

• 360

Dr. Yogi Sehgal • FREDERICTON • NB

UNUSUAL PAPERS THAT MIGHT CHANGE YOUR PRACTICE — ER EDITION

This is an interactive evidence-based review of several recent papers covering more practical unusual interventions that you might be able to use in your Emergency Department. We will focus on simple interventions and the bottom line, although we will have some fun and learn a bit of evidence-based medicine in the process.

At the conclusion of this session, learners will be hopefully have

1. Learned about newer unusual interventions that can be applied in practice in the Emergency Department
2. Been inspired with curiosity and wonder
3. Learned to go beyond the next drug that has a number needed to treat of 1000 to some meaningless outcome measure.
5. Learned to translate some research into practice

Name a song everyone should consider downloading (and artist name)

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More unusual papers that
might change your practice:
Rural ER Edition 2018

Yogi Sehgal MD CCFP FSRPC
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Conflicts of Interest

No one usually
pays me to do
this
I am interested
in conflict but
have no conflicts
of interest



*"I'm afraid I can't treat you, Mr. Fisk.
I have a conflict of interest."*

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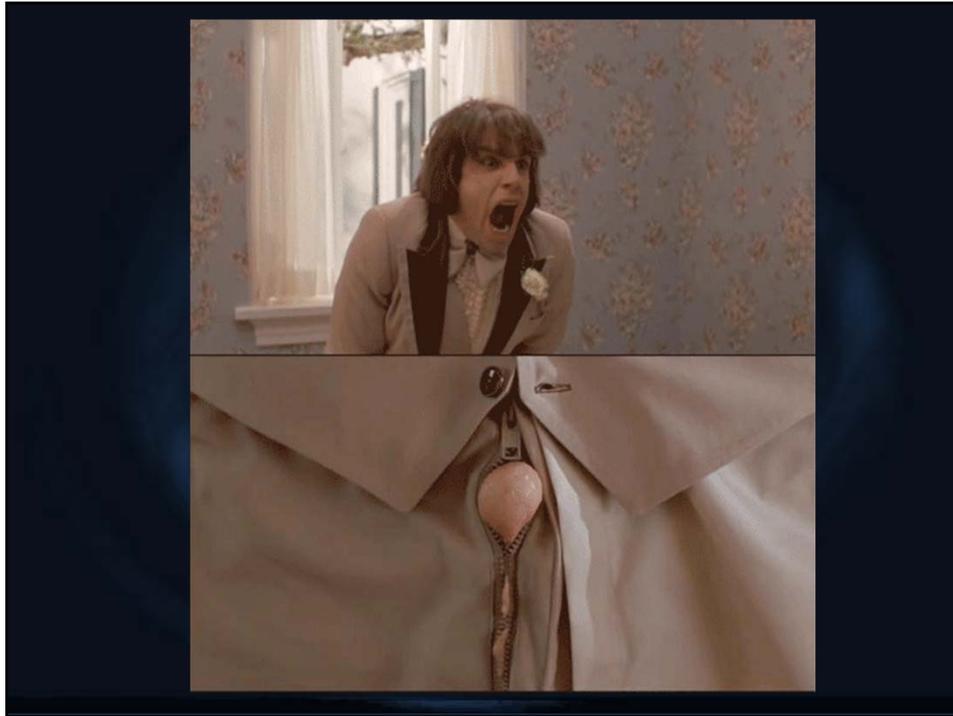


Objectives

- G Will review several papers that actually have some potential relevance to YOUR practice
- G Interactive (PollEverywhere)
- G Bottom line
- G Hopefully will inspire some curiosity and wonder

Franken Beans

- G Franken is a 16 year old boy who was in a rush after peeing and presents to the ER in a significant amount of pain



How do you release "it"?

- A) Cutting median bar
- B) Rotating screwdriver to pry apart
- C) Mineral oil and manipulation
- D) Lateral compression of zipper w/pliers
- E) Cutting zipper, pulling teeth apart

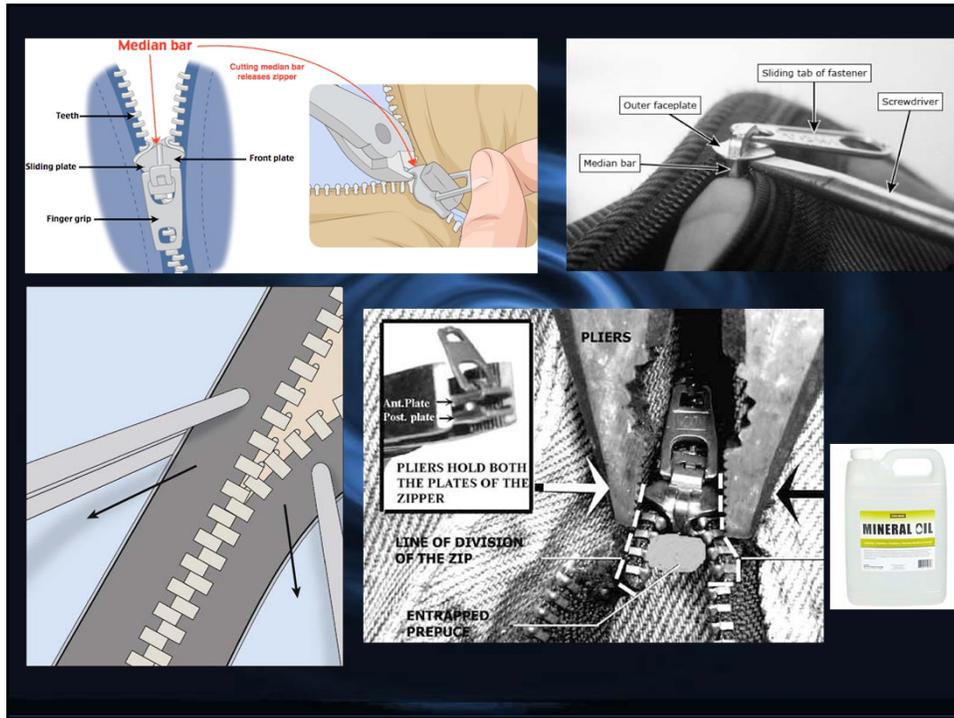
How do release the franks and beans?

- Cut the median bar
- Insert and rotate a screwdriver
- Lube with mineral oil and manipulate
- Compress laterally with pliers
- Cut zipper and pull it apart

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Franken Beans

- G Oquist, M et al, Comparative analysis of five methods of emergency zipper release by experienced versus novice clinicians, American Journal of Emergency Medicine, 2017-05-01, Volume 35, Issue 5, Pages 783-784
- G 12 EM faculty and 18 med students
- G Chicken skin simulation with zipper entrapping skin
- G Trial of 5 commonly attempted techniques
- G Measured time to release (max 5 min), success rate, skin damage, clinician preference



Results

Table 1
Success rates and procedure times for novice and experienced clinicians.

Technique	Success rate		Procedure times Sec ± SD (N = 30)
	Novice (N = 18)	Experienced (N = 12)	
Cutting median bar	53%	57%	126.0 ± 110.0
Rotating screwdriver	35%	29%	131.6 ± 90.5
Mineral oil	94%	100%	53.9 ± 25.6
Lateral compression	24%	14%	137.1 ± 96.9
Cutting zipper, pulling teeth apart	77%	86%	136.7 ± 71.2

Results

Table 2

Skin damage and preferred techniques of novice and experienced clinicians.

Technique	Skin damage		Preferred technique	
	Novice (N = 18)	Experienced (N = 12)	Novice (N = 18)	Experienced (N = 12)
Cutting median bar	77%	43%	6%	14%
Rotating screwdriver	35%	71%	6%	0%
Mineral oil	24%	14%	41%	57%
Lateral compression	71%	71%	0%	0%
Cutting zipper, pulling teeth apart	18%	0%	47%	29%

Caveats

- G Artificial single centre study
- G Not patient-oriented (i.e. pain?)
- G Type of entrapment? (Frank vs Beans)
- G ++ Force required for median bar cutting, lateral compression and screwdriver techniques
- G Once mineral oil/lubricant on, will be slippery so other techniques will be harder

Bottom Line

- G Mineral oil manipulation and cutting zipper/pulling teeth apart are likely the preferred methods of releasing zipper entrapment
- G Case report of lateral compression being painless and no anesthetic required
- G Use what you feel comfortable using

How do you release "it"?

- A) Cutting median bar
- B) Rotating screwdriver to pry apart
- C) Mineral oil and manipulation
- D) Lateral compression of zipper w/pliers
- E) Cutting zipper, pulling teeth apart

How do you release "it"?

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Hart Fellier

- G Hart is a 60 year old with known CHF from ischemic cardiomyopathy, usually stable, who comes in short of breath with an acute exacerbation
- G You decide to administer IV furosemide

When should furosemide be given to improve mortality?

- A) < 60 minutes of arrival
- B) Delay it >60 min to do other important interventions first
- C) It doesn't matter
- D) Don't give furosemide, it kills people

When should furosemide be given to improve mortality?

- A) <60 min of arrival
- B) Delay >60 min to do other important interventions first
- C) It doesn't matter
- D) Don't give furosemide, it kills people

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Hart Fellier

- Matsue, Y, et al, Time-to-Furosemide Treatment and Mortality in Patients Hospitalized With Acute Heart Failure, JACC (Journal of the American College of Cardiology), 2017-06-27, Volume 69, Issue 25, Pages 3042-3051
- 1291 Consecutive acute CHF patients multiple sites who were given furosemide within 48 hrs of arrival
- Prognostically divided into early treatment (<60min) and nonearly treatment (>60 min)
- Attempted to control for everything but can't really
- Primary outcome all-cause in-hospital mortality
- N=481 early, N=810 nonearly

Hart Fellier

G Mortality:

G Early: N=11 (2.3%)

G Nonearly: N=49 (6%) p=0.002

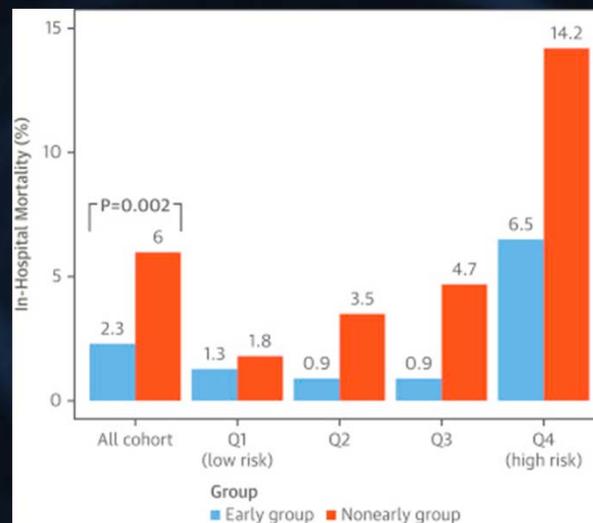
G The following did not matter:

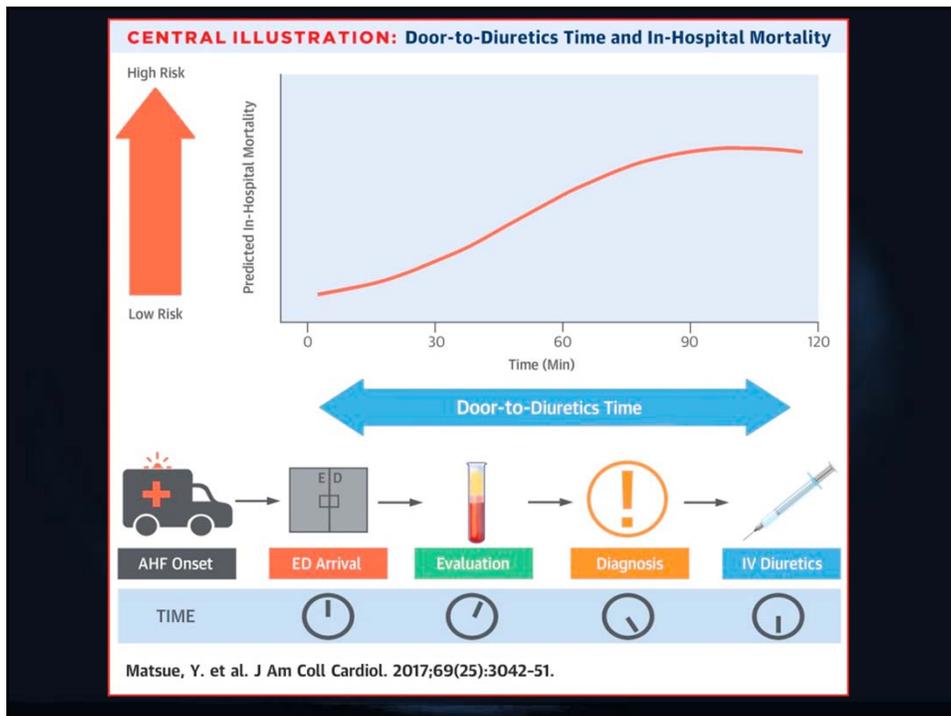
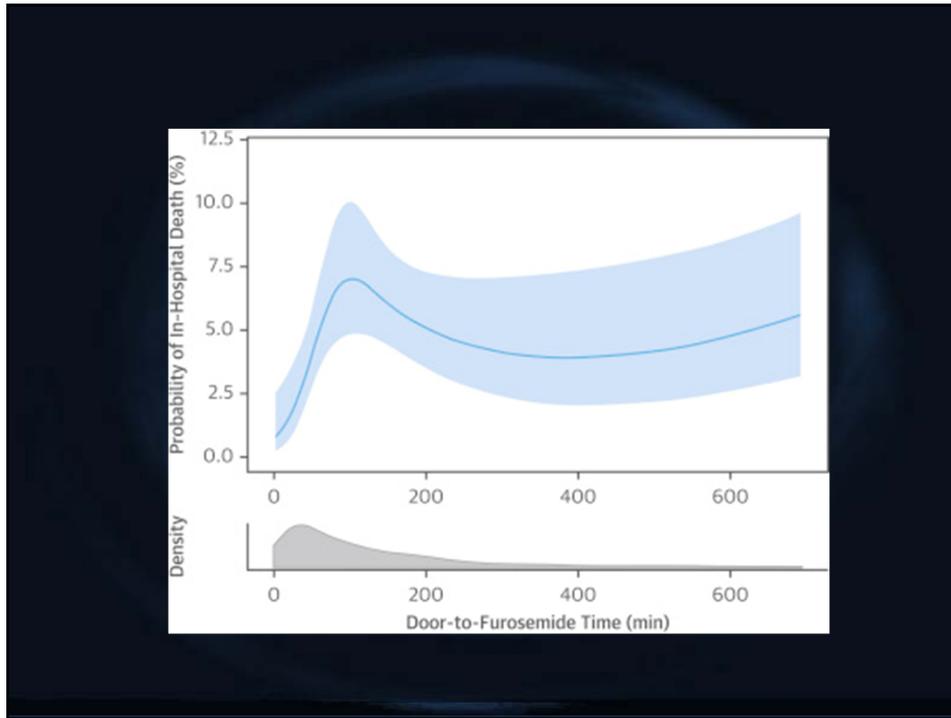
G Clinical symptoms, arrival by ambulance, sex, hx of chf

G Early group: sicker, ambulance, fewer already had diuretics

Hart Fellier

- G Excluded: transplants, acute myocarditis, ACS, dialysis
- G Everyone had a BNP and were diagnosed by specified Framingham criteria
- G 9 university, 11 non-university centres





Caveats

- Association not causation
- Where does BIPAP fit in?
- BNP drove diagnosis in many
- Early patients are probably early because they are obvious enough to be easy to diagnose—is it the delay in furosemide or the delay in diagnosis?

What is so unusual about this paper?

- G Only way to do this kind of study
- G They looked at hard important outcomes
- G Impressive difference with a time trend

Bottom Line

- Never really thought of a “door to furosemide” time, but if this is real...
- This is an association, not a causation, but it certainly will speed my door to furosemide time up
- Not quite enough to say “Call a CHF code”, but a good prospective RCT of doing that would be helpful

When should furosemide be given to improve mortality?

- A) < 60 minutes of arrival
- B) Delay it >60 min to do other important interventions first
- C) It doesn't matter
- D) Don't give furosemide, it kills people

When should furosemide be given to improve mortality?

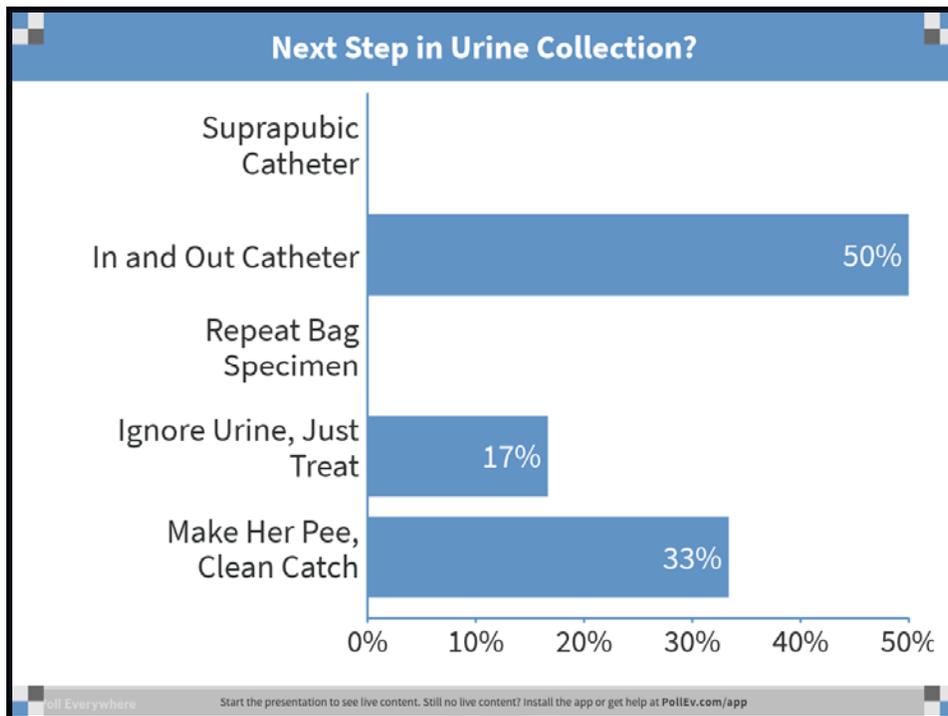
- A) < 60 minutes of arrival (the earlier the better)
- B) Delay it >60 min to do other important interventions first
- C) It doesn't matter (but it might)
- D) Don't give furosemide, it kills people

Patty Quick

- Patty is a 6 month old with a fever NYD
- Healthy, Term, uncomplicated pregnancy, IUTD
- She gives a contaminated bag urine specimen
- What's your next step?

Next Step for Urine Collection

- A) Suprapubic catheter
- B) In and out catheter
- C) Repeat bag specimen
- D) Ignore the pee, just treat
- E) Make her pee and try to clean catch



P Quick

- Kaufman, J, et al, Faster clean catch urine collection (Quick-Wee method) from infants: randomised controlled trial, BMJ 2017; 357 doi: <https://doi.org/10.1136/bmj.j1341> (Published 07 April 2017)
- N=354 aged 1-12 months needing a urine specimen as determined by md, single-blinded design
- Standard clean catch vs “Quick-Wee” method using suprapubic cold wet gauze stimulation
- Primary outcome was pee collection within 5 min
- Secondary were getting pee in jar, contamination and satisfaction

Fig 1 Quick-Wee voiding stimulation method of gentle cutaneous suprapubic stimulation using gauze soaked in cold fluid.



Saline
kept at
2.8
° C

Jonathan Kaufman et al. BMJ 2017;357:bmj.j1341

thebmj

P Quick

- G All kids got cleaned with room temperature sterile water first
- G If they peed, still put in intention to treat
- G Needed 322 pts to have 80% power for 15% improvement in rate of collection
- G Excluded 10 after the fact as they were too young or too old

Results

Table 2 | Primary and secondary outcomes

Outcomes	Quick-Wee (n=174)	% (95% CI)	Standard clean catch urine (n=170)	% (95% CI)	Difference in proportions or medians (95% CI)	P value
Primary outcome:						
Voided <5 mins	54/174	31 (24 to 39)	20/170	12 (7 to 18)	19 (11 to 28)	<0.001*
Secondary outcomes:						
Voided and successful catch	52/174	30 (23 to 37)	15/170	9 (5 to 14)	21 (13 to 29)	<0.001*
Contamination†	12/44	27 (15 to 43)	5/11	46 (17 to 77)	18 (-14 to 50)	0.29‡
Median (interquartile range) parent satisfaction§	2 (1-3)		3 (2-3)		1 (0.6 to 1.4)	<0.001¶
Median (interquartile range) clinician satisfaction§	2 (1-3)		3 (2-3)		1 (0.6 to 1.4)	<0.001¶

*χ² test.

†Small proportion of samples in each group not sent for culture by treating clinician.

‡Fisher's exact test.

§5 point Likert scale: 1=very satisfied, 2=satisfied, 3=neutral, 4=unsatisfied, 5=very unsatisfied.

¶Wilcoxon rank sum test.

NNT=5

Results

- G No change in contamination rates
- G 14% had a uti when a culture was done
- G Clinicians and parents more satisfied

Caveats

- G Did not compare to catheter specimen
- G The majority (2/3) of kids still did not get a clean catch urine
- G Was done mostly by nurses and physicians not parents, unblinded
- G What about neonates? Precontinent kids >12 mos?

Bottom Line

- G The Quick-Wee method is a simple, efficient, non-invasive way of collecting urine samples in infants
- G Increases the collection rate from around 10% to 30% in 5 minutes

Next Step for Urine Collection

- A) Suprapubic catheter
- B) In and out catheter
- C) Repeat bag specimen
- D) Ignore the pee, just treat
- E) Make her pee and try to clean catch

Next Step for Urine Collection

- A) Suprapubic catheter
- B) In and out catheter
- C) Repeat bag specimen
- D) Ignore the pee, just treat
- E) Make her pee and try to clean catch

Euron Al-Aziz

- Euron is a 6 week old presenting to the ER with fever NYD (38.5° C PR)
- Nothing to find on exam
- Urinalysis negative (catheter specimen)
 - no Leuk esterase, no nitrites on dipstick
 - 0-2 WBC per HPF on microscopy
- No other source identified yet, clinically or with any other tests

Can you confidently say this is not a UTI?

A) Yes—watch for something else

A) No—I really want that C&S

Euron Al-Aziz

- Tzimenatos, L, et al, Accuracy of the Urinalysis for Urinary Tract Infections in Febrile Infants 60 Days and Younger, Pediatrics, February 2018, VOLUME 141 / ISSUE 2
- Planned secondary analysis of prospective, cross-sectional study of febrile ($\geq 38.0^{\circ}\text{C}$) infants presenting to 26 Eds
- convenience sample N=4778
- Excluded sepsis, premature, comorbid, systemic antibiotic use
- Had to have catheter or suprapubic specimens (N=7)

Euron Al-Aziz

- Had to have urinalysis and cultures done
- Excluded bacteremia without UTI, or concurrent bacteremia and UTI or unclear bacteremia (+ Gram stain with – culture)
- Excluded bagged specimens (did not mention clean catch)
- Everyone got blood cultures

Definitions

- G Negatives defined:
 - G LE: ZERO pyuria: ≤ 5 /HPF nitrites: neg
- G UTI (main analysis):
 - G $\geq 50\,000$ CFU/mL of a known pathogen via cath
 - G ≥ 1000 CFU/mL via suprapubic
- G To be sure, secondary analysis
 - G $>10\,000$ CFU/mL via cath
- G Negative included contaminants (defined)
 - without pathogen, or 2 organisms

Euron Al-Aziz

G Of N=4147 included, 289 (7%) had UTI
 G 27 of the 289 (9%) had bacteremia

TABLE 3 Test Characteristics of Single Components and Aggregate Urinalysis for Diagnosing UTI, Stratified by Bacteremia Status

	Sensitivity (95% CI)	Specificity (95% CI)
Identification of any UTI (N = 289)		
Any LE, n = 4147	0.92 (0.89–0.95)	0.96 (0.95–0.96)
Nitrites, n = 4147	0.38 (0.33–0.44)	0.99 (0.99–1.00)
Pyuria, >5 WBCs/HPF, n = 4100	0.82 (0.77–0.86)	0.94 (0.93–0.94)
LE or nitrites, n = 4147	0.93 (0.90–0.96)	0.95 (0.95–0.96)
Aggregate urinalysis (LE or nitrites or pyuria), n = 4147	0.94 (0.91–0.97)	0.91 (0.90–0.91)
Identification of UTI with bacteremia (N = 27)		
Any LE, n = 3885	1.00 (0.87–1.00)	0.96 (0.95–0.96)
Nitrites, n = 3885	0.41 (0.22–0.61)	0.99 (0.99–1.00)
Pyuria, >5 WBCs/HPF, n = 3858	0.77 (0.55–0.92)	0.94 (0.93–0.94)
LE or nitrites, n = 3885	1.00 (0.87–1.00)	0.95 (0.95–0.96)
Aggregate urinalysis (LE or nitrites or pyuria), n = 3885	1.00 (0.87–1.00)	0.91 (0.90–0.91)
Identification of UTI without bacteremia (N = 262)		
Any LE, n = 4120	0.92 (0.88–0.95)	0.96 (0.95–0.96)
Nitrites, n = 4120	0.38 (0.32–0.44)	0.99 (0.99–1.00)
Pyuria, >5 WBCs/HPF, n = 4078	0.82 (0.77–0.87)	0.94 (0.93–0.94)
LE or nitrites, n = 4120	0.92 (0.88–0.95)	0.95 (0.95–0.96)
Aggregate urinalysis (LE or nitrites or pyuria), n = 4120	0.94 (0.90–0.96)	0.91 (0.90–0.91)

Caveats

- G Catheter specimens
- G UTI vs bacteruria
- G Still missing potentially 6%
- G Similar results in infants <29d and 29-60d old
- G Unclear how dipstick was read
 - G Left up to the individual labs, did not test for homogeneity
- G Some neg dipsticks did not get microscopy

Why did I pick this paper?

- G A patient population that makes us nervous
- G Dipsticks in adults are of questionable value
- G This may help us more confident in the precision of our differential diagnoses

Bottom Line

- A negative urinalysis (no LE, no nitrites and <5 WBC/HPF on microscopy) is pretty sensitive at ruling out bacteruria
- If you have a negative urine, look for something else as there is only a very small chance it's a UTI

Can you confidently say this is not a UTI?

- A) Yes—watch for something else
- A) No—I really want that C&S

Can you confidently say this is not a UTI?

A) Yes—watch for something else (but I still want that C&S)

B) No—I really want that C&S

Melena Barrett-Moore

- Melena is a 17 yo woman who has a finger laceration requiring finger block and sutures
- She says, “Like, at the dentist, they like had this thing and stuff, and like it totally reduced, like, my pain and stuff. Like I totally didn’t feel it and stuff. Can you do that?”

Which Song Title Might Help Her?

- A) Turn! Turn! Turn! (The Byrds)
- B) Tubular Bells (Mike Oldfield)
- C) Jacuzzi (Radio Radio)
- D) Good Vibrations (Beach Boys)
- E) Thunderstruck (ACDC)

Which Song Title Might Help Her?

- A) Turn! Turn! Turn!
(The Birds)
- B) Tubular Bells
(Mike Oldfield)
- C) Jacuzzi (Radio
Radio)
- D) Good Vibrations
(Beach Boys)
- E) Thunderstruck
(ACDC)

FIGURE 2



Use of a Dental Vibration Tool to Reduce Pain From Digital Blocks: A Randomized Controlled Trial.
 Pedersen, Craig; Miller, Michael; Xu, K; Tom MD, PhD; Carrasco, Lynn; Smith, Cynthia; Richman, Peter; MD, MBA
 Regional Anesthesia & Pain Medicine. 42(4):458-461, July/August 2017.
 DOI: 10.1097/AAP.0000000000000584

FIGURE 2. The DentalVibe is a small, handheld cordless device that has a charging docking station.



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TABLE 1

Gender	Male	17
Race	Female	8
	Non-Hispanic White	11
Affected hand	All other races	14
	Right	11
Randomization	Left	14
	Sham first	14
	Intervention first	11

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TABLE 1 Subject Demographics



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TABLE 2

	No. of Subjects
Slice	14
Crush	4
Gunshot wound	2
Mower	1
Stab	1
Amputation	1
Nontrauma/infection	1

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TABLE 2 Mechanism of Injury



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TABLE 4

Variable	Observations	Mean				
		Pain Score	95% CI	SE	SD	P
DVICS off	25	4.28	3.14–5.42	0.55	2.76	—
DVICS on	25	2.52	1.62–4.42	0.44	2.18	—
Difference	—	1.76	0.49–3.03	0.62	3.08	0.009

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TABLE 4 Intervention Pain Scores



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TABLE 5

Category	Mean Pain Score Difference	P	95% CI
Device on first	-0.425	0.753	-3.254 to 2.404
Female vs male	0.237	0.846	-2.314 to 2.787
Digit 2 vs 1	-5.88	0.067	-12.238 to 0.477
Digit 3 vs 1	-3.943	0.064	-8.155 to 0.269
Digit 4 vs 1	-3.902	0.068	-8.132 to 0.327
Digit 5 vs 1	2.458	0.352	-2.996 to 7.911
Left vs right	-2.696	0.054	-5.447 to 0.054

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TABLE 5 Multivariate Analysis by Subgroup



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8

What is so unusual about this paper?

- It is a relatively inexpensive intervention for analgesia without major side effects
- Started in the dental industry
- If you see a child named "Melena", do you inwardly giggle?

Bottom Line

- G Distraction techniques are probably useful in reducing pain during injections
- G Not a great paper, just a reminder
- G What about using a cheap vibrating toothbrush
- G Maybe the sex toy industry could branch out?

Which Song Title Might Help Her?

- A) Turn! Turn! Turn! (The Byrds)
- B) Tubular Bells (Mike Oldfield)
- C) Jacuzzi (Radio Radio)
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- E) Thunderstruck (ACDC)

Faye Rinjitis

- G Faye is a 28 year old with a sore red throat, no cough, some exudates on the tonsils, no fever, no big glands
- G She would like a prescription for something that will help her get to her exam in 24 hours
- G Healthy, no allergies

What do you suggest for her sore throat?

- A) Ibuprofen
- B) Dexamethasone
- C) Acetaminophen
- D) Penicillin
- E) Gargle with coffee

What do you suggest for her sore throat?

- A) ibuprofen
- B) dexamethasone
- C) acetaminophen
- D) penicillin
- E) gargle with coffee

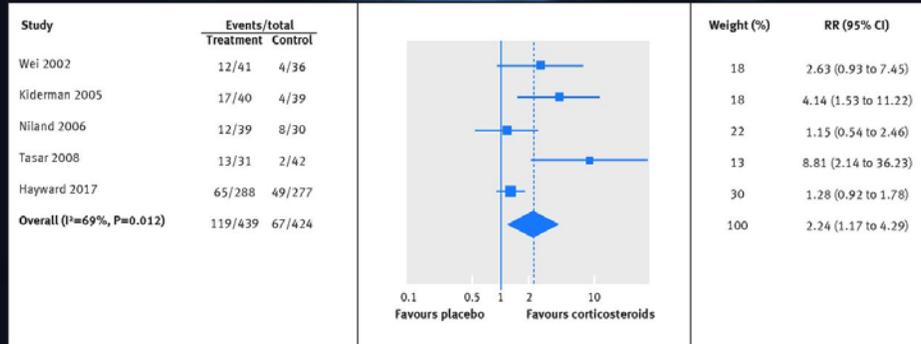
Faye Rinjitis

- G Sadeghirad, B, et al, Corticosteroids for treatment of sore throat: systematic review and meta-analysis of randomised trials, BMJ 2017; 358 doi: <https://doi.org/10.1136/bmj.j3887>, (Published 20 September 2017)
- G systematic review and metanalysis of 10 RCTs of steroids vs placebo for sore throat in healthy people >5 years old in ER and primary care, N=1426
- G Main outcomes: pain at 24h and 48h, duration of severe sx (not eating, etc), recurrence/relapse, need for abx, days missed, adverse events
- G 3 studies pediatric, 6 adult, one both

Faye Rinjitis

- G In three all got abx, analgesics as usual care, in 2 abx as usual care (analgesics at discretion), in 5 abx and analgesics at physician discretion
- G Four studies at high risk of bias
- G Almost all gave dexamethasone 10mg single dose

Fig 2 Relative risk for complete resolution of pain at 24 hours for corticosteroid v placebo groups in review of treatment of sore throat.



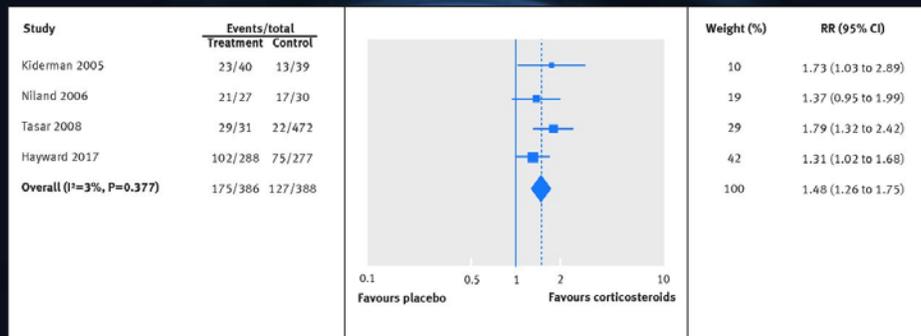
These studies at low risk of bias

Behnam Sadeghirad et al. *BMJ* 2017;358:bmj.j3887



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Fig 3 Relative risk for complete resolution of pain at 48 hours for corticosteroid v placebo groups in review of treatment of sore throat.



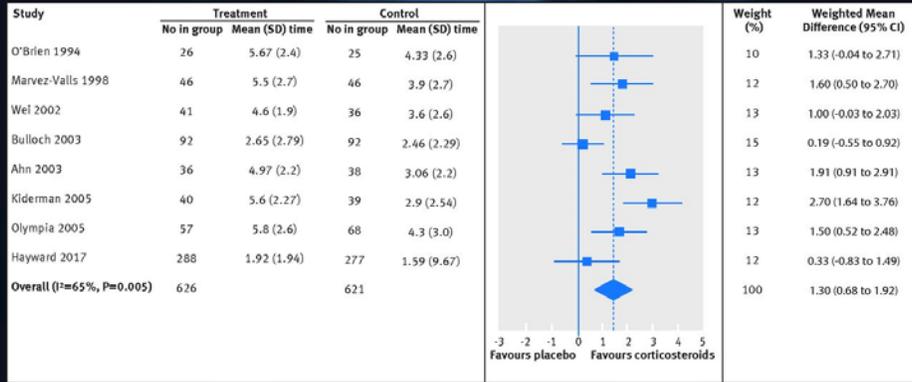
These studies at low risk of bias

Behnam Sadeghirad et al. *BMJ* 2017;358:bmj.j3887



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Fig 6 Weighted mean difference in absolute reduction of pain at 24 hours (0-10; 0=no pain, 10=maximum pain) between corticosteroids and placebo groups in review of treatment of sore throat.

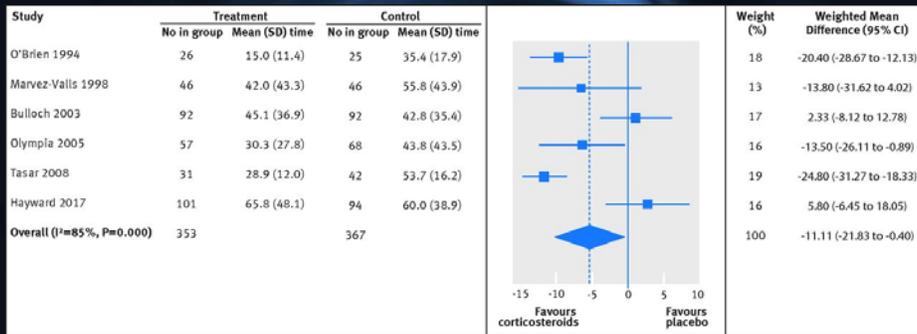


Behnam Sadeghirad et al. BMJ 2017;358:bmj.j3887



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Fig 5 Weighted mean difference in mean time to complete resolution of pain (hours) between corticosteroids and placebo groups in review of treatment of sore throat.



Behnam Sadeghirad et al. BMJ 2017;358:bmj.j3887



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Adverse events

- G None (equal or fewer number of PTA), one person reported hiccups
- G One study suggested less likely to require abx

Caveats

- G Multiple smaller trials
- G Will there be the occasional AVN?
- G Repeat dose in 48 hours?
- G Risk of rheumatic fever (i.e. First Nations?)

Bottom Line

- G Single dose dexamethasone 10mg (or 0.6mg/kg in kids) likely gives meaningful relief for many patients
- G There does not seem to be any downside for this inexpensive intervention
- G Could this replace antibiotics altogether?

What do you suggest?

- A) Ibuprofen
- B) Dexamethasone
- C) Acetaminophen
- D) Penicillin
- E) Gargle with coffee

What do you suggest?

- A) Ibuprofen
- B) Dexamethasone**
- C) Acetaminophen
- D) Penicillin
- E) Gargle with coffee

Roy D Joint

- Roy is a 44 yo with typical sudden onset 1st MTP pain, family hx of gout, high uric acid level, no red flags
- You diagnose gout
- He hears about the side effects of colchicine and says, "No way!" and you can't convince him otherwise

What do you prescribe?

- A) Indomethacin
- B) Prednisone
- C) Ice
- D) Any of the above
- E) None of the above

What do you prescribe for his gout?

- A) indomethacin
- B) prednisone
- C) ice
- D) any of the above
- E) none of the above

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Does ice work in gout?

- G Schlesinger N, et al, Local ice therapy during bouts of acute gouty arthritis. J Rheumatol. 2002 Feb;29(2):331-4.
- G Crappy study of N=19, confirmed gout with arthrocentesis
- G Given 30 mg prednisone tapered over 6 days plus colchicine 0.6mg/day
- G Randomized to ice (N=10 X30 min qid) or not (N=9)
- G Compared self-reported VAS

Table 1. Comparison of pain score between patients treated with ice and controls.

Patient	Ice		Joint	Patient	Control		Joint
	On Entry	After 1 Week			On Entry	After 1 Week	
1	2.5	0	knee	1	10	8	MTP
2	4.5	0	ankle	2	9	5	knee
3	10	1	MTP	3	10	1	knee
4	10	3.5	ankle	4	7	0	MTP
5	10	0	knee	5	10	9	MTP
6	10	0	knee	6	9.5	1.5	ankle
7	10	1	MTP	7	7.5	6.2	knee
8	10	0	MCP	8	9.5	6.5	knee
9	9	2	knee	9	10	5.5	MCP
10	49.5	0.5	knee				
Mean	8.55	0.8			9.6	4.74	

Bottom Line

- G Ice may help analgesia in gout although this evidence is questionable at best
- G Caveat: tiny unblinded study
- G Use it if you feel better with it

Steroids or NSAIDS?

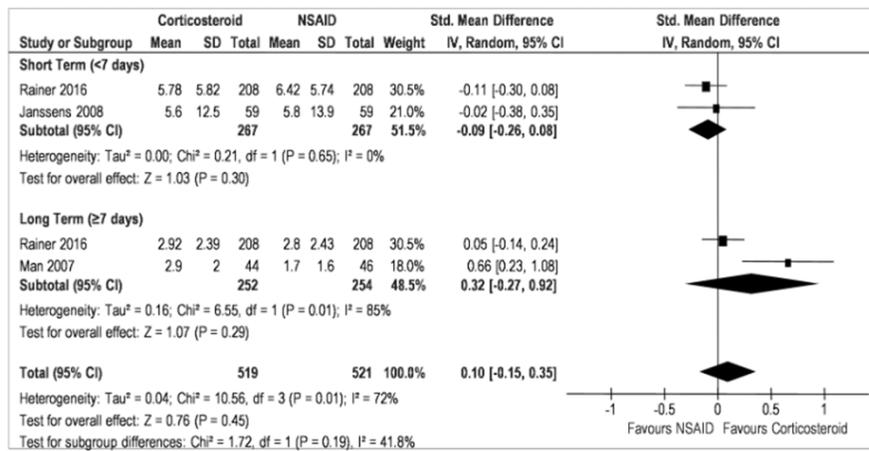
- G Billy, CA, et al, Corticosteroid or Nonsteroidal Antiinflammatory Drugs for the Treatment of Acute Gout: A Systematic Review of Randomized Controlled Trials. *J Rheumatol* 2017 Aug 1. pii: jrheum.170137. doi: 10.3899/jrheum.170137. (Epub ahead of print)
- G Review and metaanalysis of 6 studies of low to moderate methodologic quality (3 inadequate allocation concealment, 3 open label, incomplete reporting)

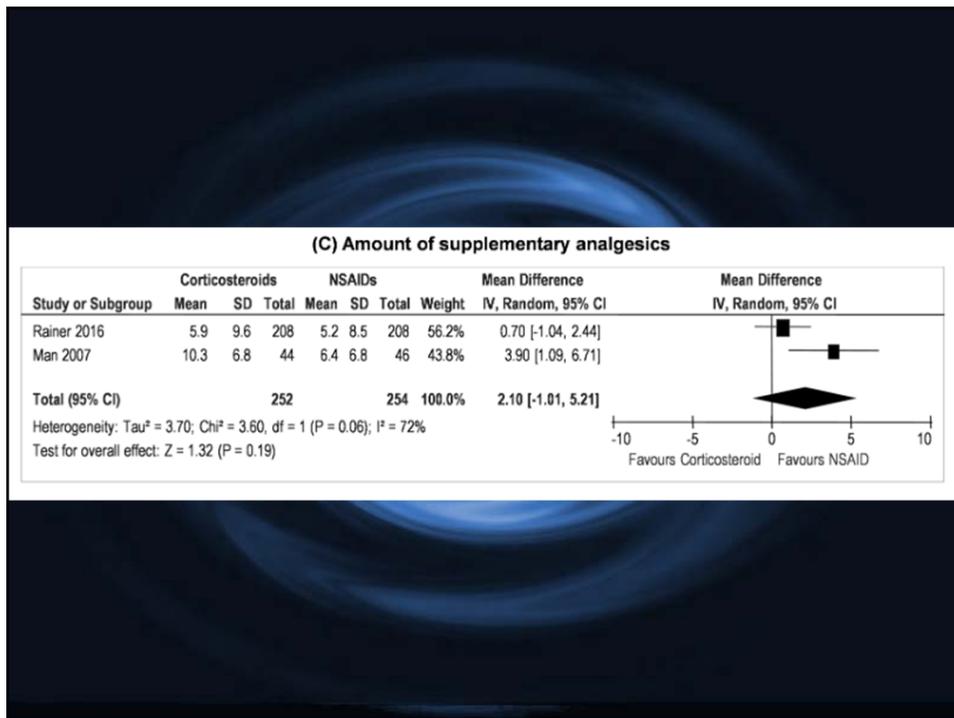
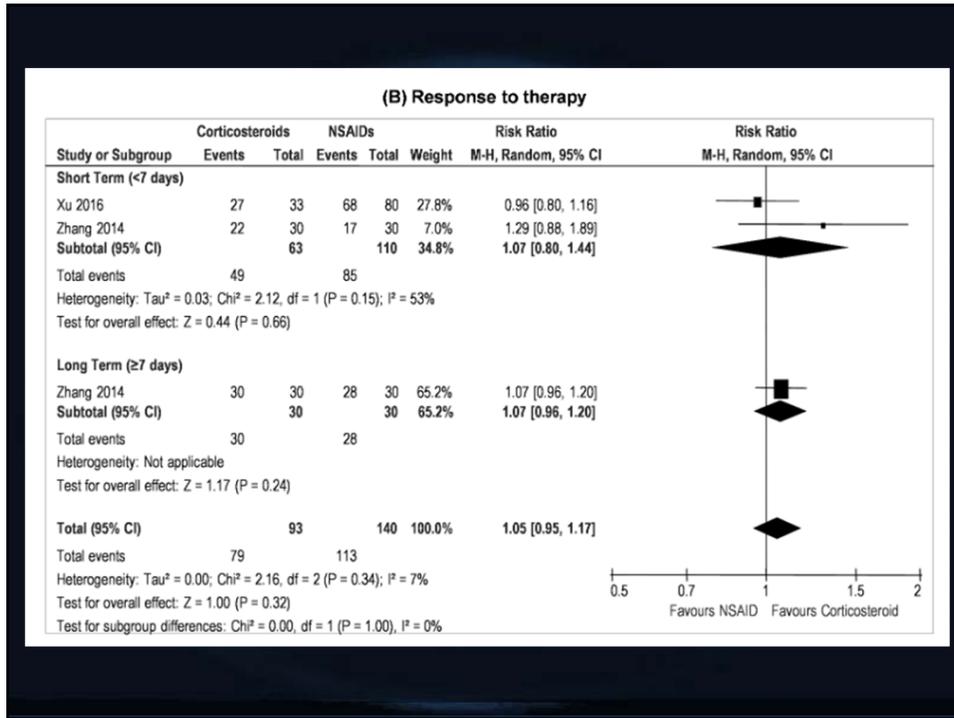
Table 1. Characteristics of trials and participants.

	Xu 2016	Zhang 2014	Rainer 2016	Janssens 2008	Man 2007	Alloway 1993
Trial characteristics						
Design	RCT	RCT	RCT	RCT	RCT	Quasi-RCT
Duration of treatment, days	4	7	5	5	5	Not described
Length of followup	4 days	7 days	14 days	3 weeks	14 days	30 days
Clinical setting	Ward	Ward	ED	Clinic	ED	Not described
Location	China	China	Hong Kong	Netherlands	Hong Kong	USA
Participants						
Number	113	60	416	118	90	20
Corticosteroid	33	30	208	59	44	10
NSAID	80	30	208	59	46	10
Age, mean (SD)						
Corticosteroid	44.0 (15.4)	52.3 (13.5)	65.9 (15.0)	57.3 (12.2)	64 (15)	61.2 (7.4)
NSAID	44.2 (13.8)	54.2 (15.1)	64.4 (16.0)	57.7 (13.4)	66 (16)	62.8 (11.2)
Male, %						
Corticosteroid	100.0	96.7	69.7	90	80	100
NSAID	98.8	96.7	78.8	88	85	100
Diagnosis of gout						
Corticosteroid	Clinical criteria	Clinical criteria	Clinical criteria	MSU crystal	Clinical criteria	MSU crystal
NSAID	≤ 72 h	≤ 24 h	≤ 72 h	Not described	≤ 72 h	≤ 5 days
Intervention						
Corticosteroid	Prednisolone (oral)	Betamethasone (IM)	Prednisolone (oral)	Prednisolone (oral)	Prednisolone (oral)	Triamcinolone acetamide (IM)
Dose	35 mg qd	7 mg once	30 mg qd	35 mg qd	30 mg qd	60 mg once
NSAID	Etoricoxib / indomethacin (oral)	Diclofenac sodium (oral)	Indomethacin (oral)	Naproxen (oral)	Indomethacin (oral)	Indomethacin (oral)
Dose	120 mg qd / 50 mg tid	75 mg bid	50 mg tid, then 25 mg tid	500 mg bid	50 mg tid, then 25 mg tid	50 mg tid
Supplementary analgesics						
Corticosteroid	None	None	Paracetamol (oral)	None	Acetaminophen (oral)	Acetaminophen with codeine
Cointerventions (non-randomized)						
Corticosteroid	Aspirin, allopurinol (oral)	None	None	None	None	Colchicine, allopurinol, uricosuric (oral)
Outcomes						
Pain	x*	x*	x	x	x	x*
Response to therapy	x	x				x*
Time to resolution						x
Supplementary analgesics			x		x	
Adverse events	x	x	x	x	x	x
Other outcomes	x	x	x	x		

* Data could not be pooled in the metaanalysis. RCT: randomized controlled trials; NSAID: nonsteroidal antiinflammatory drugs; MSU: monosodium urate; IM: intramuscular; qd: once per day; bid: twice a day; tid: three times a day; ED: emergency department.

(A) Pain





Other outcomes

- G No difference in other outcomes or adverse events but short term small studies

What's so unusual about this paper?

- G Standard of NSAIDs vs steroids has never been addressed
- G Here is even more crappy evidence, and they did not even use colchicine (apparently authors could not find an RCT including colchicine)

Bottom Line

- G There is insufficient evidence to say whether NSAIDs or prednisone are better or if either beats colchicine
- G Given the relative short term nature and similar effectiveness (probably), go with whichever one the patient tolerates better (or colchicine)

What do you prescribe?

- A) Indomethacin
- B) Prednisone
- C) Ice
- D) Any of the above
- E) None of the above

What do you prescribe?

- A) Indomethacin
- B) Prednisone
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- D) Any of the above
- E) None of the above

Knott Slipp-Ng

- Knott is a 22 year old Eastern college student with benign insomnia
- No previous mental illness, no sleep meds or antidepressants, moderate alcohol, minimal caffeine
- No Rx plan, can't afford pills/therapist
- No EFAP

The evidence suggests which of the following could help him sleep

- A) His Iphone
- B) His coffee maker
- C) His rocking chair
- D) His rice maker
- E) His local pizza shop

Evidence suggests which of the following could help him sleep?

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Knott Slipp-Ng

- G Freeman, D et al, The effects of improving sleep on mental health (OASIS): a randomised controlled trial with mediation analysis, Lancet Psychiatry 2017; 4: 749-58
- G N=3755 British University students with self-reported (but objectively-defined) insomnia, recruited online
- G Randomized (single blinded) to usual care or online digital CBT using a program called Sleepio
- G Six sessions of 20 min (average), on line via any web browser (an app if desired for some tools)
- G Behavioural, cognitive and educational components

CBT interventions

- G Behavioural
 - G Time in bed restriction
 - G Relaxation techniques
 - G Consolidated sleep window
- G Cognitive
 - G Paradoxical intention (trying to sleep)
 - G Mindfulness techniques
 - G Putting day to rest
 - G Belief restructuring (realistic expectations)
 - G imagery

CBT

- G Also educational component re: normal sleep and sleep hygiene
- G Animated therapist
 - G interactive but not live
- G Sleep restriction at 3rd session
 - G sleep window increased by 15 minutes once 90% sleep efficiency
- G No restrictions on other Rx/therapy

Outcomes

- Primary were (at 10 weeks):
 - Insomnia (SCI-8 score 0-32, higher is better)
 - Paranoia (GPTS score 1-5, higher is worse)
 - Hallucinations (PEQ—hallucinations, 0-5, higher is worse)
 - 1st Is validated, the next two had internal consistency
 - Multiple secondary outcomes

Participation

G Power 90% to detect a small effect in paranoia (0.15/5) required 2614, but increased recruitment due to attrition

G Intervention (N=1302)

- G 69% accessed at least one session
- G 50% accessed at least two
- G 36% accessed at least three
- G 26% accessed at least four
- G 21% accessed at least five
- G 18% (N=331) accessed all six sessions

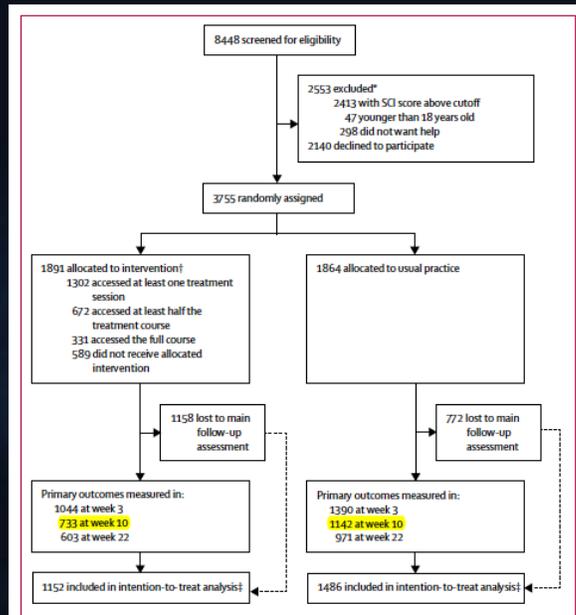


Figure: Trial profile
 SCI=Sleep Condition Indicator. * Some participants excluded for two or more reasons. †Not all participants accessed all treatment sessions. ‡Had at least one measurement at week 3, 10, or 22.

Results

G Insomnia no longer meeting criteria:

G Intervention 62% (of 733)

G Control 29% (of 1142)

Primary Outcomes

	Insomnia (SCI-8)			Paranoia (GPTS)			Hallucinations (SPEQ)					
	Unadjusted mean		Adjusted difference* (95% CI), df	p value*	Unadjusted mean		Adjusted difference* (95% CI), df	p value*	Unadjusted mean		Adjusted difference* (95% CI), df	p value*
	Control	Treatment			Control	Treatment			Control	Treatment		
Week 3	12.34 (5-85)	14.96 (5-80)	2.62 (2.19 to 3.06), 0.61	<0.0001	24.63 (11.82)	22.61 (9.89)	-1.81 (-2.49 to -1.13), 0.15	<0.0001	5.06 (6-89)	4.06 (5-84)	-0.79 (-1.15 to -0.42), 0.12	<0.0001
Week 10	13.31 (6-45)	18.08 (6-66)	4.78 (4.29 to 5.26), 1.11	<0.0001	23.84 (12.16)	21.06 (9.08)	-2.22 (-2.98 to -1.45), 0.19	<0.0001	4.89 (7-24)	3.12 (5-12)	-1.58 (-1.98 to -1.18), 0.24	<0.0001
Week 22	14.43 (6-71)	19.27 (7-13)	4.81 (4.29 to 5.33), 1.12	<0.0001	23.84 (12.68)	20.75 (9.19)	-2.78 (-3.60 to -1.96), 0.24	<0.0001	4.71 (7-43)	2.87 (5-45)	-1.56 (-1.99 to -1.14), 0.23	<0.0001

Data are mean (SD). At week 3, 1398 participants were in the control group and 1044 participants were in the treatment group. At week 10, 1142 participants were in the control group and 733 participants were in the treatment group. At week 22, 971 participants were in the control group and 603 participants were in the treatment group. SCI-8-Sleep Condition Indicator 8-item version. GPTS-Green et al Paranoid Thought Scales. SPEQ-Specific Psychotic Experiences Questionnaire. *Linear mixed effects model adjusted for gender, student status, week, and interaction of week with randomisation, and including a random effect for student within university. Covariance matrix of within subject measurements was unstructured. †d is standardised effect size (Cohen's d).

Table 2: Primary outcome results

- ❖ No change in contact with mental health
- ❖ Statistically significant higher manic symptoms, lower depressive and anxiety symptoms

Caveats

- G British students associated with Oxford University and others in region
- G Huge attrition, low uptake (leading to bias, likely)
- G Self-selected and self-reported
- G Not formally mentally ill patients

What Is So Unusual About This Paper?

- Largest CBT/non-pharm intervention I've ever seen
- Wouldn't it be great if the mild complaints without significant mental illness had something to keep them functioning without wasting an appointment or an ER visit?

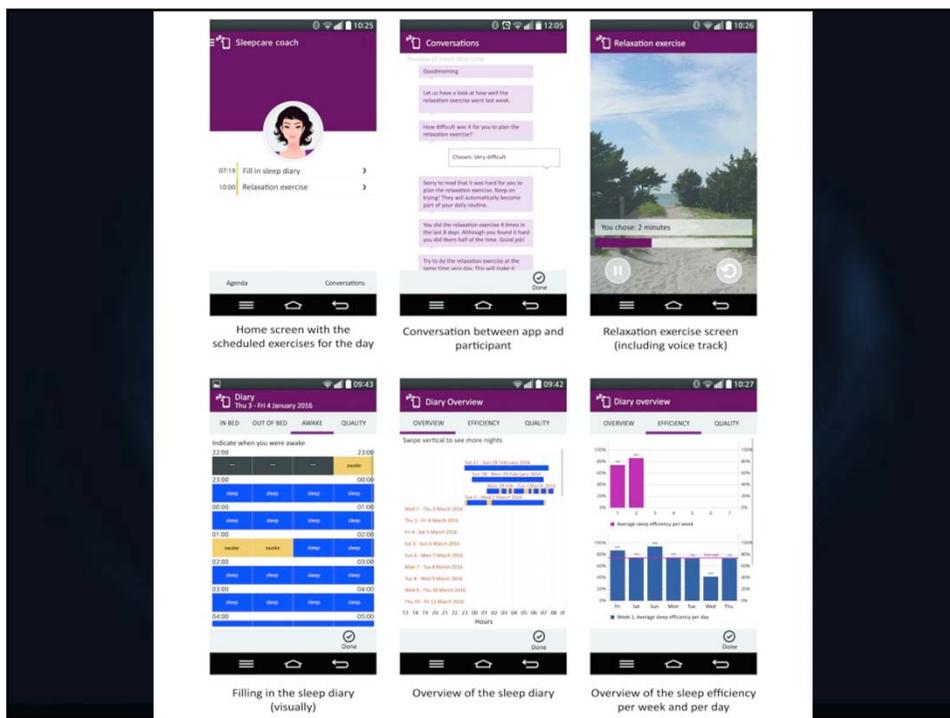
But wait, there's more!

- G Horsch, C, et al, Mobile Phone-Delivered Cognitive Behavioral Therapy for Insomnia: A Randomized Waitlist Controlled Trial, J Med Internet Res. 2017 Apr; 19(4): e70.
- G N=151 with insomnia (primary or secondary) for at least 3 months, 3X/wk, with impairment in daily functioning, recruited by ad, flyer, social media and press release in the Netherlands
- G Excluded previous CBT or other concurrent psychotherapy, psychosis, alcohol or THC abuse, sleep apnea, shift work, pregnant or breastfeeding or ≤ 5 hrs sleep for 7 consecutive days

Intervention

G Sleepcare app:

- G Sleep diary, relaxation exercise, sleep restriction exercise, sleep hygiene and education (all in Dutch)
- G 6-7 weeks depending on adherence
- G Fully automated, warned not to drive if you did not get enough sleep to be safe to drive
- G Notifications to do exercises and sleep diaries
- G Measured ISI-7 in app (higher is worse)



Modified Sleep restriction

G Used an algorithm

- G Ideal time in bed is equal to the average time in bed from previous wk
- G Max time in bed 1 hr less than the average time in bed from previous wk
- G Advised time in bed never ≤ 5 hrs
- G Advised time in bed lies between average time in bed and average total sleep time from previous week
- G Participants could negotiate sleep times to make it more completable

G Bottom line: less awake time in bed

Participation

- G Power 80% for a difference in ISI-7 required 90 people, but anticipating 50% adherence, aimed for 180 (got 151)
- G Mean age 39, 60% female
- G <10% had used sleep meds, both groups

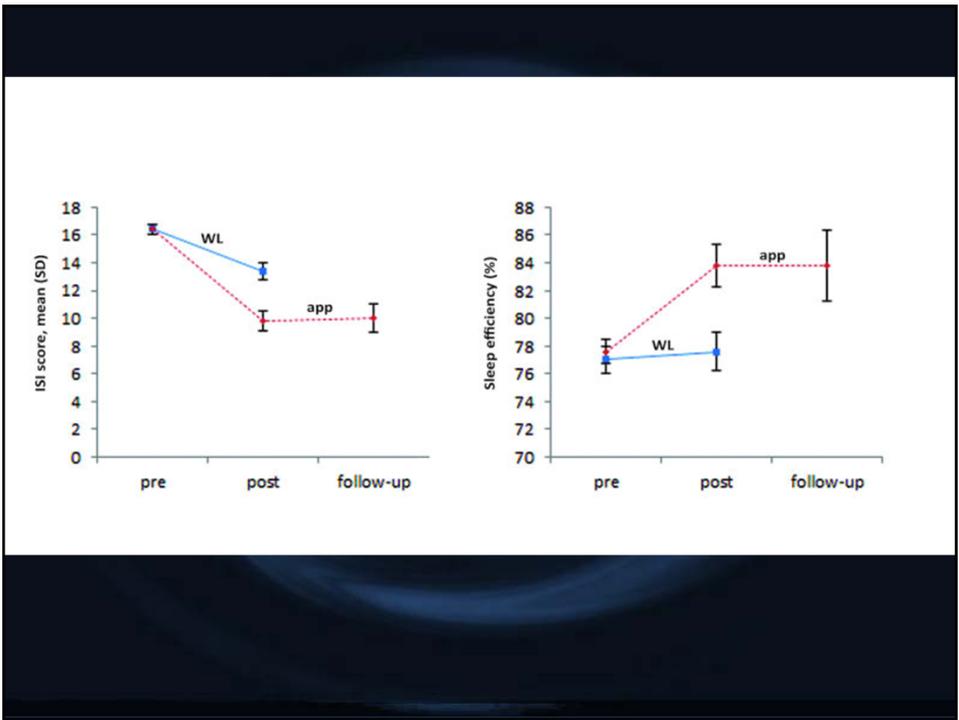
Results

G ISI ≤ 7 in people that completed:

G App: 17/45 (38%)

G Waitlist: 6/62 (10%) (P<0.001)

G Depression and anxiety reduced significantly



Caveats

- G Similarly self-reported, large attrition rates, not mentally ill
- G Dutch app
- G Unclear with small sample size if anyone would be harmed

Even More

- Ritterband, LM, et al, *Effect of a Web-Based Cognitive Behavior Therapy for Insomnia Intervention With 1-Year Follow-up: A Randomized Clinical Trial*. *JAMA Psychiatry*. 2017 Jan 1;74(1):68-75
- N=303 adults with chronic insomnia, recruited online, randomized to SHUT-I CBT website (\$135 now) vs simple education site
- \$50 to encourage f/u—low attrition (9%)
- 60% completion rate! (better results in completers)
- Methodologically better, similar results, effect lasted at 1 yr

Second last, weirdest one

G Antony, JW, Using Oscillating Sounds to Manipulate Sleep Spindles. Sleep. 2017 Mar 1;40(3). doi: 10.1093/sleep/zsw068.

G Details are beyond me, but using sounds presented during a nap with polysomnography, spindles in the EEG could be manipulated

G Extrapolation:

G sounds can change (?improve) your sleep

Last weird one

G Isik, BK et al, Effectiveness of binaural beats in reducing preoperative dental anxiety. Br J Oral Maxillofac Surg. 2017 Jul;55(6):571-574. doi: 10.1016/j.bjoms.2017.02.014. Epub 2017 Mar 18.

G Pilot study of N=60 adults undergoing third molar extractions, similar at baseline

G Randomized to binaural beats from a smartphone into headphones or not for 10 min while waiting for the local anesthetic to kick in, eyes open

G Measured Visual Analog Scale (VAS) for anxiety 0-10

Isochronic Tones and Binaural Beats

- "Binaural beats occur when two sounds with steady intensities but different frequencies are presented separately, one to each ear."
- Isochronic tone: Regular beats of a single tone



VAS (1-10)

Measurement	Experimental	Control
First	5.37 (2.12)	5.52 (2.42)
Second	3.59 (2.23)	5.39 (2.65)
p value	<0.01	0.625

- G Major limitation, no placebo (could have use mono mode of headphones), pilot study
- G Is it the binaural beat or the distraction?
- G Other study (Abeln, Eur J Sport Sci, July 2013) showed perhaps effect on sleep in young athletes

What is so unusual about these papers?

- G Simple, non-pharmacologic interventions are often ignored
- G Sleep and mental health go hand in hand
- G External manipulation of brainwaves, so cool...
- G There is SO much potential here

Bottom Line

- G Online interventions are inexpensive probably effective tools for mental health
- G Sleep has an impact on mental health
- G Use as a supplement not a replacement
- G Unclear which one is ideal
- G Be careful with manic patients
- G At worst, these are free placebo
- G Meds can be harmful, especially in youth

My favorite free online resources

- G Relax melodies app (10Hz isochronic tones) for sleep
- G CBT-I coach app for anxiety/sleep
- G Mood Gym Australia for anxiety/depression
- G Superbetter.com for building resilience in a game format

Happy Dodo

- G Happy is a previously healthy 65 year old who is being admitted to your hospital for a pneumonia because he needs a bit of oxygen
- G He has trouble sleeping at home, but he does not want to take a medication
- G He does not drink alcohol

What might safely help him with fatigue?

- A) Ear plugs, eye mask and a white noise machine with instructions to use them
- B) A bottle of whiskey, to be used as he feels necessary
- C) Sleep-inducing toothpaste
- D) Melatonin enema
- E) Transcranial bright lights (via the ear)

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Happy Dodo

- G Farreh PM, Efficacy of Sleep Tool Education During Hospitalization: A Randomized Controlled Trial., Am J Med. 2016 Dec;129(12):1329.e9-1329.e17. doi: 10.1016/j.amjmed.2016.08.001. Epub 2016 Aug 23.
- G N=120 age 18-75 admitted to non-ICU monitored bed, anticipated LOS \geq 4 days
- G Excluded hearing aids, bedridden, high acuity, unstable (defined)
- G Everyone got:
 - G 1) sleep mask, 2) ear plugs, 3) white noise machine

Intervention

- G 2:1 randomized to a 10 min scripted instruction on using tools, or usual care
 - G Patients in control still got 10 min with study staff
 - G anyone could use whichever tools they wanted
- G Blinded study member collected outcome data on sleep, pain and fatigue scores in PROMIS survey (primary outcome) at day 3
- G Had to exclude several due to not staying 3 nights

Results

- Day 2 use of tools:
 - Intervention: 63%
 - Control: 35%
 - 52% used white noise, 30% used mask, 18% ear plugs
- Seemed to improve fatigue (statistically significant) but on a scoring scale I don't understand

Other results

- Did not measure actual hours of sleep although no difference in "sleep disturbance"
- No change in LOS, pain, function

Caveats

- G Weird Likert scales not well-described, hard to tell if the improvement in fatigue is clinically important
- G Single-centre
- G Other wards?

Why the heck did I pick this one?

- Yes, it's a crappy study
- It's a reminder that our hospital environment affects patients
- They gave these tools out to all inpatients standardly!!!
- It would be nice to see this reproduced in the ER

Bottom Line

- G A brief intervention can increase use of non-pharmacologic tools
- G If a patient feels it would help them, a cheap eye shade and earplugs are a tiny expense for a hospital (airlines have figured this out)
- G Why not try a white noise app (or isochronic tones or binaural beats)?

What might safely help him with fatigue?

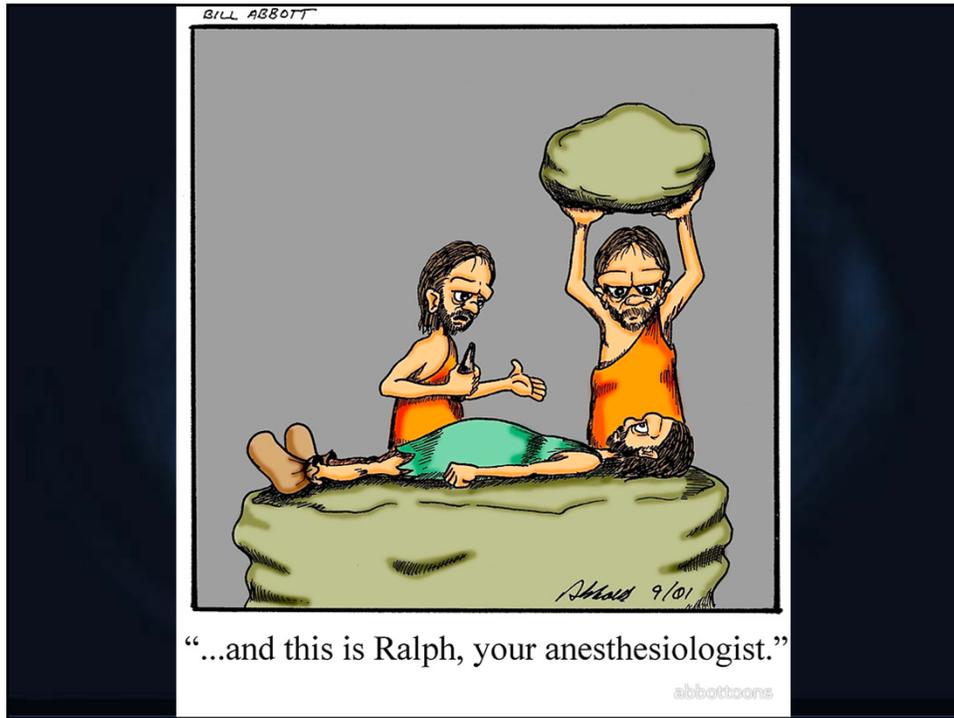
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What was your favorite paper of the Rural ER edition 2018 SRPC?

- Door to furosemide time <60 min associated with lower mortality
- Mineral oil lube and manipulate or cut and pull apart zipper to release franks and beans
- The Quick-Wee method increases collection rate NNT=5 in 5 minutes
- Urinalysis is pretty sensitive for ruling out UTI in young infants
- Vibration may reduce the pain of injections
- Dexamethasone is effective for sore throat
- Steroids equally effective to NSAIDS for gout, ice may help too
- Sleep tools might help inpatients



Any questions or comments?

“Thanks so much for the entertaining start to the day.”
about 2 months ago

“Interesting material and an engaging format. Well done.”
about 2 months ago

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