how to think like an emergency physician

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the plan
bottom up approach
our responsibilities
top down approach
applying the top down approach
be aware of your system
what does this patient have?

dyspnea and reuben as a junior resident

the bottom-up approach

treatment
↑
final diagnosis
↑
ancillary testing
↑
differential diagnosis
↑
physical exam
↑
history

dyspnea and reuben as a junior resident
Airway obstruction
ALS
Anaphylaxis
Anemia
Ascites
Aspiration
Asthma
Carbon monoxide poisoning
Cardiac tamponade
Cardiomyopathy
Congenital heart disease
COPD
Cor pulmonale
CVA
Diaphragmatic rupture
DKA
Electrolyte abnormalities
Epiglottitis
Fever
Flail chest
Guillain-Barré syndrome
Hemothorax
Hyperventilation syndrome
Intracranial insult
Metabolic acidosis
Multiple sclerosis
Myocardial infarction
Neoplasm
Noncardiogenic edema
Obesity
Organophosphate poisoning
Panic attack
Pericarditis
Pleural effusion
Pneumonia
Polymyositis
Porphyria
Pregnancy
Pulmonary edema
Pulmonary embolus
Renal failure
Rib fractures
Sepsis
Somatization disorder
Spontaneous pneumothorax
Tension pneumothorax
Thyroid disease
Tick paralysis
Toxic ingestion
Valvular heart disease
Acute dyspnea

1. History
2. Physical exam
3. Ancillary testing
4. Final diagnosis
5. Treatment

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EPs cannot think this way

EPs don’t think this way, but may not realize they don’t think this way
the top-down approach

what does this patient need?

acute dyspnea

\[ \downarrow \]

IV, O2, monitor

\[ \downarrow \]

chest decompression?

\[ \downarrow \]

intubate? NIV?

\[ \downarrow \]

epinephrine? nebulized albuterol? nitroglycerine?

\[ \downarrow \]

CXR, ECG, ultrasound

\[ \downarrow \]


\[ \downarrow \]

H&P, further testing, specific therapy
responsibilities of the emergency physician

- resuscitation
- identification of dangerous conditions
- symptom relief
- determination of disposition / level of care
- managing ED flow
- customer service
- resource stewardship
- public health
responsibilities of the emergency physician

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public health

Td
flu vaccine
HIV screening
STI partner treatment
smoking cessation
intimate partner violence screening
hypertension screening
injury prevention
identification of disease outbreaks
opioid agonist treatment for opioid addiction
“The history of medicine is, in part, the history of physicians stretching the scope of their practice to answer the pressing needs of their times.”

Rapoport & Rowley, *NEJM*, 2017
responsibilities of the emergency physician

resuscitation
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responsibilities of the emergency physician

resource stewardship

local care maps
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customer service

best practice ≠ customer service

the most important part of caring for the patient is caring for the patient

figure out what the patient really wants
responsibilities of the emergency physician

customer service

I don’t know for certain what’s causing your pain but do you have any particular concern? what do you think is going on?

asystole  laceration  chronically ill
responsibilities of the emergency physician

customer service

this is going to take longer than you can possibly imagine

"a few minutes"

is there anything I can do to make you more comfortable while you wait?
responsibilities of the emergency physician

resuscitation

identification of dangerous conditions

symptom relief

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public health
responsibilities of the emergency physician

managing ED flow

Strategies for managing a busy emergency department

Samuel G. Campbell, MB BCh; Douglas E. Sinclair, MD; for the Canadian Association of Emergency Physicians Flow Management contributors

plan for negatives from the outset of care

multitasking is a myth

run your list as often as feasible
responsibilities of the emergency physician

resuscitation

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symptom relief

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public health
responsibilities of the emergency physician

determination of disposition / level of care

admit
- ward
- telemetry
- ICU

discharge
- 24 hour f/u
- scheduled appointment
- routine f/u
- bring them back
- google voice voicemail
responsibilities of the emergency physician

resuscitation
identification of dangerous conditions
symptom relief
determination of disposition / level of care
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public health
Responsibilities of the emergency physician

Symptom relief

Morphine
Acetaminophen
Ibuprofen
Prochlorperazine
Metoclopramide
Diphenhydramine
Ondansetron
Normal saline

Haldol
Midazolam
Succinylcholine

Don’t forget

Do you want medication for pain?
responsibilities of the emergency physician

resuscitation

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public health
responsibilities of the emergency physician

identification of dangerous conditions

vs. costochondritis

what the patient has vs. what the patient needs: thinking from the top down
dangerous conditions wheel
eye pain / visual loss
Anyone else at home affected?

Elderly?

Jaw, visual, scalp symptoms?

Fever?

Meningismus?

Cerebral sinus thrombosis

Altitude?

Altitude sickness

Visual disturbance?

Abnormal eye exam?

Cancer history?

Trauma? Bleeding diathesis? Level of consciousness?

Hypertension?

Maximal intensity at time of onset?

CO exposure

Temporal arteritis

Hypertensive encephalopathy

SAH

ICH

Tumor / Elevated ICP

Cerebral artery dissection

Acute angle closure glaucoma

be directed not exhaustive

the next step
<table>
<thead>
<tr>
<th>knee pain</th>
<th>infectious arthritis</th>
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<tbody>
<tr>
<td>red, hot joint?</td>
<td></td>
</tr>
<tr>
<td>exquisitely painful ROM?</td>
<td></td>
</tr>
<tr>
<td>risk factors?</td>
<td></td>
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<tr>
<td>trauma?</td>
<td></td>
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<tr>
<td>unstable knee?</td>
<td></td>
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<tr>
<td>trauma?</td>
<td></td>
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<tr>
<td>ottawa positive?</td>
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<tr>
<td>abnormal patella location?</td>
<td></td>
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<tr>
<td>weakness or inability to extend knee?</td>
<td></td>
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<tr>
<td>extra-articular findings?</td>
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<tr>
<td>risk factors?</td>
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<tr>
<td>rubor, calor, dolor, etc.</td>
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<td>outside of joint?</td>
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<tr>
<td>arthrocentesis</td>
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<tr>
<td>xray</td>
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<tr>
<td>immobilization</td>
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<tr>
<td>referral</td>
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<tr>
<td>analgesia</td>
<td></td>
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<tr>
<td>crutches</td>
<td></td>
</tr>
<tr>
<td>infectious arthritis</td>
<td></td>
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<tr>
<td>knee dislocation</td>
<td></td>
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<td>fracture</td>
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<td>patellar dislocation</td>
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<tr>
<td>quadriceps tendon rupture</td>
<td></td>
</tr>
<tr>
<td>DVT</td>
<td></td>
</tr>
<tr>
<td>soft tissue infection</td>
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</tbody>
</table>
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Acute dyspnea

IV, O2, monitor

chest decompression?

intubate?

epinephrine? nebulized albuterol? nitroglycerine?

CXR, ECG, sono

NIV? magnesium? steroids? antibiotics?

anticoagulation/reperfusion? pericardial decompression? inotropes?

H&P, further testing, specific therapy
resuscitation from the top down

Danger
Safe to approach the patient?
Personal protective equipment
Decontaminate
Chemical restraint

Call for help
Is the patient in the right place?
Is the necessary equipment at hand?
Are the right people present or notified?

Calm
Make the room quiet
Send unnecessary personnel to perimeter
Identify team leader

Cardiac Arrest
Pulse check if unresponsive
Compressions if no certain pulse
Analyze rhythm, defibrillate if indicated

Airway
Does the patient need an airway intervention?
Voice, secretions, stridor, airway posturing
Optimize head and neck position, jaw thrust
Suction, remove foreign body
Place oral/nasal airway, LMA
Prepare to intubate

Breathing
Nasal cannula, then face mask oxygen or NIV
Bag mask or LMA ventilation
Room air sat, resp rate, effort, breath sounds
Needle, tube, or finger thoracostomy
Albuterol, epinephrine, nitroglycerine
Portable chest xray

Circulation
Vascular access
Monitor
HR, BP, pulses, JVP, skin & perfusion
IVF, blood
12-lead ECG
Calcium for hyperkalemia

Neurologic Disability
Level of consciousness, mentation, GCS
Pupils
Movement at four extremities
Capillary blood glucose, D50
Head CT

Family & Friends
Collateral history (ask EMS)
Advanced directives
Set cautious expectations
Family-witnessed resuscitation

analGesia

HCG
2 drops of blood on urine beta cassette
Displace uterus to the left
Perimortem C section

Infection
Isolate
Broad spectrum antibiotics
Source control

Ultrasound Jel
Diagnosis of hypotension
Fluid responsiveness
Venous and arterial access

Exposure
Remove all clothing and check pockets/bags
Visualize every inch of skin
Trauma, rash, medication patches
ID, alert bracelet, medical history, medications
Rectal temp
Active cooling or warming
sick trauma: before the CT

staunch external bleeding
resuscitative access
blood
cHEST TUBES
wrap pelvis
endotracheal intubation
mannitol/hypertonic saline
traction on cold extremity
FAST
plain films of chest & pelvis
direct to OR? direct to angio?
documentation

billing vs. communication vs. physician risk

nothing says you care like a progress note documentation in real time is essential
defensive post hoc charting

be careful with benign specific diagnoses
EVERY SINGLE DISCHARGE

if you get worse in any way, or develop any new symptoms that concern you, come back immediately, we’re open 24/7.
public health
resource stewardship

customer service
figure out what they really want
set expectations low

managing ED flow
run your list as often as feasible
risk stratify every patient
plan for negatives at outset of care
multitasking is a myth

determination of disposition / level of care
delay dispo when you're not sure
bring them back to the ED for a recheck
provide your phone number

symptom relief
do you want medication for pain?

resuscitation
Danger
Call for help
Chest compressions
Defibrillate
C-spine
Airway
B-reathing

Circulation
Disability & Dextrose
Exposure
Family
Analgesia
HCG
Infection

identification of dangerous conditions
EMS run sheet
nursing notes
prior visits & medical records
PMH
medications, especially recent changes & compliance
allergies
social: functional status, living situation,
bad habits, goals of care
HPI

ROS tailored to dangerous conditions
prior episodes / prior workups
physical exam
vital signs: vital
leave area of interest for last

interventions

plan for negatives

emupdates.com/think
😊 You have an iron will, which helps you succeed in everything.😊
identification of dangerous conditions

- EMS run sheet
- Nursing notes
- Prior visits & medical records
- PMH
- Medications, especially recent changes & compliance
- Allergies
- Social: functional status, living situation, bad habits, goals of care

HPI

- Physical exam
- Vital signs: vital
- Leave area of interest for last

Plan

- Interventions
- Plan for negatives

Resuscitation

- Danger
- Call for help
- Chest compressions
- Defibrillate
- Cspine
- Airway
- Breathing

Documentation

- What is the patient’s condition?
- What are the findings?
- What are your concerns?
- What is your plan?
H&P, from the top down

EMS run sheet
nursing notes
prior visits & medical records
PMH
medications, especially recent changes/compliance
allergies
social: functional status, living situation,
bad habits, goals of care
HPI: USOH until _____, why the ED today?

dangerous conditions
ROS tailored to dangerous conditions
prior episodes / prior workups
physical exam
vital signs: vital
leave area of interest for last

physical exam
vital signs: vital
leave area of interest for last

interventions

leave the obvious for last

plan

plan for negatives
symptom relief, set expectations low