

Rap #6, 02/16 Regions Rap Summary (HEENT/ Endocrine)

Tuesday, February 23 2016, 12:51 PM

Rap #6, 02/16 Regions Rap Summary (HEENT/ Endocrine)

[The Case of the Blind Allocator \(EM Nerd 9/29/15, Authored by Rory Spiegel\) - Reviewed by Noah Maddy](#)

- Also well covered at coreem.net
- Two topics: Bias and complications of CVC by insertion site.
- Background: Femoral lines are dirty, right? That's what I was taught, but now I'm not so sure.
 - Maybe Paul Marik knows our best approximation of truth:
 - [Marik 2012](#)
 - systematic review and meta-analysis looked at CLABSI/CRBI and insertion site (SC, IJ, fem).
 - >17k lines
 - 10 papers
 - Fem vs SC no difference
 - Fem vs IJ no difference.
 - Bias
 - Only 1,000 of these lines were from RCT data, most from single trial looking at fem vs IJ emergent dialysis catheters
 - "Which are kept impeccably clean and accessed only for dialysis"
 - Unclear if this applies to our standard heavily abused CVCs.
 - Bias continued:
 - 16,000 lines from observational cohorts.
 - Problems: Non-random insertion site.
 - Did operators avoid SC in respiratory distress due fear of pneumothorax?
 - So then were IJ/fem lines placed in sicker patients who are more prone to infection?
 - And were fem lines removed sooner due to concern for infection?!
 - Also:
 - Two trials excluded as statistical outliers.
 - If included, fem actually is significantly greater infection risk than IJ.
- Bias Discussion (i.e. non-random error)
 - Selection bias:
 - Randomization is valid if operators not aware of group assignment before randomization.
 - Allocation concealment
 - Prior knowledge = selection bias & Poor allocation
 - Concealment = excluded patients = results non-congruent with reality. Selection bias.
 - Ascertainment bias:
 - Systematic, non-random distortion of measurement due to investigator's knowledge and assumptions of group allocation
 - i.e. Fem lines are dirty, right? SC = pneumothorax, right? IJ is standard of care, right?!
- Complications of CVC placement by site (i.e. the reason you probably care about this post)
 - [2015 NEJM paper](#)
 - 3,471 catheter insertions in 3,027 patients in 10 ICUs in France.
 - Lines were inserted by "experienced" house staff
 - Each required to have at least 50 previous line insertions.
 - All lines were inserted using strict sterile precautions and Seldinger technique
 - Though the use of ultrasound guidance was left to the inclination of the clinician performing the procedure. P
 - Patients were enrolled if the treating physician determined that at least two of the three sites (IJ, SC, or femoral) were appropriate for cannulation.
 - At which point the patient was randomized to site.
 - Primary outcome:
 - Rate of catheter related infections and symptomatic DVT in patients randomized to SC compared to both IJ or fem.
 - Results:
 - Primary Outcome
 - 8 SC events
 - 20 IJ events
 - 22 fem events
 - Offset by mechanical complications (arterial injury, hematoma, pneumothorax, other):
 - 2.1% SC
 - 0.7% IJ
 - 1.4% fem
 - The difference was entirely more pneumothorax in the SC group.
 - Selection bias: Treating physicians allowed to exclude one site from randomization if deemed not suitable for clinical use.
 - "Methods:"

- 3471 catheters placed.
 - 2532 (72.9%) without an excluded site.
 - 940 placed with one site excluded:
 - 570 SC excluded due to risk of bleeding or pneumothorax
 - 277 fem excluded due to site contamination.
- So maybe the highest risk patients were excluded.
- Ascertainment bias (i.e. the guy with the fem line clearly has a fem line, not an IJ):
 - Fem pts had line in place for significantly shorter time, could skew results.
- Post author's conclusion:
 - "I suspect their results are as close a proximity to the truth as we currently have. As such, if we are willing to accept the slight increase in the rate of pneumothorax, the SC vein may be the preferred initial option for central venous cannulation, with the caveat that the true pneumothorax rate might be higher than observed due to the large number of exclusions prior to randomization."
- Maddy's Conclusion:
 - This was harder to follow than the coreem.net post on the same paper, but the conclusion was similar.
 - The coreem.net post was not specifically discussing bias, so they list more limitations.
 - If I had the opportunity to place 50 supervised SC lines, I might be able to do something with this information.

• **AIR Grade:**

Tier 1: BEEM Rater Scale	Score-choose only 1	Tier 2: Content accuracy	Score-choose only 1	Tier 3: Educational Utility	Score-choose only 1	Tier 4: EBM	Score-choose only 1	Tier 5: Referenced	Score-choose only 1
Assuming that the results of this article are valid, how much does this article impact on EM clinical practice?		Do you have any concerns about the accuracy of the data presented or conclusions of this article?		Are there useful educational pearls in this article for residents?		Is this article reflect evidence based medicine (EBM) and thus lack bias?		Are the authors and literature clearly cited?	
Useless information	<input type="radio"/>	Yes, many concerns from many inaccuracies	<input type="radio"/>	Low value: No valuable pearls	<input type="radio"/>	Not EBM based, only expert opinion (and thus more biased)	<input type="radio"/>	No	<input type="radio"/>
Not really interesting, not really new, changes nothing	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
Interesting and new, but doesn't change practice	<input type="radio"/>	Yes, a major concern about few inaccuracies	<input type="radio"/>	Yes, but there are only a few (1-2) valuable or multiple (>=3) less-valuable educational pearls	<input type="radio"/>	Minimally EBM based	<input type="radio"/>		<input type="radio"/>
Interesting and new, has the potential to change practice	<input checked="" type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
New and important: this would probably change practice for some EPs	<input type="radio"/>	Minimal concerns over minor inaccuracies	<input type="radio"/>	Yes, there are several (>=3) valuable educational pearls, or a few (1-2) KEY educational pearls that every resident should know before graduating	<input checked="" type="radio"/>	Mostly EBM based	<input checked="" type="radio"/>		<input type="radio"/>
New and Important: this would change practice for most EPs	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
This is a "must know" for EPs	<input type="radio"/>	No concerns over inaccuracies	<input checked="" type="radio"/>	Yes, there are multiple KEY educational pearls that residents should know before graduating	<input type="radio"/>	Yes exclusively EBM based (unbiased)	<input type="radio"/>	Yes	<input checked="" type="radio"/>
Your Score	4		7		5		5		7

Eye Injuries (EM Ireland 10/15/15, Authored by Andy Neill) - Reviewed by Aaron Gronseth

- <http://emergencymedicineireland.com/2015/10/eye-injuries-at-eusem15/> (Trouble with this one too)
 - [Here's a link](#) by one of our own, Emily Binstadt, that she shared with me covering some more eye pathology (JW)
 - Tips & Tricks
 - Most eye injuries are not as time sensitive as you think
 - [Relative Afferent Pupillary Defect \(RAPD\)](#)-> Swinging Light Test
 - Localizes to retina and anterior optic n. before chiasm
 - Light in good eye=Direct and Consensual constriction
 - Move to bad eye=paradoxical dilation
 - Causes: Large retinal detachment, CRAO, ischemic central retinal vein occlusion, optic n. ischemia, optic neuritis, compression, asymmetric glaucoma
 - Ocular US
- Traumatic Mydriasis
 - Direct injury, fixed dilated pupil
 - Benign, recovers on own with no treatment
 - Need to check for associated injuries (corneal abrasions, hyphema, etc)



- Hyphema
 - Blood in anterior chamber increases IOP
 - Follow pressures, risk of re-bleed
 - Call ophthalmology
 - Usually treated with mydriatics, eye shield, sitting up



- Lens Dislocation
 - Painful, decreased acuity, irregular pupil
 - Can see posterior dislocation on US
 - Call ophthalmology



- Globe Rupture
 - Should be obvious but if unsure can get CT
 - Avoid direct pressure including ultrasound if there is concern
 - Sclera is weak at insertion of EOMs and Limbus
 - Emergent ophthalmology evaluation



- Orbital Compartment Syndrome
 - Loss of globe contour
 - Time = Sight



- [Lateral Canthotomy](#)
 - Globe = Intact & Bulging
 - Acuity = Deteriorating
 - Pupils = ? RAPD

- EOMs = Usually reduced

• **Evaluation**

- [AIR Grade:](#)

Tier 1: BEEM Rater Scale	Score-choose only 1	Tier 2: Content accuracy	Score-choose only 1	Tier 3: Educational Utility	Score-choose only 1	Tier 4: EBM	Score-choose only 1	Tier 5: Referenced	Score-choose only 1
Assuming that the results of this article are valid, how much does this article impact on EM clinical practice?		Do you have any concerns about the accuracy of the data presented or conclusions of this article?		Are there useful educational pearls in this article for residents?		Is this article reflect evidence based medicine (EBM) and thus lack bias?		Are the authors and literature clearly cited?	
Useless information	<input type="radio"/>	Yes, many concerns from many inaccuracies	<input type="radio"/>	Low value: No valuable pearls	<input type="radio"/>	Not EBM based, only expert opinion (and thus more biased)	<input type="radio"/>	No	<input checked="" type="radio"/>
Not really interesting, not really new, changes nothing	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input checked="" type="radio"/>		<input type="radio"/>
Interesting and new, but doesn't change practice	<input type="radio"/>	Yes, a major concern about few inaccuracies	<input type="radio"/>	Yes, but there are only a few (1-2) valuable or multiple (>=3) less-valuable educational pearls	<input type="radio"/>	Minimally EBM based	<input type="radio"/>		<input type="radio"/>
Interesting and new, has the potential to change practice	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
New and important: this would probably change practice for some EPs	<input type="radio"/>	Minimal concerns over minor inaccuracies	<input checked="" type="radio"/>	Yes, there are several (>=3) valuable educational pearls, or a few (1-2) KEY educational pearls that every resident should know before graduating	<input type="radio"/>	Mostly EBM based	<input type="radio"/>		<input type="radio"/>
New and Important: this would change practice for most EPs	<input checked="" type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
This is a "must know" for EPs	<input type="radio"/>	No concerns over inaccuracies	<input type="radio"/>	Yes, there are multiple KEY educational pearls that residents should know before graduating	<input checked="" type="radio"/>	Yes exclusively EBM based (unbiased)	<input type="radio"/>	Yes	<input type="radio"/>
Your Score	6		5		7		2		1

Thyroid Storm (EMCrit 5/16/15, Authored by Scott Weingart) - Reviewed by James Frederick

- Majority of information from 2 sources:
 - 2013 Review article from the JOURNAL OF INTENSIVE CARE MEDICINE (Chiha, Samarasinghe and Kayaker 2013)
 - EMRAP June 2010; interview with Jonathon LoPresti
- Diagnosis:
 - Stresses importance of treating based on clinical suspicion rather than labs
 - Treatments are relatively benign and there is little downside to early treatment.
 - Five criteria for diagnosis of thyroid storm (from Jonathon LoPresti)
 1. Patient has to have thyroid dysfunction
 - Hyperthyroid
 - Hypothyroid on exogenous thyroid supplementation.
 2. Fever
 3. Some degree of AMS (differentiates thyroid storm from thyrotoxicosis)
 4. Sympathetic surge
 - Fever
 - Tachycardia
 - Hypertension (although high-output heart failure can lead to hypotension)
 5. precipitating event (Many; infection most common).

Table I. Reported Precipitants of Thyroid Storm.

Thyroid surgery/surgical storm
Nonthyroidal surgery
Trauma ⁶⁸
Vigorous manipulation of the thyroid gland ⁵
Thyroiditis ⁶⁹
Parturition
Burn ¹⁹
Myocardial infarct
Pulmonary embolism
Cerebrovascular incidents
Medications such as anesthetics, salicylates, pseudoephedrine, and amiodarone
Interferon treatment ²⁰
Radioactive iodine treatment
Exposure to iodinated contrast
Withdrawal of antithyroid treatment
Infections
Diabetic ketoacidosis ²¹
Hypoglycemia
Acute ingestion of high doses of thyroid hormone ²²
Metastatic thyroid cancer ¹⁹
Struma ovarii ²³
Molar pregnancy ²⁴
H1N1 infection ²⁵
Emotional stress
Intense exercise

- Scoring system:
 - Thyroid storm scoring system based on:
 - Temperature
 - Degree of CNS impairment
 - GI dysfunction
 - Tachycardia
 - Degree of CHF
 - History of known precipitant with scores of 45 being highly suggestive of thyroid storm.

Thermoregulatory dysfunction		Cardiovascular dysfunction	
Temperature		Tachycardia	
99-99.9	5	99-109	5
100-100.9	10	110-119	10
101-101.9	15	120-129	15
102-102.9	20	130-139	20
103-103.9	25	≥140	25
≥104.0	30	Congestive heart failure	
Central nervous system effects		Mild	5
Mild	10	Pedal edema	
Agitation		Moderate	10
Moderate	20	Bibasilar rales	
Delirium		Severe	15
Psychosis		Pulmonary edema	
Extreme lethargy		Atrial fibrillation	10
Severe	30	Precipitant history	
Seizure		Negative	0
Coma		Positive	10
Gastrointestinal-hepatic dysfunction			
Moderate	10		
Diarrhea			
Nausea/vomiting			
Abdominal pain			
Severe	20		
Unexplained jaundice			

* A score of 45 or more is highly suggestive of thyroid storm; a score of 25 to 44 supports the diagnosis; and a score below 25 makes thyroid storm unlikely.

Adapted from Burch, HB, Wartofsky, L, *Endocrinol Metab Clin North Am* 1993; 22:263.

- Workup:

- TSH
- FreeT3, T4
- CBC
 - Leukopenia (even in setting of infection)
 - Thrombocytopenia
- BMP
 - Low creatinine
 - Body can't convert creatine to creatinine
 - High Calcium
- Sepsis workup if concerned about infection as precipitating event.

- Treatment:

- Think PPI
 - PTU
 - Propranolol
 - Iodine
1. Block New Production:
 - Methimazole
 - 20 mg Q6h
 - PTU
 - 500-1000 mg load then 250 mg Q4h (PO)
 - Recommends PTU over methimazole because it also blocks peripheral conversion of T4 to T3
 2. Treat Sympathetic Surge (Beta Blockade)

- Beta Blockade
 - IV Propranolol recommended
 - Blocks peripheral conversion of T4 to T3.
 - Dose: 1 mg IV as a test dose
 - To ensure the patient doesn't have hemodynamic collapse.
 - 1-2 mg q 15 min
 - Goal HR of 100.
 - Sweet spot between:
 - Blocking sympathetic effects
 - Still supporting the cardiovascular system.
 - Once you establish the dose required to keep HR around 100
 - Give that dose as an hourly drip
 - Max 3-5 mg/hr
 - Esmolol can also be used; titrate to goal HR of around 100.
3. Block Thyroid Hormone Release:
 - Should not be given until 60 minutes after PTU or methimazole or it can increase thyroid hormone synthesis
 - Through the [Wolf-Chaikoff Effect](#)
 - Blocks iodide binding to thyroglobulin once critical levels of iodide are reached in vivo.
 - SSKI
 - 5 drops PO Q6 (saturated solution of potassium iodide)
 - Lugol's Solution
 - 8 drops PO Q6
 - Sodium iodide
 - 0.5 mg IV Q12
4. Other Supportive Treatment
 - Fluids
 - To treat volume loss
 - Insensible losses
 - Diuresis
 - Even in the setting of high-output heart failure these patients may be 3-5 L down.
 - Steroids
 - Block peripheral conversion of T4-T3
 - Protect from Adrenal Insufficiency
 - Dexamethasone
 - 4 mg IV Q6 hours
 - Hydrocortisone
 - 300 mg IV then 100 mg q8 hours
 - Temperature
 - Often hyperthermic
 - Recommend not aggressively cooling
 - Can lead to further vasoconstriction
 - Instead treat the sympathetic surge
 - Should usually correct the hyperthermia
 - Treat the underlying cause (i.e. precipitating event from list above)

• Evaluation

o [AIR Grade:](#)

Tier 1: BEEM Rater Scale	Score-choose only 1	Tier 2: Content accuracy	Score-choose only 1	Tier 3: Educational Utility	Score-choose only 1	Tier 4: EBM	Score-choose only 1	Tier 5: Referenced	Score-choose only 1
Assuming that the results of this article are valid, how much does this article impact on EM clinical practice?		Do you have any concerns about the accuracy of the data presented or conclusions of this article?		Are there useful educational pearls in this article for residents?		Is this article reflect evidence based medicine (EBM) and thus lack bias?		Are the authors and literature clearly cited?	
Useless information	<input type="radio"/>	Yes, many concerns from many inaccuracies	<input type="radio"/>	Low value: No valuable pearls	<input type="radio"/>	Not EBM based, only expert opinion (and thus more biased)	<input type="radio"/>	No	<input type="radio"/>
Not really interesting, not really new, changes nothing	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
Interesting and new, but doesn't change practice	<input type="radio"/>	Yes, a major concern about few inaccuracies	<input type="radio"/>	Yes, but there are only a few (1-2) valuable or multiple (>=3) less-valuable educational pearls	<input type="radio"/>	Minimally EBM based	<input type="radio"/>		<input type="radio"/>
Interesting and new, has the potential to change practice	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input checked="" type="radio"/>
New and important: this would probably change practice for some EPs	<input checked="" type="radio"/>	Minimal concerns over minor inaccuracies	<input checked="" type="radio"/>	Yes, there are several (>=3) valuable educational pearls, or a few (1-2) KEY educational pearls that every resident should know before graduating	<input type="radio"/>	Mostly EBM based	<input checked="" type="radio"/>		<input type="radio"/>
New and Important: this would change practice for most EPs	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
This is a "must know" for EPs	<input type="radio"/>	No concerns over inaccuracies	<input type="radio"/>	Yes, there are multiple KEY educational pearls that residents should know before graduating	<input checked="" type="radio"/>	Yes exclusively EBM based (unbiased)	<input type="radio"/>	Yes	<input type="radio"/>
Your Score	5		5		7		5		4

CRAO (EMDocs 2/14/16, Authored by Joe Walter) - Reviewed by Mike Cavanaugh

• Disclosure:

- o This post was written by Joe Walter, who edits this educational post.
- o Grammatical/ style edits were made, otherwise Mike's comments were left as is.

• Introduction

- o Painless loss of vision in one eye, occlusion of central retinal artery
- o Typically occurs 60-65 years
- o Similar risk factors to those as CVA, MI risk

• Presentation

- o Acute, painless, profound, monocular vision loss
- o Fundoscopic exam reveals "cherry red spot" whitening on retina
- o Box-carring or stacking of red cells, vascular attenuation
- o [RAPD present](#) (same link as above above)

• Treatments

- o Standard of Care at this time is typically observation
- o Ocular Massage
- o Ocular pressure lowering agents timolol, acetazolamide/mannitol
- o Vasodilatory agents/ maneuvers
 - o Nitroglyceride
 - o Pentoxifylline
 - o Isosorbide
 - o Carbogen
 - o Breathing in a bag
- o Ophthalmologic maneuvers including anterior chamber paracentesis
- o Investigations now include tPA
 - o Consider catheter guided tPA, such as treatment used in PE
 - o use of tPA in patients with CRAO is not currently considered standard of care
- o No clinical trials have demonstrated improvement with any treatment compared with observation

• Hyperbaric oxygen experience

- o Thought is under hyperbaric conditions collateral circulation is able to supply majority of blood supply from choroid to retina, thereby allowing the retinal artery to recannulate
- o As well as reducing edema and ischemia reperfusion damage
- o Largest single cohort to date treated with hyperbaric oxygen
 - o 28 patients

Time to Presentation	Measurable Visual Improvement
< 6 hours	5/6, 83%
6 ≤ 12 hours	8/11, 73%
> 12 hours	7/11, 63.6%
All Patients	20/28, 71%

Time to HBOT	Mean Lines of Improvement
< 6 hours	6 lines
6 ≤ 12 hours	5.36 lines
> 12 hours	3 lines
All Patients	4.6 lines

• Other Thoughts

- Prognosis is typically poor
- One study, linked by the blog reviewed a cohort of monkey's had central retinal artery clamped – noted that typically retinal ischemia occurred around 100-105 minutes, preserved around 95 minutes
- Vision is usually limited to finger counting following occlusion – average 20/50 vision
- Depends on cilioretinal artery, up to 20% of people have this artery, which provides collateral blood flow, can improve recovery and preserve vision

• Bottom Line

- Rare occurrence/event, no RCTs, only retrospective case reports, HBOT provides reasonable treatment option, consistently positive results, little to no harm, alternative therapies at this point are equally lacking evidence of efficacy.

• Evaluation

- [AIR Grade:](#)

Tier 1: BEEM Rater Scale	Score-choose only 1	Tier 2: Content accuracy	Score-choose only 1	Tier 3: Educational Utility	Score-choose only 1	Tier 4: EBM	Score-choose only 1	Tier 5: Referenced	Score-choose only 1
Assuming that the results of this article are valid, how much does this article impact on EM clinical practice?		Do you have any concerns about the accuracy of the data presented or conclusions of this article?		Are there useful educational pearls in this article for residents?		Is this article reflect evidence based medicine (EBM) and thus lack bias?		Are the authors and literature clearly cited?	
Useless information	<input type="radio"/>	Yes, many concerns from many inaccuracies	<input type="radio"/>	Low value: No valuable pearls	<input type="radio"/>	Not EBM based, only expert opinion (and thus more biased)	<input type="radio"/>	No	<input type="radio"/>
Not really interesting, not really new, changes nothing	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
Interesting and new, but doesn't change practice	<input type="radio"/>	Yes, a major concern about few inaccuracies	<input type="radio"/>	Yes, but there are only a few (1-2) valuable or multiple (>=3) less-valuable educational pearls	<input type="radio"/>	Minimally EBM based	<input checked="" type="radio"/>		<input type="radio"/>
Interesting and new, has the potential to change practice	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
New and important: this would probably change practice for some EPs	<input checked="" type="radio"/>	Minimal concerns over minor inaccuracies	<input checked="" type="radio"/>	Yes, there are several (>=3) valuable educational pearls, or a few (1-2) KEY educational pearls that every resident should know before graduating	<input checked="" type="radio"/>	Mostly EBM based	<input type="radio"/>		<input type="radio"/>
New and Important: this would change practice for most EPs This is a "must know" for EPs	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input checked="" type="radio"/>
	<input type="radio"/>	No concerns over inaccuracies	<input type="radio"/>	Yes, there are multiple KEY educational pearls that residents should know before graduating	<input type="radio"/>	Yes exclusively EBM based (unbiased)	<input type="radio"/>	Yes	<input type="radio"/>
Your Score	5		5		5		3		6

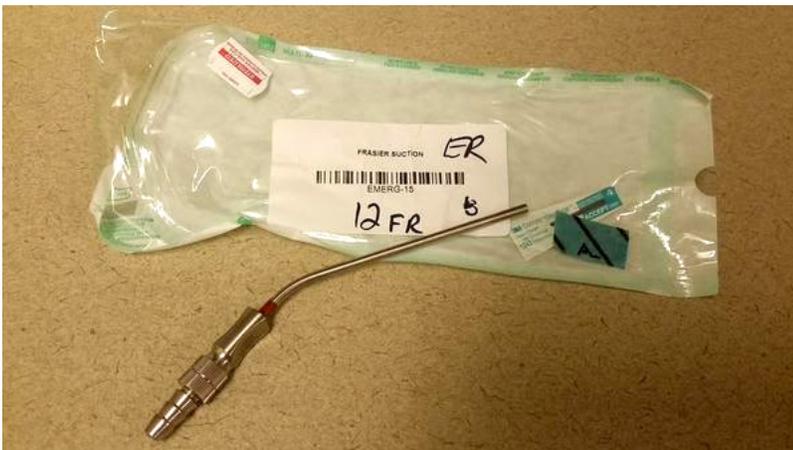
Ear FB Trick #1, #2 and #3 (ALIEM 8/15/15, 11/26/14, 6/29/11, Authored by Yen Chow & Michelle Lin) - Reviewed by Brittany Brindle

• [Modified A 14 FR Suction Catheter](#)

- Flexible catheter suction
 - Works best on smooth round objects



- Compared to a [Rigid Frazier suction](#)
 - Can cause canal trauma



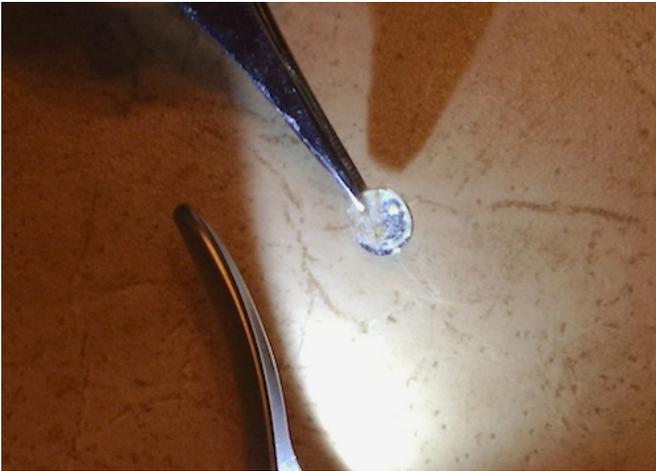
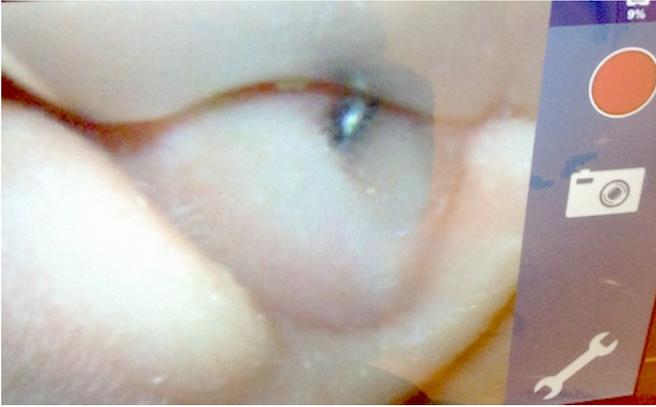
- This post also discussed using dermabond
- Only for the extremely steady-handed and not generally recommended
- Horror stories of kids seeing ENT with sticks sticking out of their ear



- **Pediatric Video Laryngoscope for Visualization**

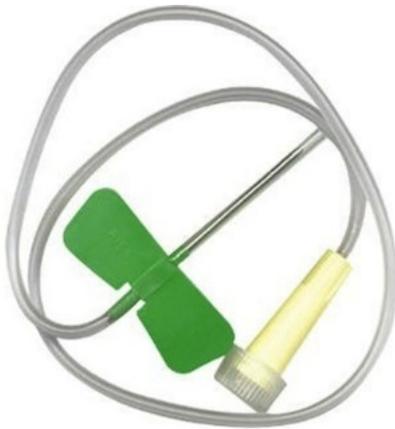
- Describes technique to visualize an ear FB with forces removal





- **Modified Butterfly Needle**

- Describes a technique to create a mini-suction catheter
 - Cut off the back end of a butterfly needle, leaving about a 2-4 cm tail off of the white plastic hub.
 - Tightly wedge the hub into a suction hose.
 - Turn on the suction.





- [Video](#)

• **Evaluation**

- [AIR Grade:](#)

Tier 1: BEEM Rater Scale	Score-choose only 1	Tier 2: Content accuracy	Score-choose only 1	Tier 3: Educational Utility	Score-choose only 1	Tier 4: EBM	Score-choose only 1	Tier 5: Referenced	Score-choose only 1
Assuming that the results of this article are valid, how much does this article impact on EM clinical practice?		Do you have any concerns about the accuracy of the data presented or conclusions of this article?		Are there useful educational pearls in this article for residents?		Is this article reflect evidence based medicine (EBM) and thus lack bias?		Are the authors and literature clearly cited?	
Useless information	<input type="radio"/>	Yes, many concerns from many inaccuracies	<input type="radio"/>	Low value: No valuable pearls	<input type="radio"/>	Not EBM based, only expert opinion (and thus more biased)	<input checked="" type="radio"/>	No	<input checked="" type="radio"/>
Not really interesting, not really new, changes nothing	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
Interesting and new, but doesn't change practice	<input type="radio"/>	Yes, a major concern about few inaccuracies	<input type="radio"/>	Yes, but there are only a few (1-2) valuable or multiple (>=3) less-valuable educational pearls	<input type="radio"/>	Minimally EBM based	<input type="radio"/>		<input type="radio"/>
Interesting and new, has the potential to change practice	<input checked="" type="radio"/>		<input type="radio"/>		<input checked="" type="radio"/>		<input type="radio"/>		<input type="radio"/>
New and important: this would probably change practice for some EPs	<input type="radio"/>	Minimal concerns over minor inaccuracies	<input checked="" type="radio"/>	Yes, there are several (>=3) valuable educational pearls, or a few (1-2) KEY educational pearls that every resident should know before graduating	<input type="radio"/>	Mostly EBM based	<input type="radio"/>		<input type="radio"/>
New and Important: this would change practice for most EPs	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>		<input type="radio"/>
This is a "must know" for EPs	<input type="radio"/>	No concerns over inaccuracies	<input type="radio"/>	Yes, there are multiple KEY educational pearls that residents should know before graduating	<input type="radio"/>	Yes exclusively EBM based (unbiased)	<input type="radio"/>	Yes	<input type="radio"/>
Your Score	4		5		4		1		1

Edited by Joe Walter