# Table of Contents

## 0. Prologue
- a. Introduction and disclaimer 2
- b. OnlineMedEd Story 3
- c. Tier 1 Knowledge = Topics for intern year 6
- d. On Call Pearls 7

## 1. Philosophy and Bureaucracy
- a. Philosophy 12
- b. Stages of Death and Dying in Residency 13
- c. Duty Hours 16
- d. The Team Cap Explained 17
- e. Morning Interdisciplinary Rounds (IDR) 18
- f. Stress 19
- g. Clinical Reasoning 20
- h. Errors in Clinical Reasoning 22
- i. Finite and Infinite Games 23
- j. Patient Satisfaction 24

## 2. Survival Techniques
- a. Time Management: Data Tracking 28
- b. Time Management: To Do Lists / Scut Lists 31
- c. Survival Skills: Morning Workflow 34
- d. Survival Skills: Urgent and Important 36
- e. Time Management: Turkeys and Windows 38
- f. People Management: Relationships 40
- g. People Management: Being Effective 43
- h. People Management: Arguments 44
- i. Life Management: In Your Box 46
- j. Doing Questions 47
- k. Studying Resources 48

## 3. Rounding and Documentation
- a. H&P: Spoken Presentation 50
- b. Daily Rounds: Spoken Presentation 52
- c. Documentation: Saying it Right (for CMS) 53
- d. H&P: Written Template 54
- e. D/C Summary: Written Template 55
- f. Ideal Admit Order Set 56
- g. Procedure Notes 58
- h. Transfer of Care / Step Down: Written Template 60
4. Medications
   a. Meds: Top 50 62
   b. Common Meds: Heart Related 64
   c. Common Meds: Lung Related 65
   d. Common Medications: Pain 66
   e. Common Meds: Poop and Vomit 67
   f. Common Medications: Psych Meds 68
   g. Antibiotics 69

5. Methods
   a. Chest Pain 72
   b. Shortness of Breath 73
   c. Abdominal Pain 74
   d. Syncope 76
   e. Weakness 77
   f. Fluid Where Fluid Shouldn't Be (Swelling) 78
   g. Delirium 79
   h. Hemoptysis 80
   i. Fever 81
   j. AKI 82
   k. Bleeding 84
   l. Dysphagia 85
   m. Back Pain 86
   n. Headache 87
   o. Joint Pain 88
   p. Diarrhea 89
   q. Pulmonary Hypertension 90
   r. ECG Interpretation 92
   s. Cough 95
   t. Acid Base and the Chamber of Secrets 96

6. Common Medical Problems
   a. Cardiac Chest Pain 102
   b. So you admitted that chest pain 103
   c. Heart Failure In the Clinic – Outpatient 104
   d. Heart Failure In the Hospital – Inpatient 105
   e. Afib 106
   f. COPD Exacerbation 107
   g. Pulmonary Embolism 108
   h. Sepsis 109
   i. Principles of Antibiotic Management 110
   j. Pneumonia 111
   k. Electrolytes - Sodium 112
   l. Electrolytes - Potassium 113
   m. Cirrhosis 114
   n. GI Bleed 119
7. Intern Notes
   a. Cardiology 128
   b. Pulmonary 131
   c. Renal Nephrology Kidney 134
   d. GI and Liver 138
   e. Heme Onc 141
   f. Infectious Disease 148
   g. Endocrinology 151
   h. Rheumatology 154
   i. Neuro 157

8. ICU
   a. Sick, Not Sick, On the Fence 160
   b. Who Goes to the Unit? 162
   c. ARDS - Lung Protective Strategy 163
   d. Ventilator Strategy 164
   e. Common Medications in the ICU:
      Sedation and Paralysis 166
   f. In the ICU: Approach to Shock 168
   g. In the ICU: Pressors 171
   h. In the ICU: Septic Shock 172
   i. In the ICU: Running a Code 174
   j. In the ICU: Running a Rapid 175
Finite and Infinite Games

In your career to date you’ve been playing finite games. They have a start time, a stop time, rules on how to play, and rules on how to win. That was the shelf, the USMLE Step 2, the grade, and graduation. When playing finite games you have a role and see others as playing their role. But people are not roles. They are people. They have feelings, emotions, and souls. Finite games crush people, and your “win” is often someone else’s loss.

Hopefully you developed survival skills. You might have “beaten the game” by figuring out what had to be done to get the A, the honors. And that’s great, because you survived. But now, more importantly than any point in your career, it’s time stop playing finite games and start playing infinite ones. The grade doesn’t matter. People matter.

Yes, residency has a start and end point, a set of rules, and a test to wrap it up - JUST LIKE WHAT YOU’VE DONE YOUR WHOLE LIFE. Yes, you can continue to play a finite game and “win.” Pass the test, get through residency, and check the box.

You’ll see people still in that mindset. They’re the ones avoiding consults, writing crap notes, and treating people poorly. They’ll do the bare minimum to “win.” They’ll focus on MKSAP17 and only care about what’s “on the boards.”

You don’t want to be this person. They WON’T be effective. And they will be miserable.

In infinite games there are no end points, no winners, and no losers. These games don’t have roles – they have people. It’s the game you must now learn to play. If you haven’t played this way before, yes it will be challenging. But, it’s a transition you must make.

Never again will you have as much support, supervision, and feedback as in residency. You will develop more in these three years than you have in your entire life so far. Never again will you grow this much. You get a taste of autonomy. Your signature matures. Your notes carry weight. YOU matter. You will be forced to learn things you never wanted to learn. You will take care of people you don’t want to take care of. But you’ll grow.

THIS IS THE TIME TO LEARN and become EFFECTIVE. This game lasts the rest of your life. Now can’t be a time in life that you, “just get through to see the other side.”

- See people as people with emotions, souls, egos, and fears. You’ll be effective.
- See patients as people with emotions, souls, egos, and fears. You’ll be effective.
- See learners as people with emotions, souls, egos, and fears. You’ll be effective.

The more effective you become during training, the more effective you will be in life. You won’t rise to some superhuman ability upon graduation; you’ll be reduced to your basest form of training. The further you rise, the more you learn, the better you are and the more effective you become now, the better you’ll be for the rest of your life.

There is no winning or losing in residency– there’s only effectiveness in patient care.
chapter 2: Survival Techniques

Time Management: Data Tracking

The Data Tracker is a means of taking every new patient from the ED to discharge. It makes daily rounding super easy. It lets H&Ps and Discharge Summaries flow. No more clicking through 15 tabs while sitting there on the phone all confused. Move on from empty Epic templates with meaningless information that no one wants or cares to see. Look like AND know what you’re doing.

Find ours on the resources tab of the dashboard at onlinemeded.org (free, just register).

Types of Data

There are two things you want on your data tracker: the static and the daily.

The static data is the information that won’t change. Some of it should be obvious (name, date of birth, MRN, acct number, PmHx, PsHx, Soc Hx, All, FamHx, Home Meds), but some may not. The major categories in the H&P form should go in the static data. But you also want to include the big tests: major diagnostics, procedures, and past information. That’s going to change depending said diagnosis. This is where culture data, CT scans / MRIs, echo results, cath results, etc. are going to go. It’s NOT part of the daily data (it will be for one day) but you want it easily accessible at all times. You put the surgeries and procedures here too. Finally, the day of presentation goes in the static data (the vitals, labs, and pertinent physical exam). This static data is the important info for the H&P and Discharge Summary.

The daily data are the points you want to track: vitals, labs, meds etc. You want to be able to track trends. It’ll let you see what happened day to day, better or worse. This is where you’re going to present from daily. Literally. On rounds, you will tell your story; you know what the subjective and what the plan is... but how do you remember all those labs and vitals? You don’t. Since you know the gist of what’s going on, you tell the story, then you look down at this tracker and read off the details, then continue the story. This is just to have the details written down to refer to later.

Whatever you choose, ideally static data is on one side while daily data is on the other. An example, “the notecard” is shown on the next page.

For meds you best get yourself a pencil. They change all the time. Every day you’re going to sit in front of a computer. Every day you will run through the meds. Whatever you pick (I always liked separating scheduled from prn) the meds will be displayed in the same order every day. You just quickly go through and mark changes. And because medications change daily, you will either want to leave space and/or be able to erase meds or dosages.
Time Management: Data Tracking

Front of Card (Admit Day)

Survival

Survival

Time Management: Data Tracking

Back of Card (Daily)

ASA 81
Atorva 80
Plavix 75
Coumadin 40
Lisinopril 40
Metoprolol Succ 100
Lantus 10 + TSS2 qAC

1. CAD
2. DM
3. HTN
4. HW
5. OX PTX
6. Dispo

9.8 64-84 12-16 142-160/88-100
8 3.7 142
85% needed + Stress

99% 66-72 12-14 173-142/66-88
142 116 12
4.2 1.1 102
9.8

102 108-121 24-36 (7) MAP: 84-92
16 182

Place Lake Central Line

Feeding Tube Foley
Survival Skills: Morning Workflow

It's an awesome time saver to let autopopulating notes just autopopulate. They look stupid, which makes you look stupid. But it's ok to do it, because it does save time. Still, do this sparingly. Make your stuff look good. For billing, for communication. Make it look like you actually wrote it and didn't let a computer write it for you.

SAMPLE DAY

6:30am  arrive at the hospital and sit down at a computer terminal. Fill out data tracker.

7:00am  morning report.

8:00am  see patients.
- Dying: barring a crashing patient or someone you identified to be in trouble based on labs and vitals, you should be able to round freely and geographically. It's about obtaining information at this point. If someone is in trouble, call your upper level immediately.

9:00am  the "other D's"
- Diagnosis: put in orders NOW... aka early. Get ahead of the other resident teams who will wait until after attending rounds to put their orders in.
- Discharge: inform social workers, nurses, and patient families that the person might go home. If the plan yesterday was to discharge them today, activate that discharge.
- Discuss: talk to your upper level resident about the plan for the day. Make sure you're ready for rounds and that a plan has been developed AND enacted.

10:00am  Attending Rounds
- The attending comes through and sees patients with you.
- Coaching happens.
- Plans are critiqued and uncertainties are laid to rest.

12:00pm  Work Time
- Do what came up on Attending Rounds.
- Save lunch for when the lines are short and the space abundant (go at 1, not 12).

1:00 – 3:00pm  Procedures and Meetings
- Set family discussions, paracenteses, thoracenteses, etc. for this time block.
- Use this time to start writing notes if there's nothing else to do.

3:00pm – 5:00pm  Notes and New Patients
- Finish your notes by 4:00pm. The To-Do list should be mostly checked off.
- If you're on Short or Long call, here's where you'll start to pick up new patients from the ED. This time (1:00 – 5:00) can be sort of a jumble, depending on when patients come in.

5:00pm – 7:00pm  Go home or finish off your call.
H&P: Spoken Presentation

First Line: State the name, age, gender, and the chief complaint.
- LEAVE OUT past medical history
- Do include radicals and game changers (HIV, Transplant)

First Paragraph: FAR COLDER
- Frequency, Associated Symptoms, Radiation, Character, Onset, Location, Duration, Exacerbating Factors, Relieving Factors
- Tell the attending the timing and characterization exactly as you have it. Give it unadulterated. Let the attending take a second crack at the complaint.

Second Paragraph: This is, by far, the hardest concept to master. Say only what’s relevant.

Third Paragraph: What the ED did and what response it had. You may not need this, but if it helps with the differential diagnosis or the understanding of the treatment course, say it.

Review of systems: DO NOT say the words, “review of systems.” DO NOT list anything in the review of systems. Anything you thought relevant from the review of systems goes in the second paragraph.

The other stuff:
- PMHx, PSHx, Meds, Allergies, Social, Family
- Get through this as fast as possible; we can look it up later. Refer to it when if asked
- SOMETIMES stuff in here is relevant (debility now, functional status, or you think colon cancer and they had a colonoscopy), but most of the time it’s useless. Don’t say it.

Physical Exam
  - If they changed, say what they were on presentation followed by what they were when you saw them.
  - If no change, just say what they were at the time you saw them. Again, no ranges during the H&P.
- Physical:
  - Go top down, BUT
    - Say only the things that alter the differential.
    - POSITIVE if there and should be.
    - NEGATIVE if not there and should be.
  - LEAVE OUT the diatribe of normal findings.
  - DO a thorough exam.
  - DOCUMENT said thorough exam.
  - SAY a relevant exam.
## Documentation: Saying it Right (for CMS)

<table>
<thead>
<tr>
<th>What you mean to say</th>
<th>What you should write down</th>
</tr>
</thead>
<tbody>
<tr>
<td>There’s an infection</td>
<td>Sepsis</td>
</tr>
<tr>
<td>Urosepsis</td>
<td>Sepsis secondary to urinary tract infection</td>
</tr>
<tr>
<td>Altered Mental Status</td>
<td>Acute Encephalopathy</td>
</tr>
<tr>
<td>AKI</td>
<td>Acute Renal Failure</td>
</tr>
<tr>
<td>Nausea and Vomiting</td>
<td>Intractable nausea and vomiting</td>
</tr>
<tr>
<td>Pain</td>
<td>Intractable pain</td>
</tr>
<tr>
<td>Failure of outpatient therapy</td>
<td>Failure of outpatient therapy</td>
</tr>
<tr>
<td>The patient’s getting better</td>
<td>Resolving</td>
</tr>
<tr>
<td>The patient’s better</td>
<td>Resolved</td>
</tr>
<tr>
<td>The patient’s getting worse</td>
<td>Worsening</td>
</tr>
<tr>
<td>The patient’s probably going to die</td>
<td>Grim prognosis</td>
</tr>
<tr>
<td>Any reason that they might need oxygen, in any way, at any time, for any reason.</td>
<td>Acute hypoxemic respiratory failure Acute (or chronic) Hypercapnic respiratory failure</td>
</tr>
<tr>
<td>Nasal cannula, CPAP, Intubation, whatever</td>
<td>Moderate protein calorie Malnutrition</td>
</tr>
<tr>
<td>Retaining CO2</td>
<td>Severe protein calorie Malnutrition</td>
</tr>
<tr>
<td>They have a really low albumin (&lt;2)</td>
<td>Severe protein calorie Malnutrition</td>
</tr>
<tr>
<td>They have a low albumin (&lt;3)</td>
<td>Moderate protein calorie Malnutrition</td>
</tr>
<tr>
<td>The patient is weak</td>
<td>Debility</td>
</tr>
<tr>
<td>The patient is weak and from the ICU</td>
<td>Critical Illness Myopathy</td>
</tr>
<tr>
<td>CHF exacerbation</td>
<td>Acute or Chronic [HEART FAILURE] with / without exacerbation</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>Systolic/Diastolic Ischemic/Nonischemic Cardiomyopathy with an Ejection Fraction of [EF] New York Heart Association Class [1-4]</td>
</tr>
<tr>
<td>The troponin elevated and you think it IS an NSTEMI</td>
<td>NSTEMI</td>
</tr>
<tr>
<td>The troponin elevated and you think it is NOT an NSTEMI</td>
<td>Demand Ischemia</td>
</tr>
</tbody>
</table>

Whatever you write in the discharge summary overrides and trumps everything you wrote, every day, for the entire stay.

***** If they have something on day one (“sepsis”) they must have it on the discharge summary or they never had it at all *****

GET THE DISCHARGE SUMMARY RIGHT WITH THE RIGHT CMS LANGUAGE
# chapter 4: Medications

## Meds: Top 50

<table>
<thead>
<tr>
<th>Drug</th>
<th>Min</th>
<th>Route</th>
<th>Frequency</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colace</td>
<td>100mg</td>
<td>PO</td>
<td>bid</td>
<td>Hospital</td>
<td>Constipation</td>
</tr>
<tr>
<td>Senna</td>
<td>8.6mg</td>
<td>PO</td>
<td>bid</td>
<td>Hospital</td>
<td>Constipation</td>
</tr>
<tr>
<td>Bisacodyl</td>
<td>10mg</td>
<td>Rectal</td>
<td>Daily</td>
<td>Hospital</td>
<td>Constipation</td>
</tr>
<tr>
<td>Lactulose</td>
<td>20g</td>
<td>PO</td>
<td>prn</td>
<td>Hospital</td>
<td>Constipation</td>
</tr>
<tr>
<td>Benadryl</td>
<td>25mg</td>
<td>PO</td>
<td>prn</td>
<td>Hospital</td>
<td>Itching</td>
</tr>
<tr>
<td>Zofran</td>
<td>4mg</td>
<td>IV</td>
<td>prn</td>
<td>Hospital</td>
<td>Nausea</td>
</tr>
<tr>
<td>Zofran</td>
<td>8mg</td>
<td>PO</td>
<td>prn</td>
<td>Hospital</td>
<td>Nausea</td>
</tr>
<tr>
<td>Morphine</td>
<td>2mg</td>
<td>IV</td>
<td>prn</td>
<td>Hospital</td>
<td>Pain</td>
</tr>
<tr>
<td>Dilaudid</td>
<td>1mg</td>
<td>IV</td>
<td>prn</td>
<td>Hospital</td>
<td>Pain</td>
</tr>
<tr>
<td>Norco</td>
<td>10mg</td>
<td>PO</td>
<td>prn</td>
<td>Hospital</td>
<td>Pain</td>
</tr>
<tr>
<td>Labetalol</td>
<td>10mg</td>
<td>IV</td>
<td>prn</td>
<td>Hospital</td>
<td>HTN and HR &gt; 90</td>
</tr>
<tr>
<td>Hydralazine</td>
<td>10mg</td>
<td>IV</td>
<td>prn</td>
<td>Hospital</td>
<td>HTN and HR &lt; 90</td>
</tr>
<tr>
<td>Vancomycin</td>
<td>1g</td>
<td>IV</td>
<td>q12h</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Zosyn</td>
<td>3.375g</td>
<td>IV</td>
<td>q8h</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Cipro</td>
<td>400mg</td>
<td>IV</td>
<td>q12h</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Cipro</td>
<td>500mg</td>
<td>PO</td>
<td>q12h</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>1g</td>
<td>IV</td>
<td>Daily</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Metronidazole</td>
<td>500mg</td>
<td>IV</td>
<td>q8h</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Clindamycin</td>
<td>500mg</td>
<td>IV</td>
<td>q8h</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Azithromycin</td>
<td>500mg</td>
<td>IV</td>
<td>Daily</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Moxifloxacin</td>
<td>500mg</td>
<td>IV</td>
<td>Daily</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Nafcillin</td>
<td>1g</td>
<td>IV</td>
<td>q4h</td>
<td>Antibiotic</td>
<td></td>
</tr>
<tr>
<td>Drug</td>
<td>Min</td>
<td>Route</td>
<td>Frequency</td>
<td>Type</td>
<td>Notes</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------</td>
<td>-------</td>
<td>-----------</td>
<td>----------</td>
<td>----------------</td>
</tr>
<tr>
<td>Metoprolol</td>
<td>25mg</td>
<td>PO</td>
<td>bid</td>
<td>HTN Heart</td>
<td>25, 50, 100, 200</td>
</tr>
<tr>
<td>Toprol Xl</td>
<td>25mg</td>
<td>PO</td>
<td>Daily</td>
<td>HTN Heart</td>
<td>25, 50, 100, 200</td>
</tr>
<tr>
<td>Carvedilol</td>
<td>3.125mg</td>
<td>PO</td>
<td>bid</td>
<td>HTN Heart</td>
<td>3.125, 6.25, 12.5</td>
</tr>
<tr>
<td>Lisinopril</td>
<td>40mg</td>
<td>PO</td>
<td>Daily</td>
<td>HTN Heart</td>
<td>2.5, 5, 10, 20, 40</td>
</tr>
<tr>
<td>Valsartan</td>
<td>320mg</td>
<td>PO</td>
<td>Daily</td>
<td>HTN Heart</td>
<td>40, 80, 160, 320</td>
</tr>
<tr>
<td>HCTZ</td>
<td>25mg</td>
<td>PO</td>
<td>Daily</td>
<td>HTN Heart</td>
<td>12.5, 25</td>
</tr>
<tr>
<td>Aspirin</td>
<td>81mg</td>
<td>PO</td>
<td>Daily</td>
<td>HTN Heart</td>
<td>81, 325</td>
</tr>
<tr>
<td>Plavix</td>
<td>75mg</td>
<td>PO</td>
<td>Daily</td>
<td>HTN Heart</td>
<td>-</td>
</tr>
<tr>
<td>Rosuvastatin</td>
<td>40mg</td>
<td>PO</td>
<td>qHs</td>
<td>HTN Heart</td>
<td>10, 20, 40</td>
</tr>
<tr>
<td>Atorvastatin</td>
<td>80mg</td>
<td>PO</td>
<td>qHs</td>
<td>HTN Heart</td>
<td>10, 20, 40, 80</td>
</tr>
<tr>
<td>Lasix</td>
<td>40mg</td>
<td>IV</td>
<td>bid</td>
<td>HTN Heart</td>
<td>-</td>
</tr>
<tr>
<td>Tiotropium</td>
<td>18mcg</td>
<td>Inh</td>
<td>Daily</td>
<td>Lungs</td>
<td></td>
</tr>
<tr>
<td>Duoneb</td>
<td>2.5 / 0.5</td>
<td>Inh</td>
<td>q4h prn</td>
<td>Lungs</td>
<td></td>
</tr>
<tr>
<td>ADVAIR</td>
<td>Disk</td>
<td>Inh</td>
<td>bid</td>
<td>Lungs</td>
<td></td>
</tr>
<tr>
<td>PULMICORT</td>
<td>Disk</td>
<td>Inh</td>
<td>bid</td>
<td>Lungs</td>
<td></td>
</tr>
<tr>
<td>Albuterol</td>
<td>90mcg</td>
<td>Inh</td>
<td>q4h prn</td>
<td>Lungs</td>
<td></td>
</tr>
<tr>
<td>Prednisone</td>
<td>40mg</td>
<td>PO</td>
<td>Daily</td>
<td>Lungs</td>
<td>5mg</td>
</tr>
<tr>
<td>Guaifenesin</td>
<td>600mg</td>
<td>PO</td>
<td>bid</td>
<td>Lungs</td>
<td></td>
</tr>
<tr>
<td>Haldol</td>
<td>2mg</td>
<td>IM</td>
<td>prn</td>
<td>Agitation</td>
<td></td>
</tr>
<tr>
<td>Ativan</td>
<td>2mg</td>
<td>IV</td>
<td>prn</td>
<td>Agitation</td>
<td></td>
</tr>
<tr>
<td>Seroquel</td>
<td>50mg</td>
<td>PO</td>
<td>qHs</td>
<td>Agitation</td>
<td></td>
</tr>
<tr>
<td>Zyprexa</td>
<td>10mg</td>
<td>SL</td>
<td>prn</td>
<td>Agitation</td>
<td></td>
</tr>
<tr>
<td>Lovenox</td>
<td>40mg</td>
<td>SubQ</td>
<td>Daily</td>
<td>DVT</td>
<td>PPx</td>
</tr>
<tr>
<td>Lovenox</td>
<td>30mg</td>
<td>SubQ</td>
<td>Daily</td>
<td>DVT</td>
<td>PPx, renal</td>
</tr>
<tr>
<td>Lovenox</td>
<td>1mg/kg</td>
<td>SubQ</td>
<td>bid</td>
<td>DVT</td>
<td>Therapeutic</td>
</tr>
<tr>
<td>Heparin</td>
<td>5000 U</td>
<td>SubQ</td>
<td>q8h</td>
<td>DVT</td>
<td>PPx</td>
</tr>
<tr>
<td>Coumadin</td>
<td>5mg</td>
<td>PO</td>
<td>Daily</td>
<td>DVT</td>
<td>Treatment</td>
</tr>
</tbody>
</table>
Who Gets Admitted?
1. Structural heart disease (CHF, MI, CAD)
2. ECG = Arrhythmia
3. Comorbid reasons (Risk Factors) OR
4. Repeat Offenders
   Often we observe old people with orthostatics, “just to make sure,” and that’s ok.
   Old people may have coronary artery disease.

What do you order when you admit?
2D Echo
Observation, ECG ("Holter Monitor")
Trend troponins
Carotid Ultrasound is NOT necessary

What about Presyncope?
The run of vtach that caused them to get dizzy this time alerted you to the fact that they may have a slightly longer run of vtach that could cause them to pass out next time.

PRESYNCOPE = SYNCOPE

<table>
<thead>
<tr>
<th>Syncope And Seizure</th>
<th>Seizure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Syncope</strong></td>
<td><strong>Seizure</strong></td>
</tr>
<tr>
<td>Short, &lt;30 seconds</td>
<td>Shaking</td>
</tr>
<tr>
<td>Vagal</td>
<td>Aura</td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
</tr>
<tr>
<td>&lt; 10 seconds to recovery</td>
<td>Post</td>
</tr>
</tbody>
</table>
Joint Pain

Determining the diagnosis of joint pain is multi-faceted.

The first consideration is the **number of joints involved**; it’s the basis for the organizer. Not that infectious arthropathies or crystal arthropathies CAN’T be monoarticular, it’s just that they’re likely to present with multiple joints. If it’s not multiple joints at THIS presentation, it eventually will be over the course of the patient’s disease and show in more than one joint.

The second is **toxicity and acuity**, which parallel each other. The more toxic a disease, the more acute it will be. Toxic and acute diseases cause loss of function, painful swollen joints with deformity, and a high fever. The patient will seek your attention. The less toxic disease (and the more insidious ones) will present with weight loss, night sweats, low grade fevers, and possibly a barely problematic joint. Knowing which diseases present in which way can help you separate them.

The third is **which joint is involved**. This helps the least, but there are some diseases that have a predilection for certain joints. For example, RA attacks little joints like the hands and feet, OA affects the large weight bearing joints, and Ank Spond attacks the spine. You have to know the details of each disease to use this information, which is why it’s the least useful of the three.
Pulmonary Embolism

Making the Diagnosis
Patients with PEs that matter will have either Tachycardia or Hypoxemia. The absence of both rules out an acute (but not chronic) Pulmonary Embolism.

Well’s Criteria and Diagnostic Decisions

<table>
<thead>
<tr>
<th>Well’s Criteria – Calculating The Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ZOMFG I DONT KNOW</strong></td>
</tr>
<tr>
<td>DVT</td>
</tr>
<tr>
<td>HR &gt; 100</td>
</tr>
<tr>
<td>Immobilization (Leg Fx, Travel)</td>
</tr>
<tr>
<td>Surgery w/i 4 weeks</td>
</tr>
<tr>
<td>h/o DVT or PE</td>
</tr>
<tr>
<td>Hemoptysis</td>
</tr>
<tr>
<td>Malignancy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>V/Q And D-Dimer Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score &lt; 2</td>
</tr>
<tr>
<td>Low Prob</td>
</tr>
<tr>
<td>D-Dimer</td>
</tr>
<tr>
<td>VQ OK</td>
</tr>
</tbody>
</table>

Do I Do A CT Scan?

| Score < 4 | Don’t Do it |
| Score > 4 | Do it |

CT PE Protocol when you want a confirmatory answer and the kidneys are good.

V/Q scan when you can’t do a CT PE protocol AND the lungs are normal. This is also useful in the “rule out” category.

D-Dimer never inpatient. It’s used in the outpatient setting to rule out a PE. Don’t do a CT scan for a positive D-Dimer.

The 3 points on the top of the chart really mean, “I have no idea why they have shortness of breath. Just scan them to find out.”

Treating a PE

**Warfarin** should be started the day of diagnosis. It must be bridged with heparin. Goal is INR 2-3. They must be on it for 5 days or when the INR is 2-3, whichever is LATER.

LMWH (Fragmin, Lovenox, Arixtra) is just as good as Unfractionated heparin, but more convenient (can be done at home, with ↓ length of stays); they don’t mandate frequent PTT checking. But, they all have a longer half-life and, being smaller, can’t be reversed with protamine.

Unfractionated Heparin is the “heparin drip,” a weight based dose of about 80units/kg with a protocol for adjusting the drip based on the PTT every 6 hours OR the Xa levels. It’s easily reversed with protamine. It’s indicated in submassive PE.

tPA is indicated in massive PE. There’s a high bleeding risk.

Thrombectomy is considered only in Chronic Thromboembolic Pulmonary Hypertension. Specifically, in the chronic condition and never in the acute setting.

Vena Cava Filter. If the patient 1) has a DVT, 2) can’t be anticoagulated, and 3) the next PE will kill them... then, and only then is it ok.
Cardiology

Coronary Artery Disease

See Common Medical Problems

1. Diamond Classification
   a. Exertional
   b. Left sided, substernal
   c. Relieved with nitro

2. Associated Symptoms
   a. (Pre)Syncope
   b. Diaphoresis
   c. Dyspnea

3. Risk Factors
   a. HTN
   b. DM
   c. HLD
   d. Obesity
   e. Smoking

4. Diagnosis
   a. ECG changes, 12-lead q6H → STEMI
   b. Troponins q6 H → NSTEMI (above 1.0 “counts”)
   c. Stress test
   d. Cath

5. Treatment
   a. Every patient: ASA, Statin, BB, Ace-inhibitor
   b. Every true MI: Morphine, Oxygen, Nitrates, Aspirin, Beta-Blocker, Ace-I, Statin, Heparin
      i. Full dose Lovenox or Heparin gtt
      ii. Plavix load 300mg x1 then 75 daily
   c. Call cards
### Blood Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td>Low Hemoglobin, Symptomatic Anemia</td>
</tr>
<tr>
<td>Platelets</td>
<td>Thrombocytopenia</td>
</tr>
<tr>
<td></td>
<td>&lt;20,000</td>
</tr>
<tr>
<td></td>
<td>&lt;50,000 and bleeding</td>
</tr>
<tr>
<td></td>
<td>NOT in TTP / HUS</td>
</tr>
<tr>
<td>FFP</td>
<td>Reverse elevated INR</td>
</tr>
<tr>
<td>Cryo-precipitate</td>
<td>Decreased Fibrinogen</td>
</tr>
<tr>
<td>Massive Transfusion (&gt;3 upRBC in 24 hours)</td>
<td>3 units blood 1 Unit FFP 1 6-pack platelets, monitor ionized Ca</td>
</tr>
<tr>
<td>Factors</td>
<td>Multiple factors are in FFP and Cryo. Don’t learn them intern year. But white space is provided for you to write it in just in case you encounter a Factor VIII inhibitor patient</td>
</tr>
</tbody>
</table>

### Bleeding

1. Causes
   a. Low platelets
   b. Bad platelets
   c. Low factors
   d. Factor inhibitors
2. Workup
   a. CBC (platelets)
   b. PT, PTT, INR with inhibitor study
   c. DON’T order factors (you will on hem, you won’t on medicine)
3. Treatment
   a. Low platelets → give platelets (NOT if TTP)
   b. Bad platelets → dialysis (uremia), stop drugs (NSAIDs), ddAVP (vWD)
   c. Low factors → FFP or Factor if known
   d. Inhibitors → Steroids, IVIG, Cyclophosphamide
4. See methods section for more
Who Goes to the Unit?

For some people it’s OBVIOUS they need the unit. There’s the guy who is frankly hypotensive already on pressors or the guy who already on the ventilator. That’s not the point. That’s obvious even to a medical student. You want to get a gestalt for who is and isn’t sick. BUT, if something concrete can be used to start that process, ie some objective data, wouldn’t that be cool?

### Pulmonary Embolism

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Symptoms</th>
<th>Heart Strain</th>
<th>Vitals</th>
<th>Location</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic PE</td>
<td>No</td>
<td>No</td>
<td>Floor</td>
<td>Home</td>
<td></td>
</tr>
<tr>
<td>Symptomatic PE</td>
<td>Yes</td>
<td>No</td>
<td>Floor</td>
<td>Floor</td>
<td></td>
</tr>
<tr>
<td>Submassive PE</td>
<td>Yes</td>
<td>Yes</td>
<td>Unit</td>
<td>Unit</td>
<td></td>
</tr>
<tr>
<td>Massive PE</td>
<td>Yes</td>
<td>Yes</td>
<td>Unit</td>
<td>Unit</td>
<td></td>
</tr>
</tbody>
</table>

**GI Bleed:**
- Who: Orthostatics
- Why: Fluids, Blood, Nursing

### Stroke:
- tPA → Unit
- worsening stroke → Unit
- Hemorrhagic → Unit
- Needs q1h neurocheck

### Sepsis/Septic Shock

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>How to make the call</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sepsis</td>
<td>2/4 SIRS criteria + a source</td>
<td>Home</td>
</tr>
<tr>
<td>Severe Sepsis</td>
<td>Hypotension responsive to fluid lactated clears. ~2Liters</td>
<td>Floor</td>
</tr>
<tr>
<td>Septic Shock</td>
<td>Hypotension Unresponsive to fluid. Lactate fails to clear. Pressors</td>
<td>Unit</td>
</tr>
<tr>
<td>Multigorgan Failure</td>
<td>All organs in dysfunction. This person is probably going to die.</td>
<td>Unit</td>
</tr>
</tbody>
</table>

### COPD / Asthma:
- Rising CO2
- Decreasing breath sounds
- Inadequate response of FEV1

### DKA:
If there’s D K and A go to the unit. Some can be handled on the floor. Why bother?

### Hepatic Encephalopathy

<table>
<thead>
<tr>
<th>Stage</th>
<th>Sxs</th>
<th>Asterix</th>
<th>Dispo</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Mild cognitive impairment, memory</td>
<td>No</td>
<td>Floor</td>
</tr>
<tr>
<td>II</td>
<td>Altered, but still saying real words</td>
<td>Yes</td>
<td>Floor</td>
</tr>
<tr>
<td>III</td>
<td>Incomprehensible Sounds, Moaning</td>
<td>Yes</td>
<td>Unit</td>
</tr>
<tr>
<td>IV</td>
<td>Coma</td>
<td>No (can’t)</td>
<td>Unit</td>
</tr>
</tbody>
</table>
In the ICU: Running a Code

Running a code is more about herding cats than it is medicine. Here, your goal as the doctor is to act as team leader. Act and speak with confidence. Assign roles. Control the team or they’ll control you.

Walk into the room and say out loud, “who is in charge of this code?” Then stare at the person you think is in charge. If no one responds, take command. “Dustyn for the code, Dr. Williams for the chart.” If someone responds, ask them if they need help. Then either take over or step back and get out of their way. “Dr. Lee has control of the code.”

Assign roles to everyone in the code. “I know you know how to run a code. Let me give you a role so you know what to do in THIS code.”

Speak out loud and plan the next 6 minutes. People will be impressed. That gives them confidence in you. They’ll listen to you. Loud, chaotic codes are your fault - not the nurses.

The code:

A code is built upon 2 minute blocks of CPR. Whether that’s five cycles of 30 compressions to 2 ventilations or just 2 minutes of continuous compressions, all codes are blocked in 2 minute intervals.

Each 2 minute block = 1 medication, 1 pulse check, 1 rhythm check, and 1 shock if indicated.
There are two types of rhythms, and so two types of codes:

1. Vtach / Vfib: use epi alternating with amio and you can shock
2. PEA / Asystole: use epi alternating with nothing and you can’t shock

That’s it. Go for 12 minutes. Then ask everyone if they want to continue or have any ideas. Unless you know they’re acidotic or have hyperkalemia, DON’T GIVE BICARB. Compressions are more important than lines, intubations, and medications.
In the ICU: Running a Rapid

When the patient has a pulse things are a lot harder; it’s far less algorithmic. Regardless of the complaint or the reason you were called, an approach to that problem is needed (see methods section). For this discussion, we’re assuming there’s a cardiac rapid response. In any rapid you have to act. But also be ok with thinking, with silence, and with asking for more information.

Begin by assessing how sick they are. If more resources are needed, a line has to be put in, or you have to intubate, do it. If the patient needs to be moved to the unit, ensure they’re stable enough to do so. You have 5-7 people in a rapid in the room, 2 people in the elevator.

Step 1: Is this a cardiac arrhythmia problem? For the sake of this discussion the answer is yes. Sinus Tach, Sinus Brady and Normal Sinus Rhythm AREN’T ARRHYTHMIAS.

Step 2: Are there symptoms? If no symptoms, start an IV (in case you have to intervene), give them Oxygen (doesn’t hurt acutely), and put them on tele, a heart monitor.

Step 3: Are they stable? No. Stability is defined by your comfort level. Some will consider anything not-dead (a code) to be stable. That isn’t wrong. As you start, see the AHA definition of MAP < 90, or AMS / CP / SOB associated with onset of arrhythmia as unstable. From there, your comfort zone will subsequently grow.

In an unstable patient, there’s no time to play. You must intervene RIGHT NOW or they’ll die. That means electricity.

a. Unstable + Fast = Shock
b. Unstable + Slow = Pace

c. Stable + Slow = Atropine, prepare to pace

Step 3: Are they stable? Yes. Now there’s time to stay and play. To get the IV access. To wait for meds from pharmacy. Something needs to be done but there are minutes of freedom.

a. Stable + Slow = Atropine, prepare to pace
b. Stable + Fast + Wide = Amiodarone
c. Stable + Fast + Narrow = Adenosine
d. Stable + Fast + Afib/Flutter = CCB or BB. Adenosine will not hurt (it won’t help either)