  ◇ Requires prescription for analgesia and stool softener

♦ Admissions

◇ Mastectomy ± reconstruction
◇ Axillary node dissection
  ◇ Requires prescription for analgesia and stool softener
  ◇ Requires CCAC for JP drain care
Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC)

✧ Performed on patients with peritoneal malignancies for curative intent
   ◦ Candidates include carcinomatosis from colorectal cancer, appendiceal tumours (including pseudomyxoma peritonei) and peritoneal mesothelioma

✧ Surgeries typically last from 8 to > 20 hours and pose significant physiologic stress on the body

✧ Many patients undergo splenectomy and require post-splenectomy vaccines 2 weeks post-operatively
   ◦ Pneumococcal conjugate (PPSV23); booster 5 years later
   ◦ *Haemophilus influenza* conjugate
   ◦ Meningococcal conjugate (ACWY-135); booster every 5 years
   ◦ Influenza; annual vaccination recommended

How do I manage HIPEC patients postoperatively?

<table>
<thead>
<tr>
<th>Postoperative issues</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemodynamic instability</td>
<td>ICU admission until POD#2-3</td>
</tr>
<tr>
<td></td>
<td>Subsequent transfer to surgical step down unit for continuous monitoring</td>
</tr>
<tr>
<td>Fluid and electrolytes</td>
<td>Expect marked fluid shifts in early postoperative period with requirements of several fluid boluses</td>
</tr>
<tr>
<td></td>
<td>Serum PO$_4$ and Mg are usually low and require aggressive replacement</td>
</tr>
<tr>
<td></td>
<td>Check extended electrolytes BID until POD#3, then daily once stabilized</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Pleural effusion and pulmonary edema are common especially if stripping of the diaphragmatic peritoneum is performed</td>
</tr>
<tr>
<td></td>
<td>Consider chest tube or pigtail insertion for symptomatically significant effusions</td>
</tr>
<tr>
<td></td>
<td>Consider chest physiotherapy</td>
</tr>
</tbody>
</table>
## Red and Orange team

### How do I manage patients with high ileostomy outputs?

- >1200cc of affluent over 24 hr

<table>
<thead>
<tr>
<th>Strategies</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid and electrolytes</td>
<td>Monitor for signs of dehydration and electrolyte imbalances</td>
</tr>
<tr>
<td></td>
<td>Hydration replacement for volumes &gt;1000cc/24hr with 1:1 of NS + 20 mmol/L KCl</td>
</tr>
<tr>
<td>Oral feeds</td>
<td>Separate solids and liquids by 30 min</td>
</tr>
<tr>
<td>Consider dietician consult</td>
<td>Avoid hyperosmolar beverages (ie. sweetened juices, carbonated beverages)</td>
</tr>
<tr>
<td></td>
<td>Increase intake of foods that can thicken</td>
</tr>
<tr>
<td>Antidiarrheals (do not start until discussing with staff surgeon)</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; line: Lomotil (max. dose 5 mg QID)</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; line: Loperamide (max. dose 4 mg QID)</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; line: Codeine (tstarting dose 30 mg Q6h)</td>
</tr>
<tr>
<td></td>
<td>4&lt;sup&gt;th&lt;/sup&gt; line: Cholestyramine (starting dose 1-2 sachets daily)</td>
</tr>
</tbody>
</table>
How do I manage patients with an enterocutaneous (EC) fistula?

- Common risk factors for developing EC fistulae:
  - IBD (particularly crohns)
  - Emergent surgery
  - Malnutrition
  - Infection/sepsis

- >500cc of affluent over 24hr considered high output fistula

- Some patients may be treated with bowel rest to create an optimal environment for spontaneous closure

- Treatment principles:
  - Rule out intraabdominal abscess
  - Monitor for signs of dehydration and electrolyte imbalances
  - Protect peri-fistula skin and consider enterostomal therapy nurse (ETN) consult
  - Decrease intestinal secretions
    - Consider NPO status with parenteral nutrition
    - PPI– Lansoprazole 30mg PO BID
    - Octreotide 100-300mg subcu injx TID may help in high output fistulae only with difficulty protecting skin

**Blue team**

- Sarcoma patients typically undergo complex surgeries including multivisceral resections requiring very close monitoring perioperatively

- Consult with attending staff or fellow prior to making any changes to the patients (i.e. removing tubes and drains, removing staples and sutures, consulting other services, accepting or making transfers to other services, imaging studies and blood transfusions)
  - Staff and fellows are very approachable and encourage junior residents to review plans of care with them

- Many patients have skin grafts and flap closures. Defer to plastic surgery for care and follow up
Enjoy your rotation!

Mount Sinai Hospital
Division of General Surgery

We appreciate any feedback that you might have to help us improve this handbook. Please contact the physician assistants on the service for any comments, opinions or suggestions.