2019

EM CASES COURSE
PRE-COURSE WORKBOOK

AM: GI Bleed | Opioids | Pediatric Trauma

PM: Cardiac Arrest/Shock | Awake Intubation | ENT

Instructions for Getting the Most Out of The EM Cases Course Workbook

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1.Reviewing the pre-course material in the handbook
2.Participating in discussions during the course

If you have NO TIME TO PREPARE prior to the course - At a minimum please read the handbook for the modules that you chose. (10 minutes each)

If you want to get MORE out of the course – Read the handbook AND read the written summary of the corresponding podcast(s) -Link available in handbook (20 minutes each)

If you want to get MOST out of the day – Read the handbook, read the written summary of the podcast and listen to the relevant podcast(s) (1-2 hours each)

Morning Modules

MODULE 1

GI Bleed

With Walter Himmel & Rick Penciner

PODCASTS TO LISTEN TO PRIOR TO THE COURSE

Link to: GI Bleed Emergencies Part 1

Link to: GI Bleed Emergencies Part 2

Link to: EMU 365 Video with Dr. Himmel

Link to: Transfusions, Anticoagulants & Bleeding

Link to: DOACs: Bleeding & Reversal

The acute GI bleed patient presents several challenges including coagulation, source and airway control. There is a wide spectrum of disease from relatively benign to peri-arrest. Through these cases Dr. Penciner will guide us through these challenges with expert help from Dr. Himmel.

Case 1: The Cirrhotic Bleeder

A 66 year old female with a known history of alcoholic liver cirrhosis presents to your ED with 3 hours of coffee ground emesis and 1 episode of black stool. Vital signs are HR 115, BP 95/70, RR 24, O2 sat 94% on RA, T 36.5C. She is awake, but disoriented. Her abdomen is slightly distended with bulging flanks.

Past medical history other than the alcoholic cirrhosis is non-contributory.

Q1: What therapies have the most evidence for benefit in this situation? How will you prioritize the medications accordingly

Q2: When will you consider initiating a massive transfusion protocol?

Q3: The patient becomes progressively more obtunded and you decide she needs to be intubated. How can you optimize your chances of a successful intubation? What modifications to standard RSI techniques will you consider here?

Q: When should you consider placement of a Blakemore tube? How exactly would you place it should it be required?

Case 2: The Undifferentiated Leak

A 78 year old male presents with a primary complaint of weakness worsening for the last month or so. He is in no pain. You note his hemoglobin is 75. He is not sure if his stools are dark or not, he doesn't usually check. He has had some nausea and vomited twice in the last two days, but again cannot really describe the emesis.

His vital signs are stable and he is in no apparent distress. He is alert and oriented. PMHx includes atrial fibrillation, hypertension, dyslipidemia. He is on warfarin, rosuvastatin, and hydrochlorothiazide.

Q1: How might you go about determining if a GI bleed is present here? Are there any ways you could differentiate between upper or lower source of bleeding?

Q2: The patient is taking Warfarin for atrial fibrillation and his INR today is 2.9. How will you advise him to proceed regarding anticoagulation assuming you confirm he has a GI bleed?

Q3: Will you offer this patient a transfusion? If so, how many units over how much time? Will you give furosemide as well?

Q4: What factors will determine your disposition plan for this patient? How might you decide if he is a candidate for outpatient follow up?

Case 3: The Never Ending Bleed

A 63 year old female is being treated for PE with Apixaban as an outpatient. For the last two days she has had multiple black and red stools. HR is 70bpm, BP 95/65mmHg, RR 18, O2 sat 98% on RA. She is alert and oriented. Hemoglobin is 60.

Her past medical history also includes MI 6 months ago with placement of 2 stents, hypertension, hyperlipidemia, and type 2 diabetes. In addition to Apixaban she is on ASA, hydrochlorothiazide, metoprolol, perindopril, metformin, and atorvastatin. She took all her medications today.

Q1: What is your approach to reversing this patients' coagulopathy? How do you compare the risk of stent obstruction with the risk of continued GI bleed?

Q2: Despite fluid and blood product resuscitation the patients' blood pressure continues to drop, now at 80/50. Will you add vasopressor support here? If so which agent, and to what clinical targets? Is there a role for "permissive hypotension"?

Q3: Should you administer tranexamic acid? Will it increase her risk of stent obstruction?

Q4: You must transfer her to another centre for continued management. Would this patient be transferred to the care of general surgery or internal medicine? How can you determine in the ED when a GI bleed is a candidate for surgical management?

MODULE 2

Opioids

With Michelle Klaiman & Maria Ivankovic

PODCAST TO LISTEN TO PRIOR TO THE COURSE

Link to: Opioid Misuse, Overdose & Withdrawal

Link to: Opioid Misuse in EM (Strayer/Juurlink)

The opioid epidemic is still in full swing. And it's everywhere. To even the most seasoned EM physician, opioid-addicted, opioid-overdosed, and opioid-withdrawing patients can be a challenge. Dr. Ivankovic will guide us through several cases with expert commentary from EM and Addictions specialist Dr. Klaiman, so that next time you're faced with an opioid issue in the ED, you'll know exactly what to do.

Case 1: The Fulminant Overdose

A 24yo male is brought into your ED with a presumed overdose. GCS is 6. Pupils are pinpoint and non-reactive. He is being assisted with BVM breaths. HR is 70bpm, BP 110/70, RR 10 (bagged), O2 sat 96% on BVM. Paramedics report he was found with a group of friends who endorsed using fentanyl.

Q1: What are your immediate management priorities? Will you administer naloxone prior to airway management?

Q2: EMS states they provided 0.4mg of naloxone on route and found minimal response. What will your orders for naloxone dosing and frequency be? When will you stop giving naloxone? What are your resuscitation targets?

Q3: An hour later the nurse tells you the patient's GCS is 6 again and is hardly breathing. How would you treat this patient now?

Q4: When is it safe to discharge this patient home? What if he overdosed on methadone - would that change your timing of discharge?

Q4: What techniques could you use to discuss the patients' opioid use and their readiness to begin treatment for opioid use disorder prior to discharge?

Case 2: Opioid Withdrawal

A 35-year-old female presents with complaints of abdominal pain, nausea and vomiting. She was diagnosed with a localized tumour in her femur and 5 weeks ago underwent a full femur replacement. There were infection complications and she had a second surgery 3 weeks ago. She was discharged two weeks ago on antibiotics and pain medications which she had now been taking for over a month. Up until yesterday she had been recovering well. On further questioning she is having muscle aches and had sweat through her sheets overnight. Medications include Flagyl, Keflex, and recent course of both hydromorph contin and hydromorphone but she ran out a couple days ago. She denies any localized pain to her right femur, hip, or knee. On physical exam she appears agitated and flushed. Vitals show a Temperature of 38.1, HR 105, BP 115/75, RR 16. You look up her records and her discharge note confirms the surgical admission with discharge medications of a 2 week supply of dilaudid 2-4mg PO q3-4h PRN. When asked she reports that she was taking the max dose and then stopped when she ran out.

Q1: Assuming this patient is suffering from opioid withdrawal, what is your general approach to this problem?

5 Steps to ED Opioid Withdrawal Management

1. Does the patient meet criteria for opioid use disorder?
2. Assess readiness to quit opioids.
3. Assess severity of withdrawal using COWS.
4. Administer Buprenorphine-Naloxone (Suboxone™) for patients who fulfill criteria OR treat symptoms of withdrawal for those who do not fulfill criteria for Buprenorphine-Naloxone initiation.
5. Counsel and arrange appropriate follow-up

Q2: What are the clinical clues that this patient is withdrawing from opioids? Assuming she has a runny nose, moderately dilated pupils and piloerection, how would you categorize her withdrawal - mild, moderate or severe?

COWS Wesson & Ling, J Psychoactive Drugs. 2003 Apr-Jun;35(2):253-9.
Clinical Opiate Withdrawal Scale

Resting Pulse Rate: _____beats/minute *Measured after patient is sitting or lying for one minute* 0 Pulse rate 80 or below 1 Pulse rate 81-100 2 Pulse rate 101-120 4 Pulse rate greater than 120	GI Upset: *over last 1/2 hour* 0 No GI symptoms 1 Stomach cramps 2 Nausea or loose stool 3 Vomiting or diarrhea 5 Multiple episodes of diarrhea or vomiting
Sweating: *over past 1/2 hour not accounted for by room temperature or patient activity.* 0 No report of chills or flushing 1 Subjective report of chills or flushing 2 Flushed or observable moistness on face 3 Beads of sweat *on* brow or face 4 Sweat streaming off face	Tremor *observation of outstretched hands* 0 No tremor 1 Tremor can be felt, but not observed 2 Slight tremor observable 4 Gross tremor or muscle twitching
Restlessness *Observation during assessment* 0 Able to sit still 1 Reports difficulty sifting still, but is able to do so 3 Frequent shifting or extraneous movements of legs/arms 5 Unable to sit still for more than a few seconds	Yawning *Observation during assessment* 0 No yawning 1 Yawning once or twice during assessment 2 Yawning three or more times during assessment 4 Yawning several times/minute
Pupil size 0 Pupils pinned or normal size for room light 1 Pupils possibly larger than normal for room light 2 Pupils moderately dilated 5 Pupils so dilated that only the rim of the iris is visible	Anxiety or irritability 0 None 1 Patient reports increasing irritability or anxiousness 2 Patient obviously irritable anxious 4 Patient so irritable or anxious that participation in the assessment is difficult
Bone or Joint aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 0 Not present 1 Mild diffuse discomfort 2 Patient reports severe diffuse aching of joints/ muscles 4 Patient is rubbing joints or muscles and is unable to sit still because of discomfort	Gooseflesh skin 0 Skin is smooth 3 Piloerrection of skin can be felt or hairs standing up on arms 5 Prominent piloerrection
Runny nose or tearing *Not accounted for by cold symptoms or allergies* 0 Not present 1 Nasal stuffiness or unusually moist eyes 2 Nose running or tearing 4 Nose constantly running or tears streaming down cheeks	Total Score _____ The total score is the sum of all 11 items Initials of person completing Assessment:_____

Score: 5-12 mild; 13-24 moderate; 25-36 moderately severe; more than 36 = severe withdrawal

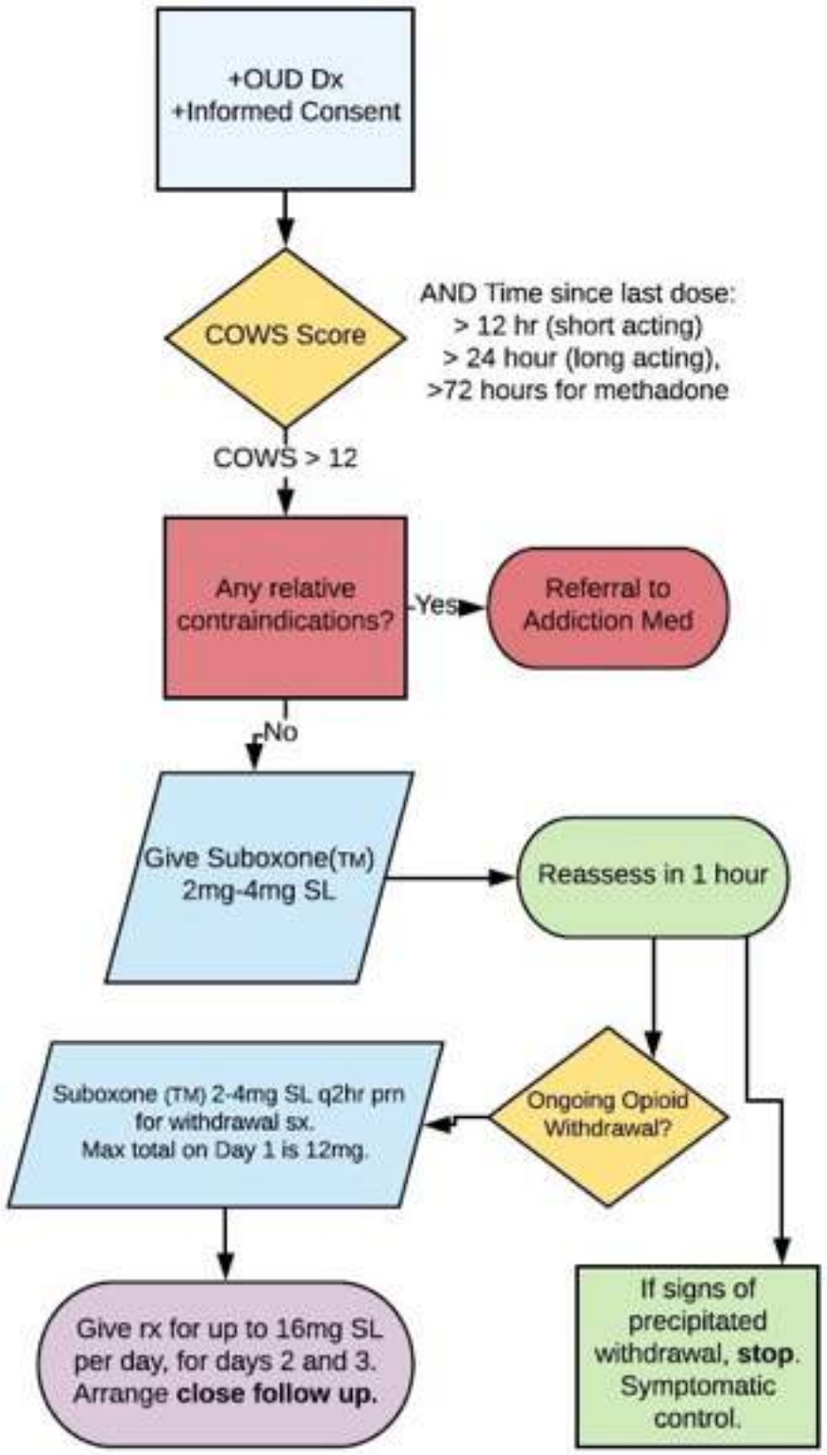
Link to: COWS pdf

Q3: What are the prerequisites to starting Suboxone in the ED?

DSM-5 Criteria for Opioid Use Disorder

1	Opioids are often taken in larger amounts or over a longer period than was intended	The presence of at least 2 of these symptoms indicates an Opioid Use Disorder (OUD) The severity of the OUD is defined as: MILD: The presence of 2 to 3 symptoms MODERATE: The presence of 4 to 5 symptoms SEVERE: The presence of 6 or more symptoms
2	There is a persistent desire or unsuccessful efforts to cut down or control opioid use	
3	A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects	
4	Craving or a strong desire to use opioids	
5	Recurrent opioid use resulting in a failure to fulfill major role obligations at work, school, or home	
6	Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids	
7	Important social, occupational, or recreational activities are given up or reduced because of opioid use	
8	Recurrent opioid use in situations in which it is physically hazardous	
9	Continued use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by opioids.	
10	Tolerance,* as defined by either of the following: a) Need for markedly increased amounts of opioids to achieve intoxication or desired effect b) Markedly diminished effect with continued use of the same amount of opioid	
11	Withdrawal,* as manifested by either of the following: a) Characteristic opioid withdrawal syndrome b) Same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms	

Q4: How would you administer Suboxone to this patient?



Q5: If the patient decides she does not want Suboxone therapy for opioid withdrawal what alternative therapies can you offer for management of withdrawal symptoms?

Q6: One week later the patient presents to the ED following a bicycle accident and has an open fracture of her tibia. She is in severe pain. Can you administer opioids for analgesia given she is on Suboxone? Will they be effective and is there any increased risks with administration of opioids now?

Q7: What is precipitated withdrawal? How do you avoid it and how do you treat it?

MODULE 3

Pediatric Polytrauma

With Sue Beno & Kylie Bosman

PODCAST TO LISTEN TO PRIOR TO THE COURSE

Link to: Pediatric Trauma Main Episode

Link to: Rapid Review Video

Link to: Trauma - The 1st and Last 15 minutes

Most of us don't have much experience managing the sick pediatric polytrauma. By preparing adequately and prioritizing actions to prevent immediate life-threats as well as keeping in mind the major pitfalls, your next pediatric trauma resuscitation will be successful.

Case 1: The ATV Crash

You are the ED physician in a rural hospital. You have access to a CT scanner, point of care ultrasound, and labs. The regional trauma centre is a two hour drive away. You get a call that a helmeted 7 year old boy has been involved in an ATV crash. His father's ATV flipped while going down a steep incline and he was caught underneath it during the rollover. EMS reports that he has obvious trauma to the left side of the chest, bruising over the abdomen, and an open left tibia fracture. He is awake and crying with a GCS of 13. ETA to your ED is 5 minutes.

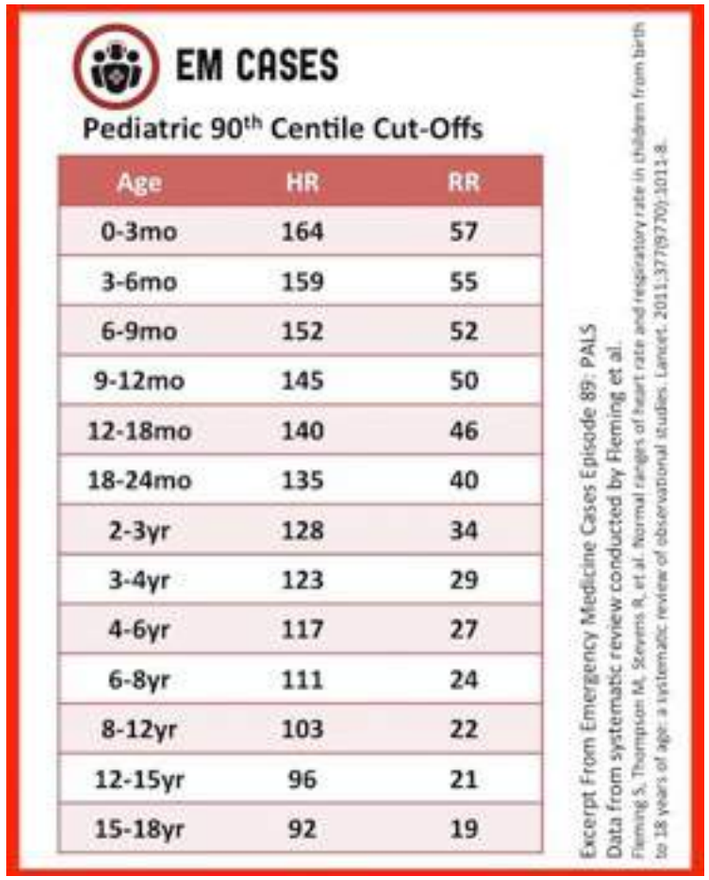
Q1: You have 5 minutes to prepare prior to patient arrival. How do you prepare yourself, your gear, your environment and your staff?

Case Continued: He arrives in a C-spine collar and spinal board 30 minutes after the accident.

VS are HR 130bpm, BP 93/50, RR 35, O2 sat 92% on 10L by mask. His GCS is now 11.

Q2: What are your management priorities for this patient?

Q3: Is this patient in shock?

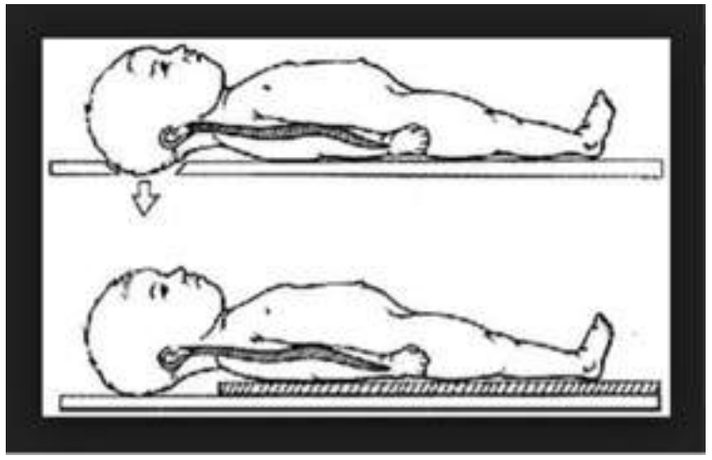


Pediatric Vital Signs PDF

Q4: How will you obtain vascular access in this patient?

Q5: What medications and strategies can you use to minimize this childs' pain and anxiety?

Q6: You decide that this patient requires definitive airway management. How will your airway management differ for a pediatric trauma patient compared to a standard adult RSI?



Q7: How reliable is your FAST exam to rule out intra-abdominal bleeding in this situation?

Q8: What is your approach to decompression of the chest? Will you begin with needle decompression, finger thoracostomy or immediately place a chest tube? Will you use a large-bore chest tube, a smaller bore chest tube or a pigtail catheter?

Q9: You determine that the patient is suffering from hemorrhagic shock. How will you volume resuscitate this patient assuming that it takes 30 minutes to receive blood products at your rural centre? What are your resuscitation targets?

Q10: Is there a role of tranexamic acid (TXA) administration here? If so, what dose and how will you administer it?

Q11: What blood work is necessary for this patient? Why?

Q12: How do you decide which patients require transfer to a trauma centre?

Assessment Component	SCORE		
	+2	+1	-1
Weight	Weight >20 kg	10-20 kg	<10 kg
Airway	Normal	Oral or nasal airway, oxygen	Intubated, cric, trach
Systolic BP	>90 mmHg, good peripheral pulses	50-90 mmHg, palpable carotid/femoral	<50 mmHg, weak/no pulses
Level of Consciousness	Awake	Obtunded, any loss of consciousness	Coma, unresponsive
Fracture	None	Single, closed	Open or multiple
Cutaneous injuries	None	Contusion, abrasion, laceration <7cm not through fascia	Tissue loss, any GSW or stab wound through fascia

Q13: You determine this child needs to be transported urgently to the regional trauma centre. What interventions will you consider performing prior to this transfer?

Transport Checklist

- Identify, address and communicate life threatening injuries to trauma center
- Control airway, secure ETT, ensure sedation
- EtCO2 monitor to monitor ventilation strategy
- Secure tubes (OG, NG, Foley, chest tubes)
- Analgesia – fentanyl infusion
- Vascular access (IV or IO)
- Bind pelvis as indicated
- Splint fractures
- Antibiotics for open fractures
- TXA for hemorrhagic shock
- Blood products should be given as indicated, but massive transfusion protocols should be done at the receiving trauma center
- Paperwork (labs, imaging, notes)

Common pitfalls leading to bad pediatric trauma outcomes

Failure to:

Manage the airway – indicated for almost all severe TBI, any hypoxia

Appreciate and treat shock – do not wait for hypotension which is a sign of pre-arrest

Prioritize management of injuries – see "CABC" below

Check bedside sugar if altered LOC – ABC**DEFG** "**D**on't **E**ver **F**orget the **G**lucose"

Keep the child warm

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Afternoon Modules

MODULE 1

Cardiac Arrest & Resuscitation POCUS

With Rob Simard

PODCASTS TO LISTEN TO PRIOR TO THE COURSE

Link to: ACLS Guidelines 2015 – Cardiac Arrest Controversies Part 1

Link to: Beyond ACLS Cardiac Arrest

Link to: POCUS Cases - IVC POCUS

The management of hypotensive resuscitations and adult cardiac arrest patients remains one of the most adrenaline-inducing and logistically challenging scenarios that Emergency Physicians face. A lot has changed over the years when it comes to managing the adult in cardiac arrest. In this module, Dr. Simard will guide you deeper into the controversies and subtleties of optimally managing the arresting adult; he will explore the incorporation and utilization of POCUS to improve resuscitative diagnosis in hypotensive patients (because not all hypotensive patients need 2L of fluid).

Case 1: PEA Arrest

A 60 y/o obese woman, with coronary artery disease, has a syncopal episode prior to calling EMS. Immediately before collapsing, she complained to her husband, who witnessed the episode, that she feels weak and unwell. The husband immediately phoned 911 and EMS arrived within 5 minutes. You are the ED physician covering Resus and are informed that the patient will be arriving shortly and has a blood pressure of 60/30.

Q1: How will you prepare your team in the 5 minutes you have before the patient arrives?

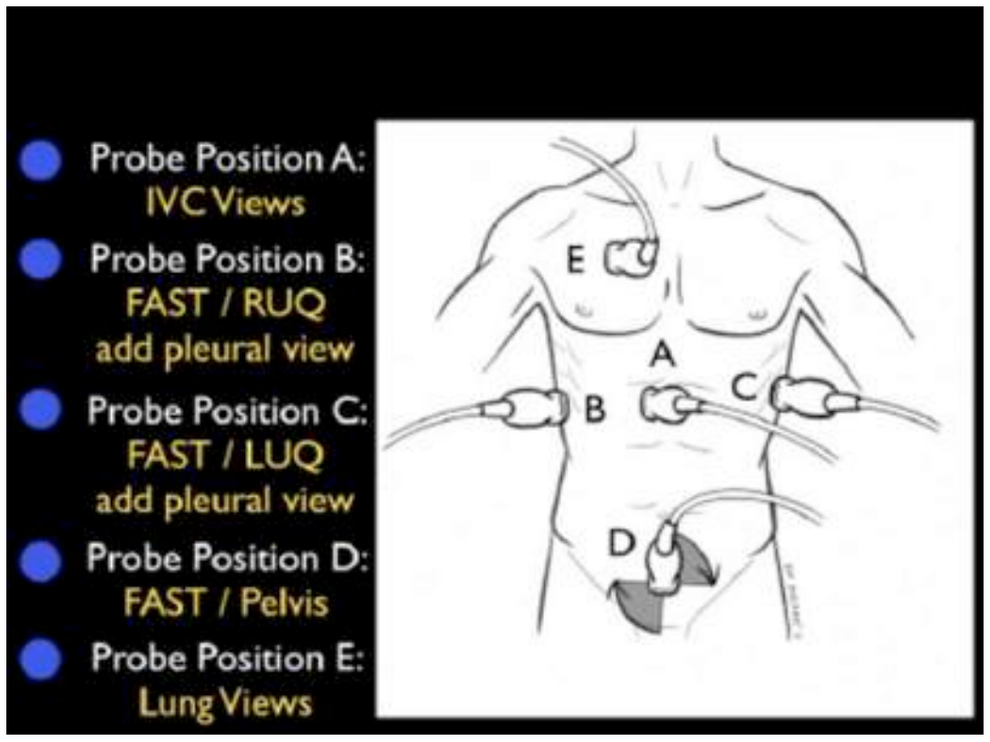
Q2: What are some indications to determine the amount of fluid you would administer to a patient who is hypotensive? Would you ever consider limiting the amount of fluid in a hypotensive patient?

Q3: When would you consider giving a patient vasopressor medication for hypotension? Would you ever consider giving it immediately OR delaying giving it?

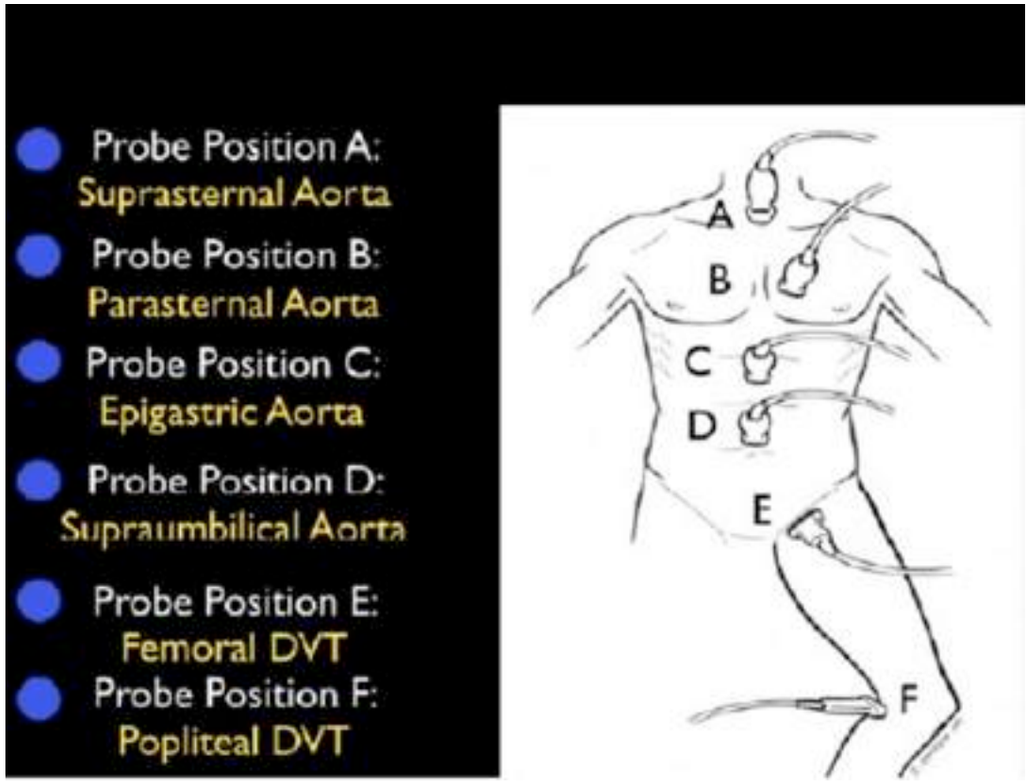
Case continued

Your team performs a POCUS to look for causes of Shock and looks to see if the patient is likely or unlikely to respond to fluid.

Q4: How can POCUS be helpful in determining fluid responsiveness in patients?



Q5: How can POCUS be helpful in determining the cause of the hypotension?



Case continued

During ongoing resuscitative efforts, you determine that the patient has an elevated JVP, B-lines, pleural effusions, LV systolic dysfunction, an IVC that is not collapsing and is greater than 2cm. The blood pressure is still 60/30.

Q6: How would you proceed with resuscitation to optimize the blood pressure?

Reference

Seif, D., Perera, P., Mailhot, T., Riley, D., & Mandavia, D. (2012). Bedside ultrasound in resuscitation and the rapid ultrasound in shock protocol. Critical care research and practice, 2012.

Case 2: Refractory VT

A 55y/o male experiences chest pain and collapses; quick arrival of EMS and countershock in the field yields no ROSC. EMS and the patient arrive in your ED with CPR in progress. When you see the patient, three 200J defibrillations, three 1mg epi doses, and 300mg amiodarone have already been given. The total arrest time is 10 minutes.

Q1: How would you prepare your team?

Q2: How can you minimize interruptions to chest compressions?

Q3: Would you continue with defibrillation? And if so, at the current set-up/dose? What if you only had one defibrillator?

Q4: Would you continue to administer IV epinephrine q3-5 mins if the patient remained pulseless?

Q5: Are there any other medications that may be beneficial in this circumstance?

References

Bardy GH, Ivey TD, Allen MD, Johnson G, Greene HL. Prospective comparison of sequential pulse and single pulse defibrillation with use of two different clinically available systems. J Am Coll Cardiol. 1989;14(1):165-71.

Lee YH, Lee KJ, Min YH, et al. Refractory ventricular fibrillation treated with esmolol. Resuscitation. 2016;107:150-5.

MODULE 2

Awake Intubation

With George Kovacs

RESOURCES TO REVIEW PRIOR TO THE COURSE

Link to: Dr. Kovacs book chapter on Awake Intubation

Link to: Airway Pitfalls

Link to: Obesity Emergency Management

Even though we should always be prepared for a difficult airway with a plan A, plan B and plan C, when an airway is anticipated to be difficult from the start, consideration should be given to an awake intubation. In this module we will discuss the indications for awake intubation and demonstrate the procedural skills required to make it a success.

Case 1: The Anatomical Anticipated Challenging Airway

A 47 year old otherwise healthy man was extricated from a house fire. EMS estimates 35% total body skin burns. He arrives to your ED with normal vital signs except for a heart rate of 110, awake, and cooperative, with an oxygen saturation of 98% on 4L by nasal prongs. He is coughing and you note signs of singeing of his lips in addition to blistering burns to his forehead and neck. His voice is hoarse. His nares are covered in soot and his oral cavity appears diffusely red and swollen.

Q1: What factors will influence your decision making with regards to airway management in this patient?

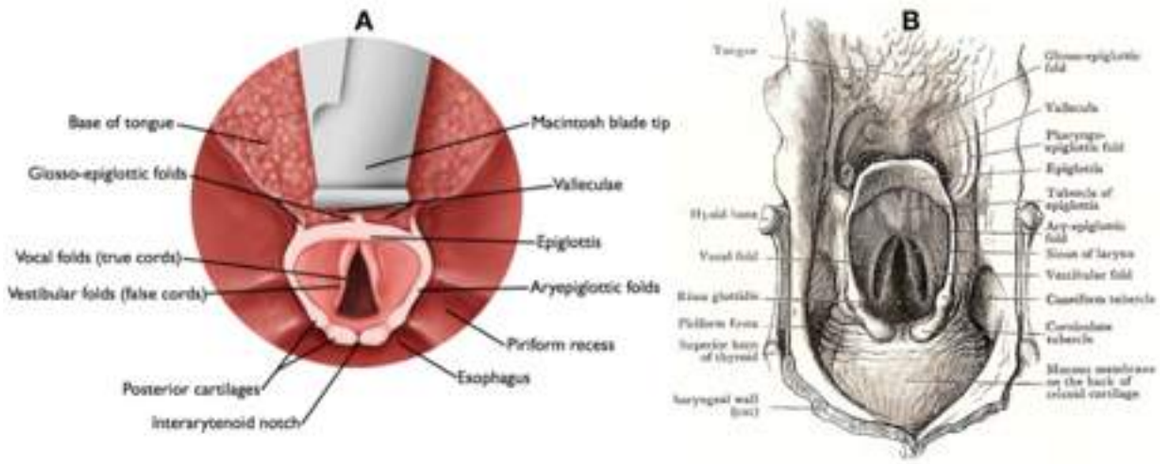
Q2: What are the advantages of an awake intubation in this patient? Why not simply proceed with RSI if you feel intubation is indicated?

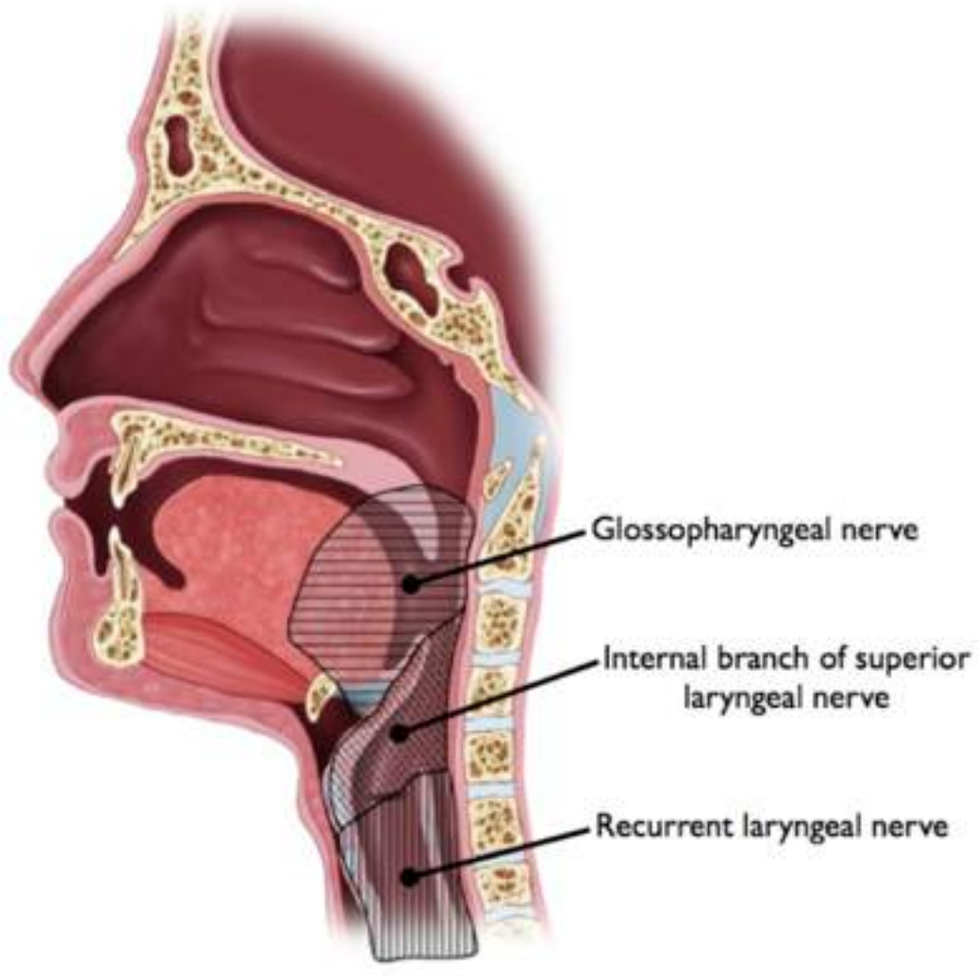
Condition requiring awake intubation	Example	Concerns	Suggested technique
Difficult airway anatomy due to a variation of head/neck anatomy	55 year old male with severely receding mandible and a congenitally fused C2-3 vertebrae.	• Even with conditions optimized by having the patient asleep and paralyzed, direct laryngoscopy (DL) or video-enabled Macintosh blade (Mac-VL) laryngoscopy will likely be very difficult. • DL or Mac-VL in the awake patient will be even more difficult or even impossible as patient discomfort and cooperation issues compound problems with unfavorable airway anatomy.	• In this situation, an alternative to DL or Mac-VL, such as a flexible bronchoscope or hyper-angulated blade videolaryngoscope should be used for the awake intubation. • Such devices enable 'around the corner' visualization, and will apply less pressure to the awake patient's tongue, making them both more effective and less uncomfortable for the procedure.
Difficult airway anatomy due to pathologic changes in the upper airway	A 53 year old male victim of a house fire with facial and trunk burns becomes hoarse and dyspneic 6 hours later.	• Airway edema may obscure normal landmarks such as the glottic opening but placement of the laryngoscope blade and tongue control won't necessarily be a problem. • Edematous tissue will abduct, or bubbles may appear with expiration, serving to indicate the location of the glottis.	• Direct laryngoscopy or Mac-VL can be used for the awake intubation, with the appropriate application of topical airway anesthesia. • Alternatives to DL or Mac-VL, such as a hyperangulated- blade videolaryngoscope or flexible bronchoscopy can also be used.
Difficult physiology: Unstable hemodynamics	A 78 year old female is in pulmonary edema, and has failed a trial of non-invasive ventilation. She is sitting upright, dyspneic, and asking to be intubated. BP is 88/40.	• This patient should have normal upper airway anatomy. As long as her level of consciousness is normal, she may be quite cooperative. • Awake intubation will help avoid further myocardial depression and hypotension.	• DL or Mac-VL can be used for the awake intubation, as can any other intubation device, as long as appropriate topical airway anesthesia is applied.
Difficult physiology: Apnea Intolerance- Hypoxemic respiratory failure	A 40 year old morbidly obese patient with pneumonia in hypoxemic respiratory failure with an SpO_2 of 83% on BiPAP.	• This patient has shunt physiology and is sitting on the steep portion of the oxygen saturation curve. His reserves are O_2 reserves are small, and Oxygen consumption rate is high. • Critical desaturation will occur rapidly with apnea.	• A trial with humidified high flow nasal oxygen (HHFNO) system will often hold their saturations and allow for an awake approach without significant further desaturation. • If an RSI is required, ventilation (preferably using the ventilator) with PEEP will be necessary during induction and then HHFNO can be used during laryngoscopy and intubation.
Difficult physiology: Apnea Intolerance- Very high minute ventilation or significant dyspnea	A 67 year old male vasculopath is suspected of having an ischemic gut. He is air hungry with a respiratory rate of 40 per minute. He has a profound metabolic acidosis, partially compensated by involuntary hyperventilation to a $PaCO_2$ of 22, to giving a pH of 7.05	• Again, this patient should have normal upper airway anatomy. • An awake intubation is an option that will enable gas exchange (and thus respiratory compensation for metabolic acidosis, in this case) to continue unabated during the intubation process.	• Any device can be used for the tracheal intubation, including DL or Mac-VL. Topical airway anesthesia, very judicious sedation and constant reassurance will aid the procedure.

Q3: If you elect to proceed with awake intubation, what equipment will you require? If you do not have access to an atomizer device or flexible laryngoscope can you still proceed with the awake intubation?

Q4: During your awake intubation your patient becomes agitated and stops cooperating. How do you proceed?

Q5: If during the awake intubation you note significant swelling of the airway structures and are concerned your ET tube will not fit, how do you proceed?





Approach to Topicalizing the Airway

1. Apply nasal oxygen and have ready adjunctive procedure and post procedure sedation. Be prepared to take control of the airway having a complete array equipment and medications as you would for an RSI.
2. Engage and reassure the patient using lay terminology. Give them the suction to use as necessary and agree on hand signals defining that 'things are ok' and when to 'stop'.
3. Apply approximately 1 inch of the 5% lidocaine ointment to a tongue depressor and push it distally to create a lidocaine lollipop (Video 2 see link in legend).
4. Have the patient extrude their tongue and gently trap it anteriorly with a gauze.
5. Do not 'wipe' the ointment on the tongue, gently apply the lidocaine lollipop as posterior as possible moving side to side so that it 'melts' down the posterior slope of the tongue. It may take 2-3 passes to apply this initial application. (this may need to be repeated in some patients).
6. Using atomized 4% lidocaine, spray the tongue, tonsillar regions and posterior pharynx generously.
7. Reassure the patient explaining that they may cough during the next stage of spray and after they may feel slightly short of breath ('glottic dyspnea').
8. Trap the tongue. Bend the nozzle tip down to 70-90^0 and attack the posterior tongue and glottis ideally during inspiration. Do this a couple of times.
9. Perform 3 glottic/tracheal sprays either through the mouth with nozzle tip bent to 90^0 during inspiration. Alternatively, in a cooperative patient apply through a patent nares, again during a 'big' inspiration through the nose.
10. Use of Jackson forceps to place a lidocaine soaked plegets held in the piriform recess on each side for up to 1 min (optional) (Video 1 see link in legend).
11. Perform gentle precision laryngoscopy or use a flexible intubating scope and put the damn scope in and tube the patient. You will know during laryngoscopy if your patient requires a second dose of lidocaine ointment.

Q6: You have successfully intubated your "awake" patient. How do you now proceed with post-intubation sedation and analgesia?

Case 2: The Physiologic Anticipated Challenging Airway

A 45 year old morbidly obese man arrives via EMS on a nonrebreather in severe respiratory distress following a febrile respiratory illness, with an oxygen saturation of 85%. EMS tells you that he improved when they initiated the nonrebreather up but that he seems to be tiring and his “sat” has dropped from 90%. His heart rate is 124, blood pressure is 98/57 and temperature 38.1. He is placed on BiPAP but the oxygen saturation remains at 85%.

Q1: How does obesity alter airway physiology and airway management?

Q2: What are the advantages of an awake intubation in this patient? Why not simply proceed with RSI if you feel intubation is indicated?

Q3: What steps will you go through for an awake intubation in this patient?

MODULE 3

ENT Emergencies

With Leeor Sommer & Maria Ivankovic

PODCAST TO LISTEN TO PRIOR TO THE COURSE

Link to: ENT Emergencies Tips & Tricks

There is a huge variation of practice in the ED management of epistaxis, pharyngitis and otitis externa. In this workshop you we learn best practices to improve outcomes in the most efficient way.

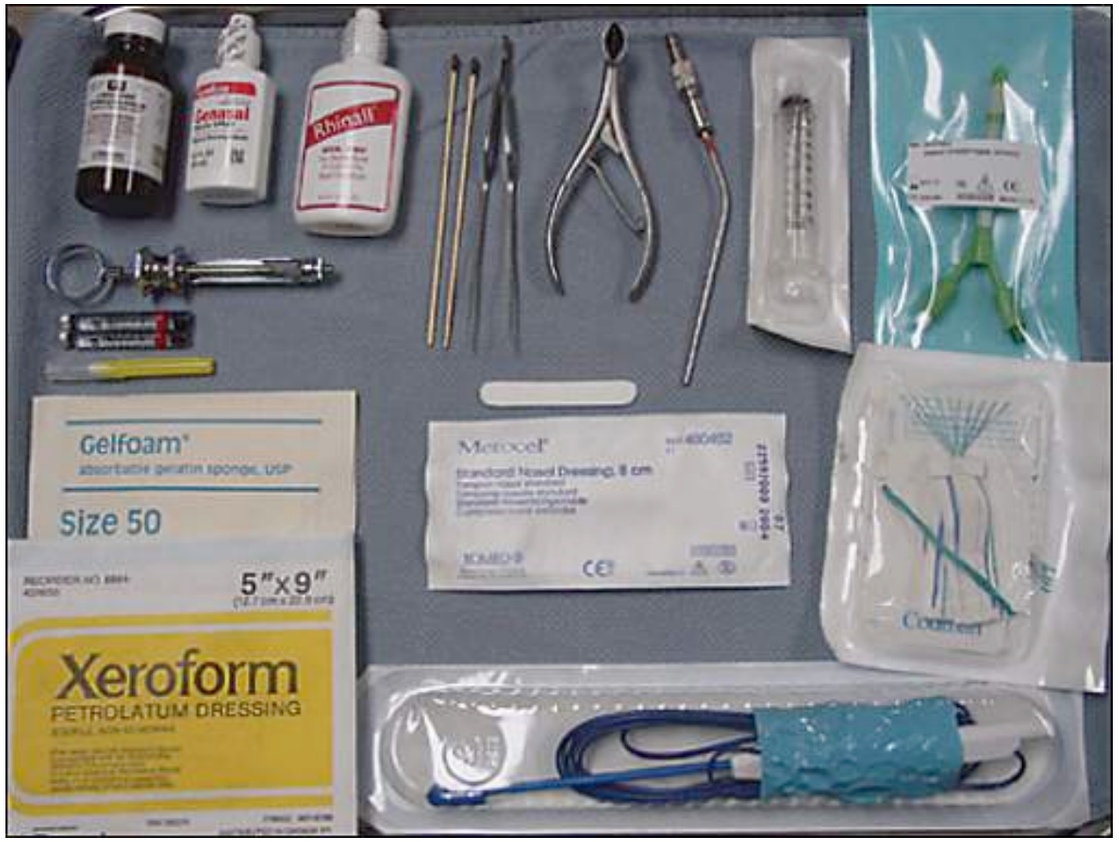
Case 1: The Nose Picker

A 74-year-old male presents to hospital at 3am with a nose bleed. He thinks he may have picked it in his sleep. He tried an ice pack on his forehead and has been pinching his nose, but has been unable to stop the bleeding for the past 2 hours. His wife eventually drives him to the hospital.

At Triage his vital signs are: HR 84, BP 182/103 RR18 O2 Sat 98%. The triage nurse mentions that he is on Apixaban for a history of pulmonary embolism.

Q1: How will you manage this patient in the first 5 minutes?

Q2: What is your stepwise approach to control epistaxis?



Q3: How do you identify and treat a patient with a posterior bleed?

Q4: What is the role of anticoagulation reversal in this bleeding patient?

Q5: Should you control the patient's hypertension?

Case 2: Another Sore Throat

A 43-year-old female presents to your ED with a 3 day history of a gradually worsening sore throat. She complains of a tactile fever and odynophagia. She's been treated for strep throat 3 times in the past 3 years and thinks she may have it again.

Q1: What is your approach to the diagnosis and treatment of pharyngitis in the age of antimicrobial stewardship?

McIsaac Modification of the Centor Strep Score

Symptom or sign	**Points**
Temperature >38°C (100.4°F)	1
Absence of cough	1
Tender anterior cervical adenopathy	1
Tonsillar swelling or exudates	1
Age less than 15 years	1
Age at least 45 years	-1

Likelihood:
-1/0 = 1%; 1 = 10%; 2 = 17%; 3 = 35%; 4/5 = 51%

Diagnosing Strep Throat: Are There Reliable Clues? - July 1, 2001 - American Academy of Family Physicians. Available at www.aafp.org/afp/20010701/tips/2.html

Q2: What else is on your differential for the acute sore throat and when would you pursue investigations to diagnose these conditions?

Q3: How would you further investigate?

Case continued:

The patient returns 3 days later with worsening sore throat, a hot potato voice and difficulty managing her own secretions?

Q5: How do you diagnose and treat a peritonsillar abscess?

Case 3: The hot ear

A 47-year-old female comes to your complaining of right ear pain for the past week. She was seen at a walk-in-clinic and was put on Amoxicillin for a presumed otitis, but this has had little to no effect on her symptoms. She denies any fever, or preceding URI symptoms. She has had a small amount of crust form on the outside of her ear. She has a history of hypertension, high cholesterol and Type 2 diabetes.

Her physical exam reveals a swollen erythematous external otic canal. The tympanic membrane is obscured by discharge. The remainder of her head and neck exam is unremarkable.

Q1: What is your differential for acute otalgia?

Q2: What exactly is malignant otitis externa, and when should you suspect it?

Q3: What is a reasonable ED strategy to investigate malignant otitis externa and if diagnosed, what is the acute treatment and disposition?

Part 2

The patient's 14-year-old daughter comes in 3 hours later. She recently got a "high ear" piercing and has noticed that her ear is getting increasingly painful and swollen. She was reluctant to come to the ED because she desperately wanted to keep her piercing.

Q4: What is the treatment for this acute auricular infection?

Q5: Which patients need urgent referral?

Q6: What would be an appropriate antimicrobial agent for a child or adult with this condition?