Useful, quick info for the surgical intern, Edition 3.0, June, 2013

The Hospitals

OHSU
You use Epic. Everything is electronic (orders, notes, imaging). Impax for viewing rads.
- **Home access**: www.ohsu.edu/wts
- **Food**: your ID gets automatically updated each month with $$.
- **Call rooms**: SJH, 4th floor, B elevator/stairwell, go left when facing the Neurology department
- **Scrubs**: find them on the 5th floor in Kohler. (go to the ORs to the Kohler side, go down one floor, you’ll find them). Allotted 2 sets at a time. Need tips on how to get more, on the downlow? Ask around.
- **SOR**: 6th floor, can access from main hospital or Kohler. ORs 16+ are in Kohler.
- **NOR**: Multnomah Pavilion, take the 11th floor skybridge and walk straight as far as you can go
- **Kohler Pavilion**: Access on 9th and 10th floors
- **DEA number**: it’s all printed out, don’t need to memorize

VA
CPRS. All computerized.
- **Home access**: www.visn20.med.va.gov/tc
- **Food**: $7 tickets
- **Call rooms**: 9C (Ortho), 9D (Gen Surg, Vascular, Urology); (Vasc, Uro workrooms on 9C)
- **Scrubs**: by the ORs, 3rd floor or POPS, 4th floor
- **OR**: 3rd floor
- **DEA number**: it’s all printed out, don’t need to memorize

Emanuel/Good Samaritan
On Epic. Similar to OHSU, some small differences.
- **Home access**: lhremote.lhs.org
- **Food**: you get these green tickets, worth $6 apiece. If you need more, go ask for more.
- **Call rooms**: at Good Sam, are by the resident lounge in the basement. At Emanuel, 4th floor.
- **Scrubs**: find them in the OR locker rooms. No allotment, you just take/return them as needed.
- **OR**: basement for both.
- **DEA numbers**:
  - Get them at the inpatient pharmacy. Emanuel and Good Sam have different prefixes, your 5-digit suffix is the same for both.

St. Vincent’s
Charts/orders, labs/dictations/images are all off on EPIC.
- **Home access**: apps.providence.org
- **Food**: you get $16 on your card daily. Does not carry over.
- **Call rooms**: by the resident lounge door code 1245
- **Scrubs**: Machine across the hall from workroom. Same color/type as the Legacy scrubs.
- **OR**: 1st floor, through the short stay unit.
- **DEA number**:
  - Get yours at inpatient pharmacy (ground floor, by ED)
Discharge Summaries

For OHSU Epic, there’s a “discharge” navigator you use to type in everything, and this gets printed out to the patient and imported into a discharge summary. In addition you need to write a discharge summary note in the electronic chart. Smart phrase .surgdischarge should autopopulate most of your work. The VA has a separate d/c summary area.

At OHSU, route them to their PCP’s and referring doc (if different).

- **Date of admission**
- **Date of discharge**
- **Attending physician**
- **Discharge diagnosis** (usually the big one that led to the hospitalization)
- **Additional diagnoses** (other clinical conditions that you had to address, e.g. diabetes, HTN, etc.)
- **Procedures performed**
- **Final pathology**
- **Reason for admission** (can do a quick synopsis of the H&P, or check “indications for procedure” on the op notes)
- **Brief hospital course.** Include:
  - Intraop complications/findings
  - Significant events
  - What did the patient look like at discharge (ambulating, tolerating regular diet, open wound, JP drains, etc.)
- **Discharge condition**
- **Disposition** (home, SNF, rehab, friend’s house, etc.)
- **Discharge medications** (include doses if possible)
- **Discharge instructions** (include diet, basic wound care info, etc.)
- **Follow up appointments** (with the surgeon, PCP, other physicians as appropriate)
  Pending labs/studies (if relevant)

Note for Epic Discharge Navigator: You can pre-do discharge summaries and Rxs in advance. Use the Order Set called **Gen: Adult Discharge** and fill in the blanks. Sign all the printed Rxs and put them in the chart. This allows you to pre-do the work and just write the “discharge” order later, even if you’re off the hill in clinic. Prescriptions will print on the patient’s floor.
Epic Tips

H&Ps, daily progress notes, discharge summaries, and the like can be streamlined with the smart use of templates. You will want to steal existing templates to start off and then edit them to your preference.

Stealing:

Hit the Epic button in the top left corner and choose My Smartphrases
Hit the Open button. Under User, type in the name of the person whose phrase(s) you want to steal.
Scroll through their list and copy your selected template into a New field (select between your list and the stealee’s via the blue bar on the left.)
Edit to your heart’s content and save it as your own. Or if you’re lazy and won’t be editing, just Share it to yourself.

Most of the second years should have some good templates to steal

Sample templates:

*Trauma H&P*: .traumahp (not a very good one, steal one of the other residents)

*H&P*: .surghp (even better, steal the template for your particular service from the last intern who was on it)

*Progress Note*: .surgprog (same advice)

*Clinic f/u note* (same advice)

*Discharge Summary*: There is a separate work flow sheet that will take you through all of the info below. The smart phrase .surgdischarge will autopopulate that into a D/C summary note

- The key is to pre-emptively create a dot phrase for each field under Gen: Adult Discharge and adjust per patient. Check off all the boxes you’ll use first so if you pend and close Epic, you don’t need to start a new Order Set.
  - Diagnoses: type out the primary and then .prob under Additional Diagnoses
  - Procedure: type out
  - Brief Hospital course
  - Diet: checkbox
  - Wound care: If they need BID wet to dry dressings, etc, type it out here
  - Activity: choose whatever
  - PT/OT: check box PRN
  - Destination: checkbox
  - Condition: checkbox
  - Followup: Tip, for the clinic phone #, type .r(gen surg, ent, ortho, digestive health, etc). e.g., .rent gets you the ENT clinic phone#.

- Then for the discharge summary, start a new note, type .surgdischarge and voila, almost instant done.
Note: if you steal these templates, as with any template make sure the information is correct and be sure the patient has the correct F/U clinic info.

**Electrolytes**

**Potassium**

**Goal 4.0.** Range 3.5-5 mEq/L. Serum K 1 mEq/L generally represents 100-200 mEq total body K. Replacements: Give **10 mEq K+ per 0.1 below goal** (except if in ARF)

<table>
<thead>
<tr>
<th>IV</th>
<th>PO</th>
</tr>
</thead>
<tbody>
<tr>
<td>- KCl.</td>
<td>- KCl</td>
</tr>
<tr>
<td>- Increments of 10 mEq.</td>
<td>- KDur: tablet. Increments of 20 mEq. Big pill.</td>
</tr>
<tr>
<td>- It burns in peripheral IV’s. Order with lidocaine per pharmacy protocol so it doesn’t hurt</td>
<td>- Klor Con: packets. Increments of 20 mEq. Tastes bad.</td>
</tr>
<tr>
<td>- Infuses 10 mEq per hour</td>
<td></td>
</tr>
<tr>
<td>- Kphos.</td>
<td></td>
</tr>
<tr>
<td>- increments of 15 or 30 mmol</td>
<td></td>
</tr>
<tr>
<td>- 15 mmol kphos = 22 mEq of K+</td>
<td></td>
</tr>
</tbody>
</table>


**Treatment:**

**Stabilize:**

- **IV Ca gluconate** (1g increments, or in 10/20% infusions). Stabilizes membranes. Lasts ~30 min.
- **IV sodium bicarb.** Alkalosis causes intracellular shift of K, increased Na helps stabilize.

**Temporarily decrease serum K:**

- **10 u reg insulin IV + 1 amp of D50 IV.** Temporary, does not reduce total body K.
- Albuterol, B2 agonists. We don’t do this often.

**Definitive removal of K**

- **Loop diuretics** (aka lasix or bumetanide) – causes potassium wasting.
- **Kayexelate** – sodium resin, exchanges sodium with potassium. Can give PO or PR. Causes diarrhea, increases sodium (exchanges Na for K).
  - PO: 1g removes 1 mEq. Usually 40g PO in 20-100mL sorbitol.
  - PR: 1g removes 0.5 mEq. Given as retention enema. 50-100g in 200mL water.

**Magnesium**

**IV**

<table>
<thead>
<tr>
<th>Magnesium</th>
<th>Phosphorus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mag sulfate</strong>*</td>
<td>Sodium phos or K phos, IV or PO</td>
</tr>
<tr>
<td>1.8-1.9</td>
<td>2.2 to 2.3</td>
</tr>
<tr>
<td>1.5-1.7</td>
<td>1.9 to 2.1</td>
</tr>
<tr>
<td>&lt;1.5</td>
<td>&lt;1.9</td>
</tr>
<tr>
<td>2g IV</td>
<td>15 mmol iv</td>
</tr>
<tr>
<td>4g IV</td>
<td>30 mmol iv</td>
</tr>
<tr>
<td>4g IV, recheck after</td>
<td>45 mmol</td>
</tr>
</tbody>
</table>

**PO**

**Magnesium oxide** (mag-ox). Usually 800mg per 0.2 below 2.0. Causes diarrhea.
Glycemic control

As a general rule, oral hypoglycemic agents and metformin are stopped on admission for surgical patients. Usually use insulin based management (easier to control for patients with varying PO intake).

Calculate total insulin needs. You aim to give ½- 2/3 of this with long-acting insulins (NPH or glargine/lantus). The other 1/3 - ½ you cover with sliding scale insulin (either aspart or regular).

Calculating total insulin needs:
- If on an insulin gtt, just add the total amount of insulin given over 24 hours.
- If on sliding scale, calculate how much insulin the patient received with their checks. Give and take if they’re well controlled or not.

Long acting insulin:
- NPH – Usually given as bid dosing (0900 and 2100).
- Lantus/glargine – Usually don’t give this to people who have an unsteady diet. Dosed either daily or bid.

Sliding scale:
- Notes: the way SSI works is CBG’s qAC and qHS (meals & bedtime).
- Sliding scales: at OHSU, there are “mild/moderate/severe.” Usually start with moderate. Do mild with people with generally lower sugars, elderly, kids, etc. Do severe if you know they have a very blunted insulin response. You can adjust the scale as needed. At Legacy (Emanuel/Good Sam), they have an order set, similar. At St. Vincent’s, write out your own.

Scheduled Mealtime
- You can give scheduled mealtime insulins. That means they get “X” units of short acting right before meals. This is good for people who have a pretty consistent response to meals and shoot high.

Insulin in TPN
- Talk to nutrition about this. Usually start with 20 units reg insulin per TPN bag, and then go from there. The changes are kind of voodoo. FYI, the plastic absorbs a lot of the insulin.

Sample sliding scale:

<table>
<thead>
<tr>
<th>CBG’s</th>
<th>insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;80</td>
<td>initiate hypoglycemia protocol</td>
</tr>
<tr>
<td>81-120</td>
<td>do nothing</td>
</tr>
<tr>
<td>121-150</td>
<td>give 2 units</td>
</tr>
<tr>
<td>151-180</td>
<td>give 4 units</td>
</tr>
<tr>
<td>181-210</td>
<td>give 6 units</td>
</tr>
<tr>
<td>211-240</td>
<td>give 8 units</td>
</tr>
<tr>
<td>241-270</td>
<td>give 10 units</td>
</tr>
<tr>
<td>271-300</td>
<td>give 12 units</td>
</tr>
<tr>
<td>300+</td>
<td>give 14 units, call MD.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insulin</th>
<th>Onset of action</th>
<th>Peak effect</th>
<th>Duration</th>
<th>Excretion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>30 min</td>
<td>2.5-5 hrs</td>
<td>4-12 hrs</td>
<td></td>
</tr>
<tr>
<td>Aspart</td>
<td>15 min</td>
<td>1-3 hrs</td>
<td>3-5 hrs</td>
<td>Urine</td>
</tr>
<tr>
<td>NPH</td>
<td>1-2 hrs</td>
<td>4-12 hrs</td>
<td>14-24 hrs</td>
<td></td>
</tr>
<tr>
<td>Glargine (lantus)</td>
<td>3-4 hrs</td>
<td>No peak</td>
<td>~ 24 hrs</td>
<td></td>
</tr>
</tbody>
</table>
Pain control

- Narcotics are the mainstay, use tylenol as you can.
- Downsides to narcotics: nausea, constipation, over-narcotization → respiratory depression, somnolence
- always give a stool softener if Rx’ing narcotics unless bowel obstruction, ileus etc.

Meds & examples for starting doses

**IV:**
- Narcotics
  - Morphine. 1-4mg IV q2-4hr PRN pain
  - Dilaudid. 0.5-1mg IV q2hr PRN pain
  - Fentanyl. 25-75 mcg IV q1hr PRN pain
- NSAIDs
  - Ketorolac (toradol). 15-30mg IV q6h. If given, usually dosed as a standing dose x24 or 48 hours. Helps with decreasing narcotic usage, but watch out for kidneys or bleeding.
- Tylenol
  - Currently restricted to patients who are NPO or per Pain Service, <24h

**PO:**

COX inhibitors/NSAIDs
- Tylenol. 325, 500, or 650mg increments. q4-6h. No more than 4g per day. For cirrhosis/liver/transplant patients, limit is 2.5g per day.
- Ibuprofen. 200-800mg q6h. Start at 400mg PO q6h PRN pain/headache/fever.
- Celebrex. Rarely given.

Narcotics, short-acting. In order of weak → strong
- Vicodin (hydrocodone 5mg/acetaminophen 500). 1-2 tabs q4h PRN pain. No more than 8 tabs/day.
- Norco (hydrocodone 7.5mg/acetaminophen 325). 1-2 tabs q4h PRN pain. No more than 12 tabs/day.
- Percocet (oxycodone 5mg/acetaminophen 325). 1-2 tabs q4h PRN pain. No more than 12 tabs/day.
- Oxycodone. Our mainstay. Dosed 5-15mg q3h PRN pain.
- Dilaudid. If oxy doesn’t work, try this. 2-6mg q3h PRN pain.

Neuropathic pain and adjunctive analgesics
- Neurontin (gabapentin). 100-300mg PO tid. Can start at 300 tid, but can also increment up (ex. 100mg tid x1 day, then 200mg tid x1day, then 300mg tid). Can increase to even 900mg tid (but this is a high dose).
- Lyrica (pregabalin). Similar to neurontin. 150mg bid.

Long-acting meds (note, these are not PRN). Typically per patient’s home regimen or per Pain Service.
- Oxycontin. 10-20 mg PO bid.
- MS contin (long-acting morphine). 15/30mg PO bid.

PCA
- Morphine 1-2 mg IV q6min
- Dilaudid 0.2-0.4 mg IV q6 min
- Fentanyl 10-20 mcg IV q6 min
## Opioid equivalency

### Opioid equivalency table

<table>
<thead>
<tr>
<th>Opioid equivalency</th>
<th>Approximate doses. Individual responses vary.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IV/SQ</td>
</tr>
<tr>
<td>Morphine</td>
<td>10</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>1.5</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>---</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>---</td>
</tr>
<tr>
<td>Methadone</td>
<td>---</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>100 mcg</td>
</tr>
<tr>
<td>Fentanyl transdermal</td>
<td>25 mcg/hr = 60-90 oral morphine/24 hr</td>
</tr>
</tbody>
</table>

### Product strengths available & recommended

<table>
<thead>
<tr>
<th>Product</th>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine immediate release</td>
<td>10, 15, 30 mg tabs/caps 20 mg/1ml roxanol 10 mg/5ml</td>
</tr>
<tr>
<td>Morphine sustained release (MS Contin)</td>
<td>15, 30, 60, 100, 200 mg</td>
</tr>
<tr>
<td>Oxycodone immediate release</td>
<td>5, 15, 30 mg tabs/caps 30mg/1ml, 5mg/5ml solution</td>
</tr>
<tr>
<td>Oxycodone sustained release (oxycontin)</td>
<td>10, 20, 40, 80 mg</td>
</tr>
<tr>
<td>Dilaudid</td>
<td>2, 4, 8 mg tabs 1 mg/ml solution</td>
</tr>
<tr>
<td>Fentanyl transdermal</td>
<td>25, 50, 65, 100 mcg/hr</td>
</tr>
<tr>
<td>Methadone</td>
<td>5, 10 mg tabs 5 mg/ml, 10 mg/1ml solution</td>
</tr>
<tr>
<td>Vicodin</td>
<td>5/500mg (hydrocod/acetamin)</td>
</tr>
<tr>
<td>Lortab elixir</td>
<td>7.5/500 per 15 ml solution</td>
</tr>
</tbody>
</table>
Common medications & dosages

Stool softeners/constipation—also check in Epic for OrderSet “Gen: Bowel Protocol”
- Colace 100mg PO bid, hold for loose stool
- Senokot 1-2 tab PO bid, hold for loose stool
- Senna S 1-2 tabs PO bid, hold for loose stool (colace 50/senna 5)
- Miralax 17g PO daily/bid PRN constipation
- Dulcolax 10mg PR daily PRN constipation
- Milk of magnesia 15-30ml PO tid PRN constipation
- Suppositories: Bisacodyl 5-10mg PR once or Glycerin 1 suppository PR once

Reflux
- *Ranitidine 50mg IV q8h or 150mg PO BID
- Famotidine 20mg PO/IV bid
- *Omeprazole 20-40mg PO daily
- Pantoprazole 40mg PO/IV daily
- Lansoprazole 15-30mg PO daily
- Esomeprazole 20-40 mg PO/IV daily
- Tums (Calcium carbonate) 1-2 tab PO PRN dyspepsia
- Milk of magnesia 15-30ml PO q4h PRN dyspepsia

Antiemetics
- Zofran
  - At OHSU: Zofran 4mg IV q12h PRN nausea
  - Elsewhere: Zofran 4mg IV q6h PRN nausea
- Zofran ODT 4mg PO q6-8h PRN nausea
- Phenergan 6.25-12.5mg IV q6h PRN nausea
- Phenergan 12.5-25mg PO q6h PRN nausea
- Compazine 5-10mg IV/PO q6h PRN nausea
- Reglan 10-15mg IV/PO q6h PRN nausea
- Scopolamine patch transdermal behind ear q72 hours, remove patch before applying new one
- Diphenhydramine 25-50mg PO q6h PRN nausea
- Diphenhydramine 12.5-25mg IV q6h PRN nausea
- For “bloating”: simethicone 40mg PO QID PRN

Lovenox
- Prophylactic doses
  - 30mg subcutaneous bid (usually for trauma patients, higher risk)
  - 40mg subcutaneous daily or qHS
  - 60mg subcutaneous bid (for patients with BMI >60)
- Therapeutic dose
  - 1mg/kg subcutaneous bid (for patients who are obese and > 30% above their IBW, you use their ABW, which is (actual weight – IBW) *0.3 + IBW).