

50-in-50

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Disclosure

- No planner, presenter, faculty, author, or content expert has identified a conflict of interest nor has a relationship with an ineligible company that would affect this educational activity.
- No commercial interest has provided financial or in-kind support for this educational activity.
- TravCon does not endorse any commercial products discussed or displayed in conjunction with this educational activity.

Conflicts

- Nothing.
- Nobody pays me...

What I Do...



Like my voice? Monique's is better...

- ...and don't ask me where Monique is...she's in Israel...
- iTunes, Google, Spotify – NursEM
- www.nurseem.org



Prepare for the . . . expected!

45%

BUT...

Fluid Bolus
Wasn't the
Answer...

Beta-Blockers and Anaphylaxis

Try Glucagon...?

Magnesium in COPD?

Now a
Recommendation

Long used in Asthma...

Beneficial for COPD too (maybe moreso...)

Magnesium sulfate for acute exacerbations of chronic obstructive pulmonary disease.

Ni H, Aye SZ, Naing C

Cochrane Database Syst Rev. 2022;5:CD013506. Epub 2022 May 26.

Canadian Syncope Risk Score

Predisposition to vasovagal symptoms Triggered by being in a warm crowded place, prolonged standing, fear, emotion, or pain	No 0	Yes -1
Heart disease history CAD, atrial fibrillation or flutter, CHF, valvular disease	No 0	Yes +1
sBP <90 or >180 mmHg On any reading	No 0	Yes +2
Elevated troponin >99th percentile of normal population	No 0	Yes +2
Abnormal QRS axis <-30° or >100°	No 0	Yes +1
QRS duration >130 ms	No 0	Yes +1
Corrected QT interval >480 ms	No 0	Yes +2
ED diagnosis Based on ED evaluation	Vasovagal syncope -2	Cardiac syncope +2
	Neither 0	
2 points Canadian Syncope Risk Score		Medium risk 5.1% risk of 30-day serious adverse event (death, arrhythmia, MI — full list in Evidence)
Copy Results		Next Steps >>>

International Validation of the Canadian Syncope Risk Score : A Cohort Study.

Zimmermann T, du Fay de Lavallaz J, Nestelberger T, Gualandro DM, Lopez-Ayala P, Badertscher P, Widmer V, Shrestha S, Strebel I, Glarner N, Diebold M, MiróÒ, Christ M, Cullen L, Than M, Martin-Sanchez FJ, Di Somma S, Peacock WF, Keller DI, Bilici M, Costabel JP, Kühne M, Breidhardt T, Thiruganasambandamoorthy V, Mueller C, BASEL IX Investigatorst, Belkin M, Leu K, Lohrmann J, Boeddinghaus J, Twerenbold R, Koechlin L, Walter JE, Amrein M, Wussler D, Freese M, Puelacher C, Kaweckı D, Morawiec B, Salgado E, Martinez-Nadal G, Inostroza CIF, Mandrión JB, Poepping I, Rentsch K, von Eckardstein A, Buser A, Greenslade J, Reichlin T, Bürgler F

Ann Intern Med. 2022;175(6):783. Epub 2022 Apr 26.

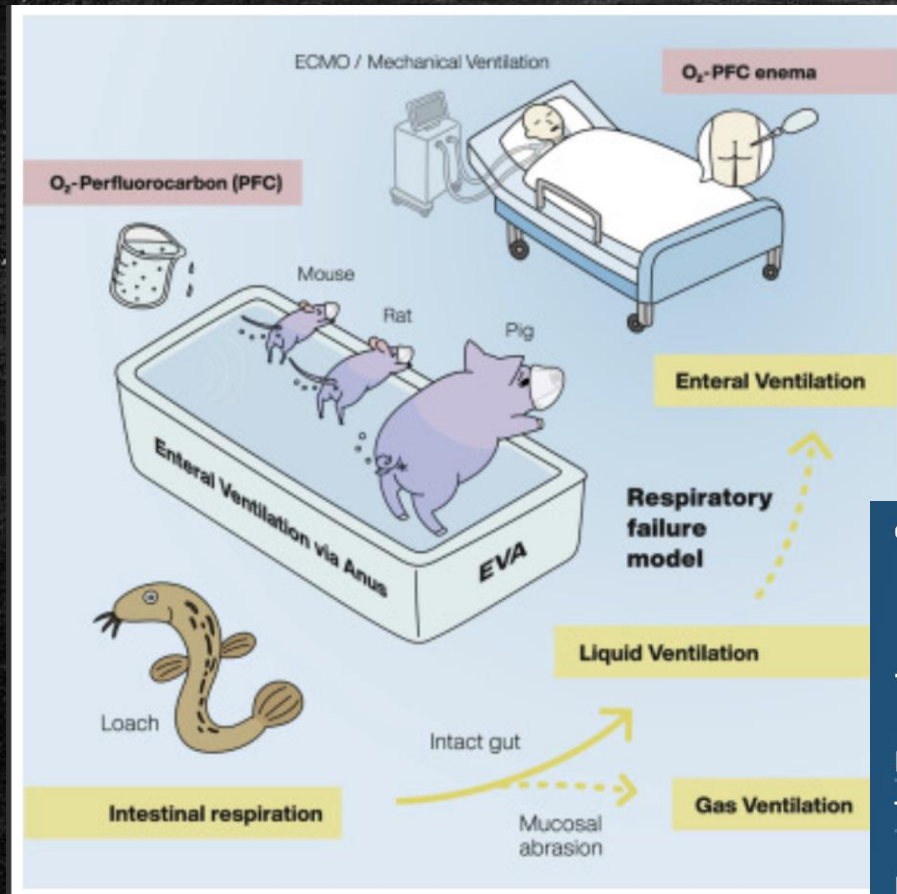
GOLD Recommendations



- COPD exacerbation is an event characterized by dyspnea and/or cough and sputum that worsens over ≤ 14 days with possible tachypnea and/or tachycardia caused by airway infection, pollution, or other insult to the airways.

- **Single-agent long-acting bronchodilator** therapy for less severe symptoms and low exacerbation risk (Group A).
- **Dual long-acting bronchodilator** therapy for more severe symptoms and low exacerbation risk (Group B).
- **Dual long-acting bronchodilator therapy for high exacerbation risk, regardless of symptoms** (Group E, replacing previous Groups C and D categories).

Well son, back in my day... I intubated the trachea!



CLINICAL AND TRANSLATIONAL RESOURCE AND TECHNOLOGY INSIGHTS | VOLUME 2, ISSUE 6, P773-783.E5, JUNE 11, 2021

Mammalian enteral ventilation ameliorates respiratory failure

Ryo Okabe • Toyofumi F. Chen-Yoshikawa • Yosuke Yoneyama • ... Eiji Kobayashi • Hiroshi Date •
Takanori Takebe ¹⁰ • Show all authors • Show footnotes

Published: May 14, 2021 • DOI: <https://doi.org/10.1016/j.medj.2021.04.004> • Check for updates

Steroids in Severe CAP

In ICU-Admitted CAP,
steroids reduced 28-
day mortality by 5.6%

TXA – How Much?

1 gram

2 grams

TXA

And just push it already...

Get Over It!

In a meta-analysis of 222 trials in adults (most in the elective surgery setting), Macintosh-style, hyperangulated, and channelled VLs all:

- reduced the rate of failed intubation,
- increased first-pass attempt success,
- improved the glottic view, and
- reduced peri-intubation hypoxia

...When compared with a direct laryngoscope (DL)

Videolaryngoscopy versus direct laryngoscopy for adults undergoing tracheal intubation.

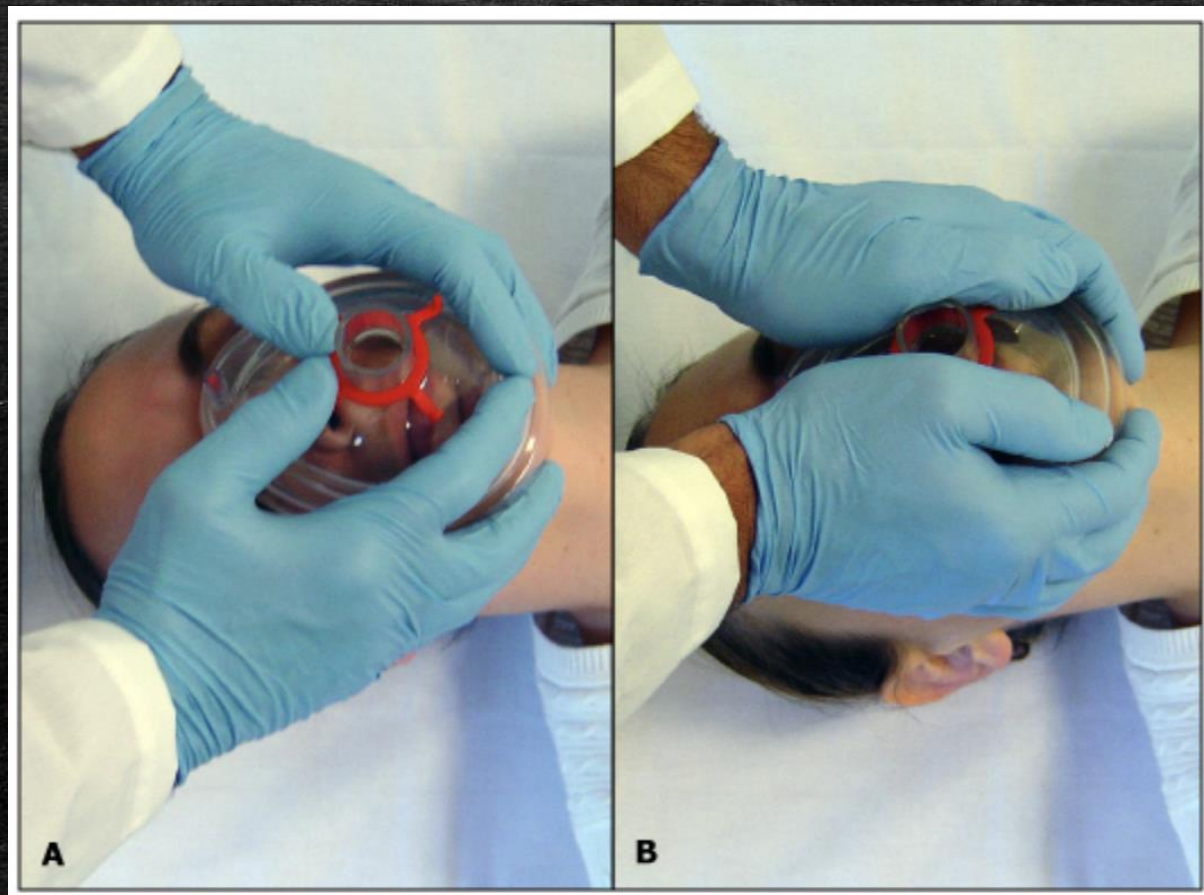
Hansel J, Rogers AM, Lewis SR, Cook TM, Smith AF

Cochrane Database Syst Rev. 2022;4(4):CD011136. Epub 2022 Apr 4.

Lazarus Syndrome

What...Is...Happening...?

Find a friend...

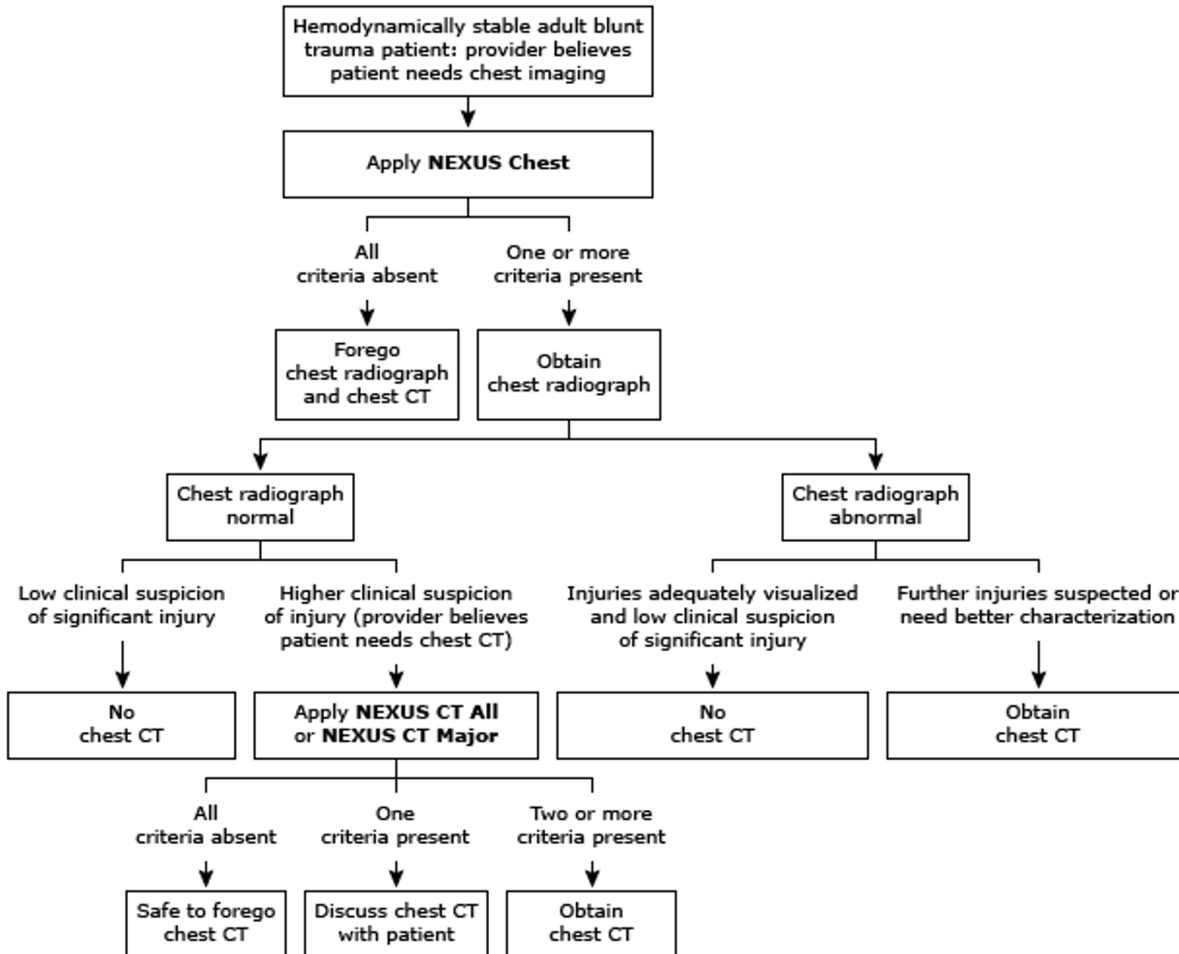


Hey CPR coach, put me in...



Nexus Chest Rule

No need to x-ray and CT everyone's chest!



NEXUS Chest:

1. age >60;
2. rapid deceleration mechanism (fall >6 meters [20 feet] or motorized vehicle accident >65 km [40 miles] per hour);
3. chest pain;
4. intoxication;
5. distracting injury;
6. tenderness to chest wall palpation; and
7. abnormal alertness/mental status.

NEXUS CT Major:

1. distracting injury;
2. chest wall tenderness;
3. sternal tenderness;
4. thoracic spine tenderness; and
5. scapular tenderness.

NEXUS CT All:

1. CT Major criteria plus rapid deceleration mechanism.

Calcium Matters!

It gets low and we should care more...

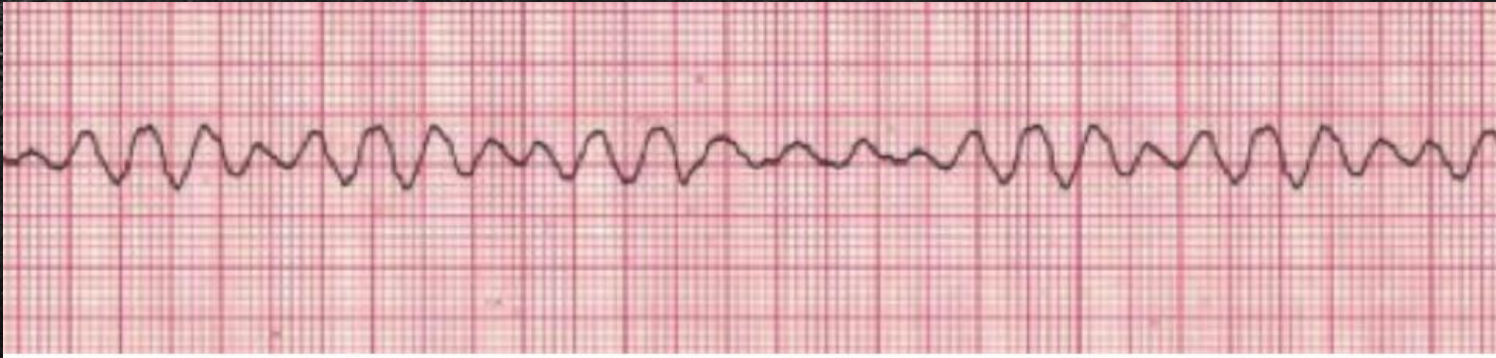
Hypocalcemia in trauma patients: A systematic review

Vasudeva, Mayank MBBS; Mathew, Joseph K. MBBS, FACEM; Groombridge, Christopher MBBS, FACEM; Tee, Jin W. MD, FRACS; Johnny, Cecil S. MBBS, FACEM; Maini, Amit MBBS, FACEM; Fitzgerald, Mark C. MD, FACEM

[Author Information](#) 

Journal of Trauma and Acute Care Surgery 90(2):p 396-402, February 2021. | DOI: 10.1097/TA.0000000000003027 

ECMO in Refractory Arrest



Advanced reperfusion strategies for patients with out-of-hospital cardiac arrest and refractory ventricular fibrillation (ARREST): a phase 2, single centre, open-label, randomised controlled trial

D Yannopoulos et al. The Lancet 2020; [https://doi.org/10.1016/S0140-6736\(20\)32338-2](https://doi.org/10.1016/S0140-6736(20)32338-2)

Nebulizer vs MDI



SpO₂ vs ETCO₂



Packing Peri-Anal/Peri-Rectal Abscess

442 Patients

Packing Pain Score 38

No Packing Pain Score 28

No Change in Fistulas/Infection

Postoperative Packing of Perianal Abscess Cavities (PPAC2): randomized clinical trial.

Newton K, Dumville J, Briggs M, Law J, Martin J, Pearce L, Kirwan C, Pinkney T, Needham A, Jackson R, Winn S, McCulloch H, Hill J, PPAC2 Collaborators

Br J Surg. 2022;109(10):951.

RSV Isn't A Kid's Disease Anymore...

Efficacy and Safety of a Bivalent RSV Prefusion F Vaccine in Older Adults.

Walsh EE, Pérez Marc G, Zareba AM, Falsey AR, Jiang Q, Patton M, Polack FP, Llapur C, Doreski PA, Ilangovan K, Rämets M, Fukushima Y, Hussen N, Bont LJ, Cardona J, DeHaan E, Castillo Villa G, Ingilizova M, Eiras D, Mikati T, Shah RN, Schneider K, Cooper D, Koury K, Lino MM, Anderson AS, Jansen KU, Swanson KA, Gurtman A, Gruber WC, Schmoele-Thoma B, RENOIR Clinical Trial Group

N Engl J Med. 2023;388(16):1465. Epub 2023 Apr 5.

82% and 67%

Respiratory Syncytial Virus Prefusion F Protein Vaccine in Older Adults.

Papi A, Ison MG, Langley JM, Lee DG, Leroux-Roels I, Martinon-Torres F, Schwarz TF, van Zyl-Smit RN, Campora L, Dezutter N, de Schrevel N, Fissette L, David MP, Van der Wielen M, Kostanyan L, Hulstrøm V, AReSVi-006 Study Group

N Engl J Med. 2023;388(7):595.

What would a year be without Sepsis?

Liberal Group

- 1-3L of crystalloid
- More Fluid:
 - MAP < 65 or SBP < 90 mmHg
 - Lactate > 4 mmol/L and increasing
 - UOP < 30mls/hr
 - HR > 110 bpm (sinus)
 - Requirement for vasopressors

Restrictive Group

- 1-3L of crystalloid
- More Fluid:
 - SBP < 70, MAP < 50 mmHg
 - SBP < 90 or MAP < 65 on Norepinephrine > 20 mcg min or equivalent
 - Lactate > 4 mmol/L and increasing after 2 hours
 - Sinus HR > 130 for 15 mins
 - Evidence of extreme hypovolemia
 - Felt to be in best interests team

What would a year be without Sepsis?

A restrictive fluid strategy (with earlier vasopressor use) did not result in significantly lower (or higher) mortality before discharge home by day 90 than a liberal fluid strategy

BRUE? ALTE?

- Age >60 days
- If premature, was born at gestational age ≥ 32 weeks and current postconceptional age is ≥ 45 weeks
- Only one BRUE
- Duration <1 minute
- No CPR by trained provider
- No concerning history
- No concerning physical exam

BRUE? ALTE?

Management recommendations for lower-risk patients

Should

- Educate caregivers about BRUEs and engage in shared decision-making to guide evaluation, disposition, and follow-up
- Offer resources for CPR training to caregiver

May

- Obtain pertussis testing and 12-lead ECG
- Briefly monitor patients with continuous pulse oximetry and serial observations

Need not

- Obtain viral respiratory test, urinalysis, blood glucose, serum bicarbonate, serum lactic acid, or neuroimaging
- Admit the patient to the hospital solely for cardiorespiratory monitoring

Should not

- Obtain WBC count, blood culture, or CSF analysis or culture, serum sodium, potassium, chloride, blood urea nitrogen, creatinine, calcium, ammonia, blood gases, urine organic acids, plasma amino acids or acylcarnitines, chest radiograph, echocardiogram, EEG, studies for GER or laboratory evaluation for anemia
- Initiate home cardiorespiratory monitoring
- Prescribe acid suppression therapy or anti-epileptic medications

PECARN your way to Head CT

Computed tomography (CT) scans are not necessary in the immediate evaluation of minor head injuries; clinical observation/Pediatric Emergency Care Applied Research Network (PECARN) criteria should be used to determine whether imaging is indicated.

Glasgow Coma Scale

A scoring system used to describe the level of consciousness following a traumatic brain injury

Say No to Urine Cultures...

Don't obtain a urine culture unless there are clear signs and symptoms that localize to the urinary tract.

Stone ND, Ashraf MS, Calder J, Crnich CJ, Crossley K, Drinka PJ, Gould CV, Juthani-Mehta M, Lautenbach E, Loeb M, MacCannell T, Malani TN, Mody L, Mylotte JM, Nicolle LE, Roghmann MC, Schweon SJ, Simor AE, Smith PW, Stevenson KB, Bradley SF. Surveillance definitions of infections in long-term care facilities: revisiting the McGeer Criteria. *Infect Control Hosp Epidemiol*. 2012; 33(10):965-77.

Drinka P. Treatment of bacteriuria without urinary signs, symptoms, or systemic infectious illness (S/S/S). *J Am Med Dir Assoc*. 2009 Oct;10(8):516-9.

Arinzon Z, Peisakh A, Shuval I, Shabat S, Berner YN. Detection of urinary tract infection (UTI) in long-term care setting: is the multireagent strip an adequate diagnostic tool? *Arch Gerontol Geriatr*. 2009 Mar-Apr;48(2):227-31.

High KP, Bradley SF, Gravenstein S, Mehr DR, Quagliarello VJ, Richards C, Yoshikawa TT. Clinical practice guideline for the evaluation of fever and infection in older adult residents of long-term care facilities: 2008 update by the Infectious Diseases Society of America. *J Am Geriatr Soc*. 2009 Mar;57(3):375-94.

Zabarsky TF, Sethi AK, Donskey CJ. Sustained reduction in inappropriate treatment of asymptomatic bacteriuria in a long-term care facility through an educational intervention. *Am J Infect Control*. 2008 Sep;36(7):476-80.

Richards CL Jr. Infection control in long-term care facilities. *J Am Med Dir Assoc*. 2007 Mar;8(3 Suppl):S18-25.

Ducharme J, Neilson S, Ginn JL. Can urine cultures and reagent test strips be used to diagnose urinary tract infection in elderly emergency department patients without focal urinary symptoms? *CJEM*. 2007 Mar;9(2):87-92.

Loeb M, Brazil K, Lohfeld L, McGeer A, Simor A, Stevenson K, Zoutman D, Smith S, Liu X, Walter SD. Effect of a multifaceted intervention on number of antimicrobial prescriptions for suspected urinary tract infections in residents of nursing homes: cluster randomized controlled trial. *BMJ*. 2005 Sep 24;331(7518):669.

Loeb M, Brazil K, Lohfeld L, McGeer A, Simor A, Stevenson K, Walter S, Zoutman D. Optimizing antibiotics in residents of nursing homes: protocol of a randomized trial. *BMC Health Serv Res*. 2002 Sep 3;2(1):17.

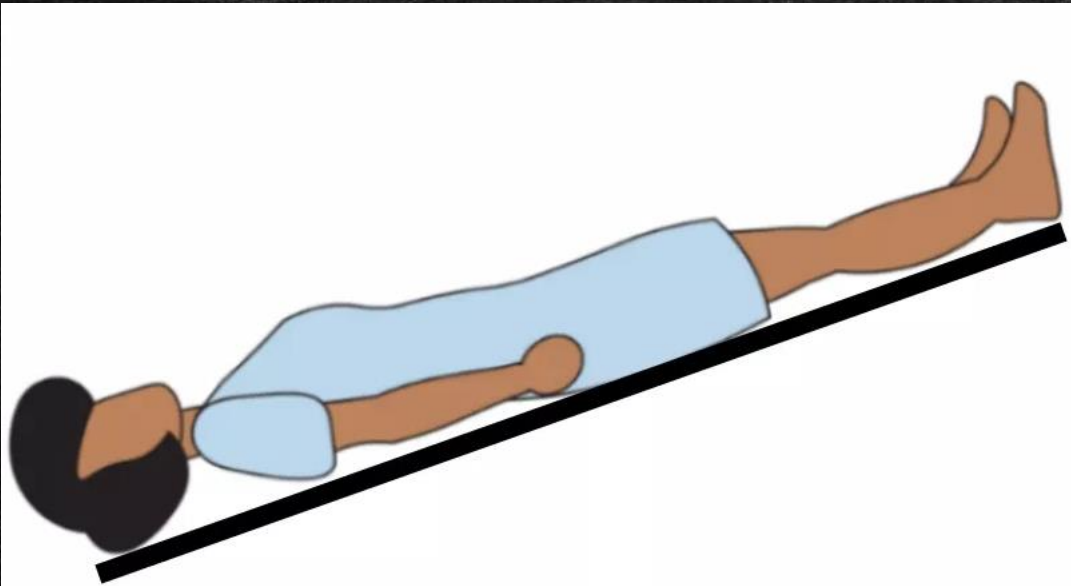
Nicolle LE. Urinary tract infection in geriatric and institutionalized patients. *Curr Opin Urol*. 2002 Jan;12(1):51-5.

Boscia JA, Kobasa WD, Abrutyn E, Levison ME, Kaplan AM, Kaye D. Lack of association between bacteriuria and symptoms in the elderly. *Am J Med*. 1986 Dec;81(6):979-82.

Nicolle LE, Bentley D, Garibaldi R, Neuhaus E, Smith P. SHEA Long-Term-Care Committee. Antimicrobial use in long-term-care facilities. *Infect Control Hosp Epidemiol*. 1996;17:119-28.

High KP, Bradley SF, Gravenstein S, Mehr DR, Quagliarello VJ, Richards C, Yoshikawa TT. Clinical practice guideline for the evaluation of fever and infection in older adult residents of long-term care facilities: 2008 update by the Infectious Diseases Society of America. *Clin Infect Dis* 2009; 48: 149-71.

Trendelen-don't




Trendelenburg

Shammas, A. & Clark, A. (2007). Legal and Ethical: Trendelenburg positioning to treat acute hypotension: Helpful or harmful? *Clinical Nurse Specialist: The Journal for Advanced Nursing Practice*, 21(4), 181-187.

Anaphylaxis is undertreated!

Think **F.A.S.T...**



Face
Hives, itching, redness,
swelling of face, lips or tongue

Airway
Trouble breathing, swallowing or speaking,
nasal congestion, sneezing

Stomach
Stomach pain, vomiting, diarrhea

Total Body
Hives, itching, swelling, weakness,
dizziness, sense of doom,
loss of consciousness

then **ACT...**

Give Epinephrine

- Give epinephrine (e.g. EpiPen®, ALLERJECT®, Emerade™) at the first sign of a reaction.
- The first signs may be mild, but symptoms can get worse quickly.
- Repeat as early as 5 minutes if symptoms do not improve.

Call 9-1-1

- Have person transported to hospital, even if symptoms are mild or have stopped.

Just give it a try...

Oxycodone – 4.6

Oxycodone + Tylenol – 2.7

Naproxen – 2.7

Ibuprofen + Tylenol – 1.6

IV is Best! ...again...



Endovascular Stroke Treatment?

- Amongst patients in Japan with an acute stroke and large ischaemic region functional outcomes at 90 days were better with endovascular therapy and medical care compared to medical care alone
- Endovascular therapy was associated with a higher incidence of intracranial haemorrhage

Calcium in Arrest?

- In patients with out-of-hospital cardiac arrest, does the administration of calcium compared with placebo, improve sustained return of spontaneous circulation?
- No...and...may cause harm...

Please Ketamine Correctly...

Ketamine Dose Ranges IV/IO

Procedural Sedation 1.0-3.0mg/kg

Party (Partial Dissociation) 0.3-0.8mg/kg (Undesired without sedation)

Dose range overlap

Pain Dose 0.1-0.5mg/kg

Do you know what a D-Dimer is?

Think LOW Pre-Test Probability!

Just don't be a sixteen-er

~~16~~



Mildly High ETCO₂ Post-Cardiac Arrest?

No.

Mild Hypercapnia or Normocapnia after Out-of-Hospital Cardiac Arrest.

Eastwood G, Nichol AD, Hodgson C, Parke RL, McGuinness S, Nielsen N, Bernard S, Skrifvars MB, Stub D, Taccone FS, Archer J, Kutsogiannis D, Dankiewicz J, Lilja G, Cronberg T, Kirkegaard H, Capellier G, Landoni G, Horn J, Olasveengen T, Arabi Y, Chia YW, Markota A, Hænggi M, Wise MP, Grejs AM, Christensen S, Munk-Andersen H, Granfeldt A, Andersen GØ, Qvigstad E, Flaa A, Thomas M, Sweet K, Bewley J, Bäcklund M, Tiainen M, Iten M, Levis A, Peck L, Walsham J, Deane A, Ghosh A, Annoni F, Chen Y, Knight D, Lesona E, Tlayjeh H, Svenšek F, McGuigan PJ, Cole J, Pogson D, Hilty MP, Düring JP, Bailey MJ, Paul E, Ady B, Ainscough K, Hunt A, Monahan S, Trapani T, Fahey C, Bellomo R, TAME Study Investigators

N Engl J Med. 2023;389(1):45. Epub 2023 Jun 15.

Could You Just Avoid the Speedbumps?



Pain over speed bumps in diagnosis of acute appendicitis: diagnostic accuracy study

BMJ 2012 ; 345 doi: <https://doi.org/10.1136/bmj.e8012> (Published 17 December 2012)

Cite this as: *BMJ* 2012;345:e8012

It's not you...it's them...

40%



Here's a mushroom...



Effects of Psilocybin-Assisted Therapy on Major Depressive Disorder: A Randomized Clinical Trial.
Davis AK, Barrett FS, May DG, Cosimano MP, Sepeda ND, Johnson MW, Finan PH, Griffiths RR
JAMA Psychiatry. 2021;78(5):481.

Trial of Psilocybin versus Escitalopram for Depression.

Carhart-Harris R, Giribaldi B, Watts R, Baker-Jones M, Murphy-Beiner A, Murphy R, Martell J, Blemings A, Erritzoe D, Nutt DJ
N Engl J Med. 2021;384(15):1402.

...with a Ketamine chaser...



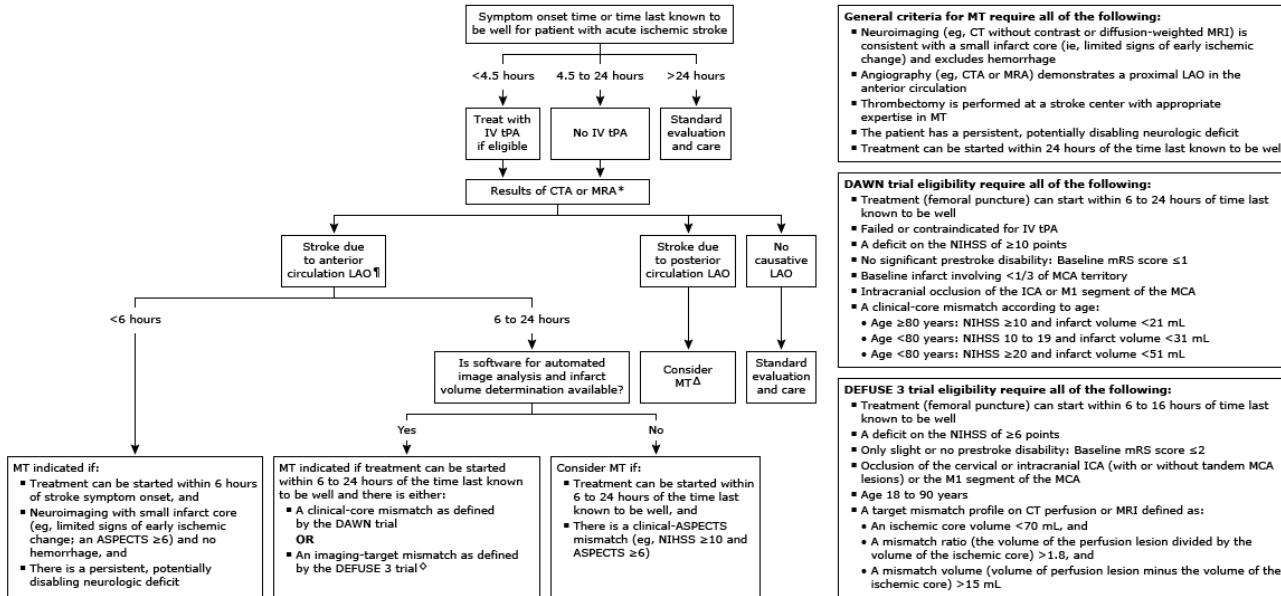
Short-Term

Long-Term



TPA-Only for Stroke?

Indications for mechanical thrombectomy to treat patients with acute ischemic stroke



TPA - <4.5hrs
MT – Up to 24hrs+

IV: intravenous; tPA: tissue plasminogen activator; CTA: computed tomography angiography; MRA: magnetic resonance angiography; LAO: large artery occlusion; MT: mechanical thrombectomy; ASPECTS: Alberta Stroke Program Early CT Score; NIHSS: National Institutes of Health Stroke Scale; CT: computed tomography; MRI: magnetic resonance imaging; mRS: modified Rankin Scale; MCA: middle cerebral artery; ICA: internal carotid artery.

* Usually assessed with MRA or CTA, less often with digital subtraction angiography.

† There is intracranial arterial occlusion of the distal ICA, middle cerebral (M1/M2), or anterior cerebral (A1/A2) artery by CTA, MRA, or digital subtraction angiography.

Δ MT may be a treatment option for patients with acute ischemic stroke caused by occlusion of the basilar artery, vertebral arteries, or posterior cerebral arteries at expert stroke centers, but benefit is uncertain.

\diamond Based upon data from the Aurora study^[1].

Reference:

1. Albers GW, Lansberg MG, Brown S, et al. Assessment of Optimal Patient Selection for Endovascular Thrombectomy Beyond 6 Hours After Symptom Onset: A Pooled Analysis of the AURORA Database. *JAMA Neurol* 2021; 78:1064.

Just walk it off...

Use of opioids in acute low back pain was no more effective than placebo...

...but had a higher one-year post addictions rate of 20% (vs 10% in placebo group)...

Opioid analgesia for acute low back pain and neck pain (the OPAL trial): a randomised placebo-controlled trial.

Jones CMP, Day RO, Koes BW, Latimer J, Maher CG, McLachlan AJ, Billot L, Shan S, Lin CC, OPAL Investigators Coordinators

Lancet. 2023;402(10398):304. Epub 2023 Jun 28.

The Pain-Free ED...

Painfree-ed.com



Who makes this up?

2 Seconds

- Baraff, Larry J. Capillary refill: Is it a useful clinical sign? *Pediatrics*, Vol 92, No. 5, November 1993.
- Crook, Jodie; Taylor, Rachel M. The agreement of fingertip and sternum capillary refill time in children. *Archives of disease in childhood*. 2013, 98:265-268.

Education Is Up to You...

litfl.com

bcemergencynetwork.ca

emcrit.org

emergencymedicinecases.com

pedscases.com

ena.org

Infant & Child CPR – Ventilate More

1 every 2-3 seconds
(with advanced airway)

...still 15:2 with no airway...

SOFA, qSOFA or SIRS?

SIRS is useful as a triage tool to identify potentially septic patients but once identified qSOFA should be used to assess severity and need for critical care involvement.

Postural Vital Signs



Article: White JL et al. Orthostatic vital signs do not predict 30-day serious outcomes in older emergency department patients with syncope: A multicenter observational study. *Am J Emerg Med* 2019. PMID: 30928476

Hic-Up!

Case Reports > J Intern Med. 1990 Feb;227(2):145-6.

doi: 10.1111/j.1365-2796.1990.tb00134.x.

Termination of intractable hiccups with digital rectal massage

M Odeh ¹, H Bassan, A Oliven

Affiliations + expand

PMID: 2299306 DOI: 10.1111/j.1365-2796.1990.tb00134.x

We gotta mention ASA...right?

3X

Comparative Study > Am Heart J. 2001 Feb;141(2):200-5. doi: 10.1067/mhj.2001.112681.

Characterization and clinical course of patients not receiving aspirin for acute myocardial infarction: results from the MITRA and MIR studies

B Frilling ¹, R Schiele, A K Gitt, R Zahn, S Schneider, H G Glunz, U Gieseler, B Baumgärtel, F Asbeck, J Senges, Maximum Individual Therapy in Acute Myocardial Infarction (MITRA); Myocardial Infarction Registry (MIR) Study Groups

Affiliations + expand

PMID: 11174332 DOI: 10.1067/mhj.2001.112681

Agitated Delerium

Ketamine 5mg/kg
(yup...like 500mg)

Thank you!

