KEY ARTICLES & CLINICAL DEVELOPMENTS OF 2020* IN FAMILY MEDICINE

BY DAN WALDMAN, MD

DEPARTMENT OF FAMILY & COMMUNITY MEDICINE

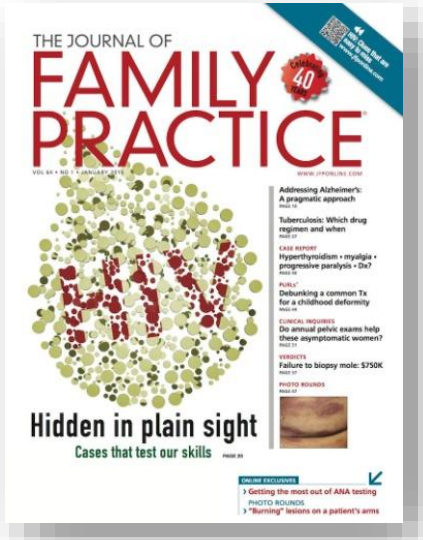
Disclosures: None

Learning Objectives

At the end of this presentation, the attendee will be able to:

1. Cite important and clinically-relevant research articles of the past year in the field of Family Medicine.
2. Describe methods for staying current in clinical medicine.


Not This
Development

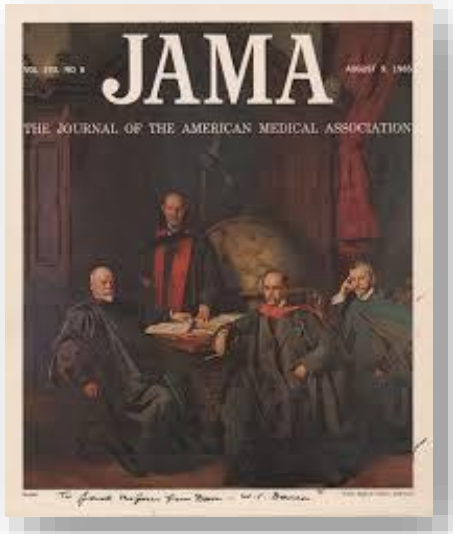

THE JOURNAL OF
FAMILY PRACTICE
Hidden in plain sight
Cases that test our skills


Annals of Internal Medicine


American Family Physician
60TH ANNIVERSARY
Celebrating Six Decades of Publishing


BMJ
OVERDIAGNOSIS
Harming the healthy


ANNALS OF
FAMILY MEDICINE


JAMA
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION


The NEW ENGLAND
JOURNAL of MEDICINE


THE LANCET


OBSTETRICS &
GYNECOLOGY


The American Journal of
Sports
Medicine

How Did I Choose Things?

Essential Evidence/Daily POEMS

Journal Watch

Practice Update

Our Faculty

“Top of 2020” Lists

Dr. Frank Domino’s “Frankly Speaking” Podcast

Prioritized:

- key areas of FM practice
- might directly change clinical practice
- might be leading to paradigm changes

New Acute MSK Pain Guideline

Adults with Acute MSK Pain (*Not Low Back Pain*)

"Acute MSK pain" <4 weeks, sprains and strains, soft tissue injury, whiplash, nonsurgical fractures, contusions, etc

Clinical Guideline based on Systematic Review

- Used a "Network Meta-analysis"

- **Topical NSAIDS gels are first line**
  - Improve symptoms including pain, improve function, treatment satisfaction
- Oral NSAIDS, acetaminophen (pain) both still effective and recommended
- Acupressure/TENS can be considered (limited quality evidence)
- Opiates and Tramadol not recommended: *"avoid as possible"*

Qaseem A, et al. Nonpharmacologic and pharmacologic management of acute pain from non–low back, musculoskeletal injuries in adults: a clinical guideline from the American College of Physicians and American Academy of Family Physicians. Ann Intern Med 2020;173(9):739-748.

Topical NSAIDS

Various products

Some with menthol

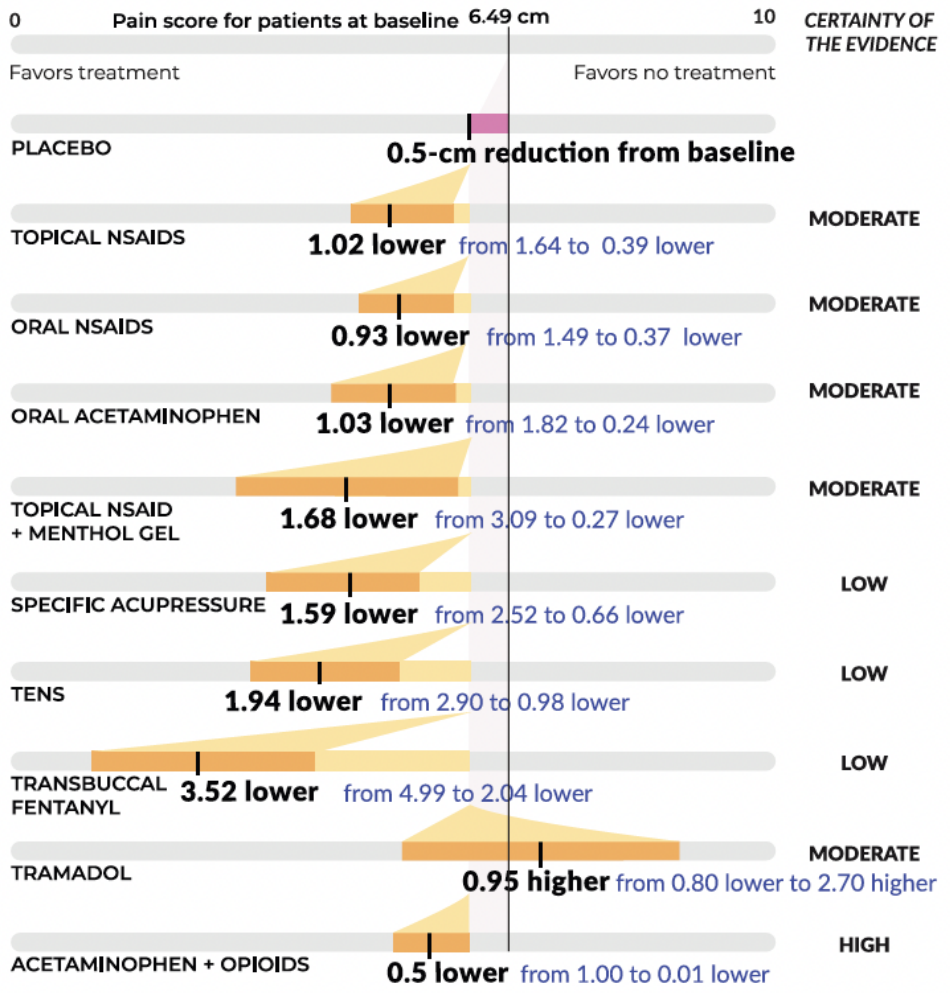
Increased cardiac/GI risk is minimal, excellent for people with co-morbidities

Rec: start with OTC products to see if helpful (very helpful for *some*)

Tip: for some with arthritis: it may take a while to work

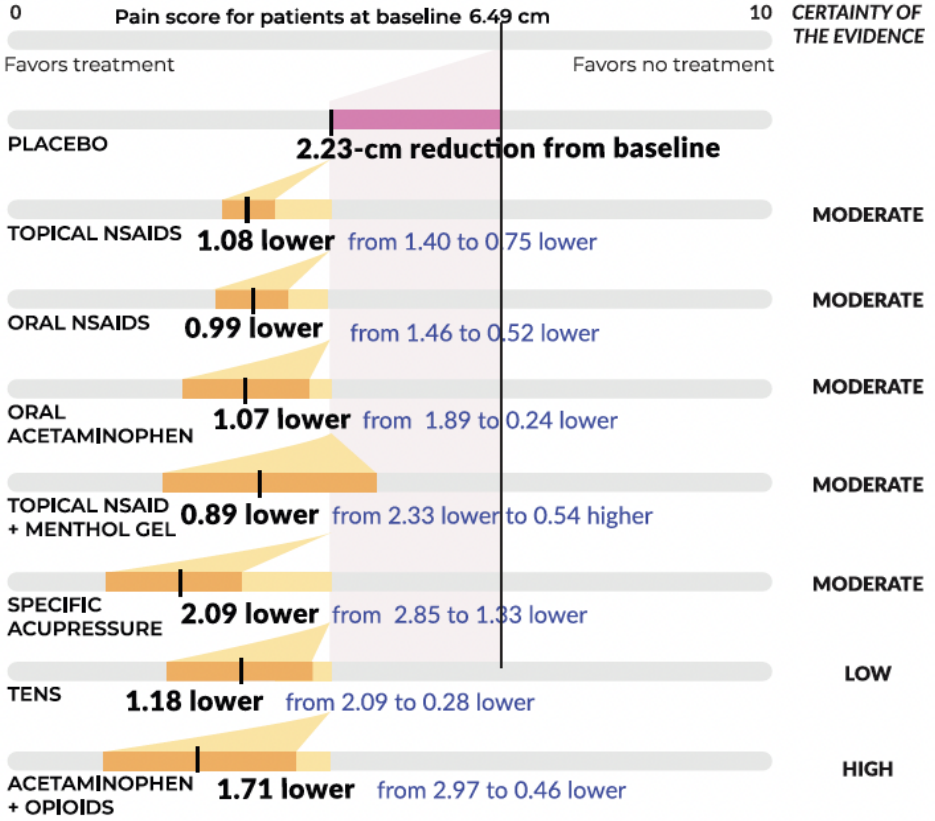
Pain reduction <2h

On a scale of 0 to 10 (higher scores signal higher pain), how much did the intervention reduce pain compared with placebo?



Pain reduction 1 to 7 days

On a scale of 0 to 10 (higher scores signal higher pain), how much did the intervention reduce pain compared with placebo?



Data were not available for the following interventions: transbuccal fentanyl, tramadol

SGLT2 Inhibitors

What are these meds?

Table. Brands of SGLT2 Inhibitors

Brand name	Generic name
Invokana	canagliflozin
Invokamet	canagliflozin and metformin
Farxiga	dapagliflozin
Xigduo XR	dapagliflozin and metformin extended-release
Jardiance	empagliflozin
Glyxambi	empagliflozin and linagliptin
Synjardy	empagliflozin and metformin

Invokana™
canagliflozin tablets

Previously

2019: Limited meta-analysis suggests SGLT2 inhibitors improve CV outcomes in patients with T2DM **+** atherosclerosis

Zelniker TA, Wiviott SD, Raz I, et al. SGLT2 inhibitors for primary and secondary prevention of cardiovascular and renal outcomes in type 2 diabetes: a systematic review and meta-analysis of cardiovascular outcome trials. Lancet 2019;393(10166):31-39.

THE LANCET

American Heart Journal 2020

Meta-analysis: 8 trials with a combined 59,747 patients

- SGLT2i reduced the risk of:
  - all-cause mortality (HR 0.84; 95% CI [0.78-0.91])
  - cardiovascular mortality (HR 0.84; 95% CI [0.76-0.93])
  - hospitalization for HF (HR 0.69; 95% CI [0.64-0.74])
  - myocardial infarction (HR 0.91; 95% CI [0.84-0.99])
  - composite kidney outcome (HR 0.62; 95% CI [0.56-0.70]).
- Results were consistent across subgroups stratified by diabetes and HF status.
- In patients with cardiovascular and kidney disease, SGLT2i improved cardiovascular and kidney outcomes, *regardless of T2DM, HF, and/or CKD status*

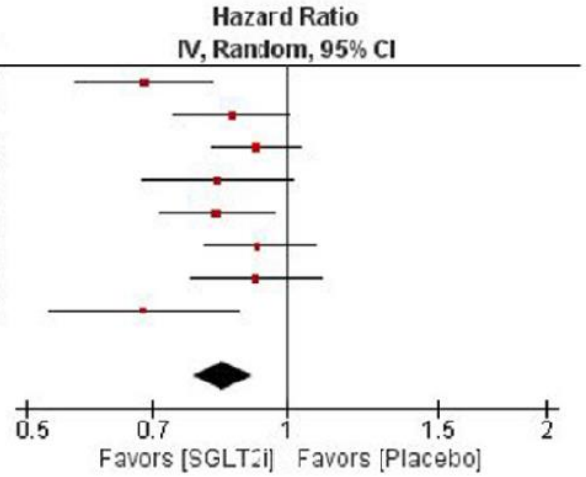
Salah HM, Al'Aref SJ, Khan MS, et al. Effect of sodium-glucose cotransporter 2 inhibitors on cardiovascular and kidney outcomes. Systematic review and meta-analysis of randomized placebo-controlled trials. Am Heart J 2020;232:10-22

All-cause mortality

Study or Subgroup	log[Hazard Ratio]	SE	SGLT2i Total	Placebo Total	Weight	Hazard Ratio IV, Random, 95% CI	Year
EMPA-REG OUTCOME 2015	-0.3803	0.0928	4687	2333	11.5%	0.68 [0.57, 0.82]	2015
CANVAS 2017	-0.1456	0.0794	5795	4347	13.7%	0.86 [0.74, 1.01]	2017
DECLARE-TIMI 58 2018	-0.0796	0.0606	8582	8578	17.6%	0.92 [0.82, 1.04]	2018
CREDENCE 2019	-0.1829	0.1034	2202	2199	10.0%	0.83 [0.68, 1.02]	2019
DAPA-HF 2019	-0.1863	0.0797	2373	2371	13.7%	0.83 [0.71, 0.97]	2019
VERTIS CV 2020	-0.0731	0.0766	5499	2747	14.3%	0.93 [0.80, 1.08]	2020
EMPEROR-Reduced 2020	-0.083	0.091	1863	1867	11.8%	0.92 [0.77, 1.10]	2020
DAPA-CKD 2020	-0.3814	0.1294	2152	2152	7.3%	0.68 [0.53, 0.88]	2020
Total (95% CI)			**33153**	**26594**	**100.0%**	**0.84 [0.78, 0.91]**	

Heterogeneity: $Tau^2 = 0.01$; $Chi^2 = 12.51$, df = 7 (P = 0.09); $I^2 = 44\%$

Test for overall effect: Z = 4.20 (P < 0.0001)

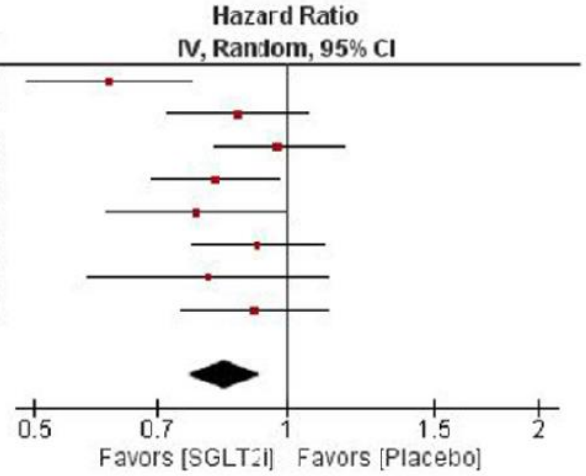


CV mortality

Study or Subgroup	log[Hazard Ratio]	SE	SGLT2i Total	Placebo Total	Weight	Hazard Ratio IV, Random, 95% CI	Year
EMPA-REG OUTCOME 2015	-0.4874	0.1153	4687	2333	11.5%	0.61 [0.49, 0.77]	2015
CANVAS 2017	-0.1351	0.0987	5795	4347	13.7%	0.87 [0.72, 1.06]	2017
DECLARE-TIMI 58 2018	-0.0207	0.0907	8582	8578	14.9%	0.98 [0.82, 1.17]	2018
DAPA-HF 2019	-0.1956	0.0895	2373	2371	15.1%	0.82 [0.69, 0.98]	2019
CREDENCE 2019	-0.2485	0.1254	2202	2199	10.3%	0.78 [0.61, 1.00]	2019
VERTIS CV 2020	-0.0785	0.0933	5499	2747	14.5%	0.92 [0.77, 1.11]	2020
DAPA-CKD 2020	-0.2157	0.1679	2152	2152	6.8%	0.81 [0.58, 1.12]	2020
EMPEROR-Reduced 2020	-0.0872	0.1023	1863	1867	13.2%	0.92 [0.75, 1.12]	2020
Total (95% CI)			**33153**	**26594**	**100.0%**	**0.84 [0.76, 0.93]**	

Heterogeneity: $Tau^2 = 0.01$; $Chi^2 = 12.52$, df = 7 (P = 0.08); $I^2 = 44\%$

Test for overall effect: Z = 3.39 (P = 0.0007)

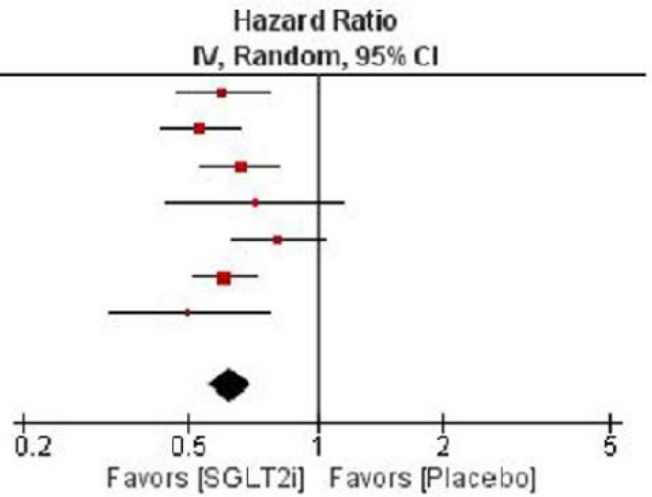


Composite kidney outcome

Study or Subgroup	log[Hazard Ratio]	SE	SGLT2i Total	Placebo Total	Weight	Hazard Ratio IV, Random, 95% CI	Year
CANVAS 2017	-0.5082	0.1259	5795	4347	14.8%	0.60 [0.47, 0.77]	2017
DECLARE-TIMI 58 2018	-0.6297	0.1093	8582	8578	18.1%	0.53 [0.43, 0.66]	2018
CREDENCE 2019	-0.4228	0.1082	2202	2199	18.4%	0.66 [0.53, 0.81]	2019
DAPA-HF 2019	-0.3363	0.2473	2373	2371	4.7%	0.71 [0.44, 1.16]	2019
VERTIS CV 2020	-0.2114	0.1279	5499	2747	14.4%	0.81 [0.63, 1.04]	2020
DAPA-CKD 2020	-0.5009	0.088	2152	2152	24.0%	0.61 [0.51, 0.72]	2020
EMPEROR-Reduced 2020	-0.7004	0.224	1863	1867	5.6%	0.50 [0.32, 0.77]	2020
Total (95% CI)			**28466**	**24261**	**100.0%**	**0.62 [0.56, 0.70]**	

Heterogeneity: $Tau^2 = 0.01$; $Chi^2 = 7.97$, $df = 6$ ($P = 0.24$); $I^2 = 25\%$

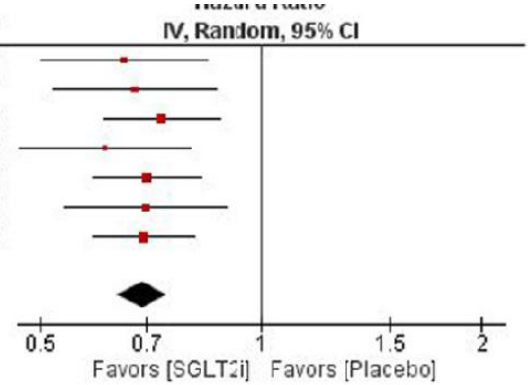
Test for overall effect: $Z = 8.46$ ($P < 0.00001$)



HHF

Study or Subgroup	log[Hazard Ratio]	SE	SGLT2i Total	Placebo Total	Weight	Hazard Ratio IV, Random, 95% CI	Year
EMPA-REG OUTCOME 2015	-0.4308	0.1339	4687	2333	8.9%	0.65 [0.50, 0.85]	2015
CANVAS 2017	-0.3966	0.1313	5795	4347	9.3%	0.67 [0.52, 0.87]	2017
DECLARE-TIMI 58 2018	-0.3111	0.0935	8582	8578	18.3%	0.73 [0.61, 0.88]	2018
CREDENCE 2019	-0.4891	0.1357	2202	2199	8.7%	0.61 [0.47, 0.80]	2019
DAPA-HF 2019	-0.3567	0.0872	2373	2371	21.0%	0.70 [0.59, 0.83]	2019
VERTIS CV 2020	-0.3608	0.1303	5499	2747	9.4%	0.70 [0.54, 0.90]	2020
EMPEROR-Reduced 2020	-0.3692	0.0808	1863	1867	24.5%	0.69 [0.59, 0.81]	2020
Total (95% CI)			**31001**	**24442**	**100.0%**	**0.69 [0.64, 0.74]**	

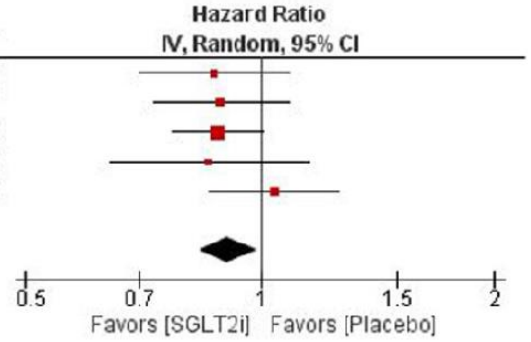
Heterogeneity: Tau² = 0.00; Chi² = 1.43, df = 6 (P = 0.96); I² = 0%
Test for overall effect: Z = 9.35 (P < 0.00001)



MI

Study or Subgroup	log[Hazard Ratio]	SE	SGLT2i Total	Placebo Total	Weight	Hazard Ratio IV, Random, 95% CI	Year
EMPA-REG OUTCOME 2015	-0.1352	0.113	4687	2333	14.7%	0.87 [0.70, 1.09]	2015
CANVAS 2017	-0.1143	0.1023	5795	4347	18.0%	0.89 [0.73, 1.09]	2017
DECLARE-TIMI 58 2018	-0.1257	0.0692	8582	8578	39.2%	0.88 [0.77, 1.01]	2018
CREDENCE 2019	-0.1508	0.1507	2202	2199	8.3%	0.86 [0.64, 1.16]	2019
VERTIS CV 2020	0.0401	0.0974	5499	2747	19.8%	1.04 [0.86, 1.26]	2020
Total (95% CI)			**26765**	**20204**	**100.0%**	**0.91 [0.84, 0.99]**	

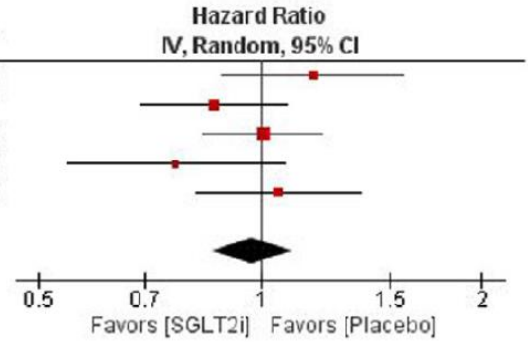
Heterogeneity: Tau² = 0.00; Chi² = 2.42, df = 4 (P = 0.66); I² = 0%
Test for overall effect: Z = 2.17 (P = 0.03)



Stroke

Study or Subgroup	log[Hazard Ratio]	SE	SGLT2i Total	Placebo Total	Weight	Hazard Ratio IV, Random, 95% CI	Year
EMPA-REG OUTCOME 2015	0.1655	0.1439	4687	2333	16.1%	1.18 [0.89, 1.56]	2015
CANVAS 2017	-0.1424	0.1166	5795	4347	22.4%	0.87 [0.69, 1.09]	2017
DECLARE-TIMI 58 2018	0.0081	0.0931	8582	8578	30.7%	1.01 [0.84, 1.21]	2018
CREDENCE 2019	-0.2614	0.1717	2202	2199	12.0%	0.77 [0.55, 1.08]	2019
VERTIS CV 2020	0.0582	0.1309	5499	2747	18.8%	1.06 [0.82, 1.37]	2020
Total (95% CI)			**26765**	**20204**	**100.0%**	**0.98 [0.86, 1.11]**	

Heterogeneity: Tau² = 0.00; Chi² = 5.19, df = 4 (P = 0.27); I² = 23%
Test for overall effect: Z = 0.36 (P = 0.72)



2021 BMJ

Meta-analysis, 764 trials including 421k patients

Pts with DM2 and varying degrees of CV/renal risk

- RCTs that compared SGLT-2 inhibitors or GLP-1 receptor agonists with:
  - placebo
  - standard care
  - other glucose lowering treatment
- Both drug classes lowered all-cause mortality, cardiovascular mortality, nonfatal myocardial infarction, and kidney failure
- The absolute benefit of treatment varied based on underlying cardiac risk

thebmj

Palmer SC, Tendal B, Mustafa RA. Sodium-glucose cotransporter protein-2 (SGLT-2) inhibitors and glucagon-like peptide-1 (GLP-1) receptor agonists for type 2 diabetes: systematic review and network meta-analysis of randomised controlled trials. BMJ 2021;372:m4573

GLP-1 Agonists “Incretin Mimetics”

Mainly Injections are given under the skin.

Examples

- Dulaglutide (weekly; marketed as Trulicity)
- Exenatide (daily; marketed as Byetta)
- Exenatide extended release (weekly; marketed as Bydureon)
- Liraglutide (daily; marketed as Victoza)
- Lixisenatide (daily; marketed as Adlyxin)
- Semaglutide (weekly; marketed as Ozempic)

Table 1 | Summary of anticipated absolute differences comparing sodium-glucose cotransporter-2 inhibitor treatment with placebo treatment per 1000 patients with diabetes type 2 and with very low to very high cardiovascular risk, treated for five years

Risk*	All cause mortality	Cardiovascular mortality	Non-fatal myocardial infarction	Non-fatal stroke	Kidney failure	Hospital admission for heart failure	Diabetic ketoacidosis	Genital infection	Body weight
Very low	5 fewer (6 fewer to 3 fewer) ⊕⊕⊕	2 fewer (3 fewer to 1 fewer) ⊕⊕⊕	4 fewer (6 fewer to 1 fewer) ⊕⊕⊕	0 more (3 fewer to 4 more) ⊕⊕⊕	1 fewer (1 fewer to 0) ⊕⊕⊕	2 fewer (2 fewer to 1 fewer) ⊕⊕⊕			
Low	15 fewer (19 fewer to 11 fewer) ⊕⊕⊕⊕	7 fewer (11 fewer to 4 fewer) ⊕⊕⊕⊕	7 fewer (12 fewer to 2 fewer) ⊕⊕⊕⊕	1 more (6 fewer to 8 more) ⊕⊕⊕⊕	3 fewer (4 fewer to 1 fewer) ⊕⊕⊕⊕	9 fewer (11 fewer to 7 fewer) ⊕⊕⊕⊕			
Moderate	25 fewer (32 fewer to 18 fewer) ⊕⊕⊕⊕	12 fewer (18 fewer to 6 fewer) ⊕⊕⊕⊕	13 fewer (21 fewer to 3 fewer) ⊕⊕⊕⊕	1 more (11 fewer to 13 more) ⊕⊕⊕⊕	6 fewer (9 fewer to 2 fewer) ⊕⊕⊕⊕	23 fewer (28 fewer to 17 fewer) ⊕⊕⊕⊕	0 (1 fewer to 2 more) ⊕⊕⊕	143 more (119 more to 170 more) ⊕⊕⊕⊕	1.92 kg lower (2.23 lower to 1.62 lower) over 6 months ⊕⊕
High	34 fewer (43 fewer to 25 fewer) ⊕⊕⊕⊕	16 fewer (25 fewer to 8 fewer) ⊕⊕⊕⊕	14 fewer (23 fewer to 3 fewer) ⊕⊕⊕⊕	1 more (12 fewer to 15 more) ⊕⊕⊕⊕	25 fewer (37 fewer to 9 fewer) ⊕⊕⊕⊕	29 fewer (36 fewer to 22 fewer) ⊕⊕⊕⊕			
Very high	48 fewer (61 fewer to 35 fewer) ⊕⊕⊕⊕	24 fewer (36 fewer to 12 fewer) ⊕⊕⊕⊕	21 fewer (34 fewer to 5 fewer) ⊕⊕⊕⊕	2 more (17 fewer to 21 more) ⊕⊕⊕⊕	38 fewer (58 fewer to 14 fewer) ⊕⊕⊕⊕	58 fewer (73 fewer to 44 fewer) ⊕⊕⊕⊕			

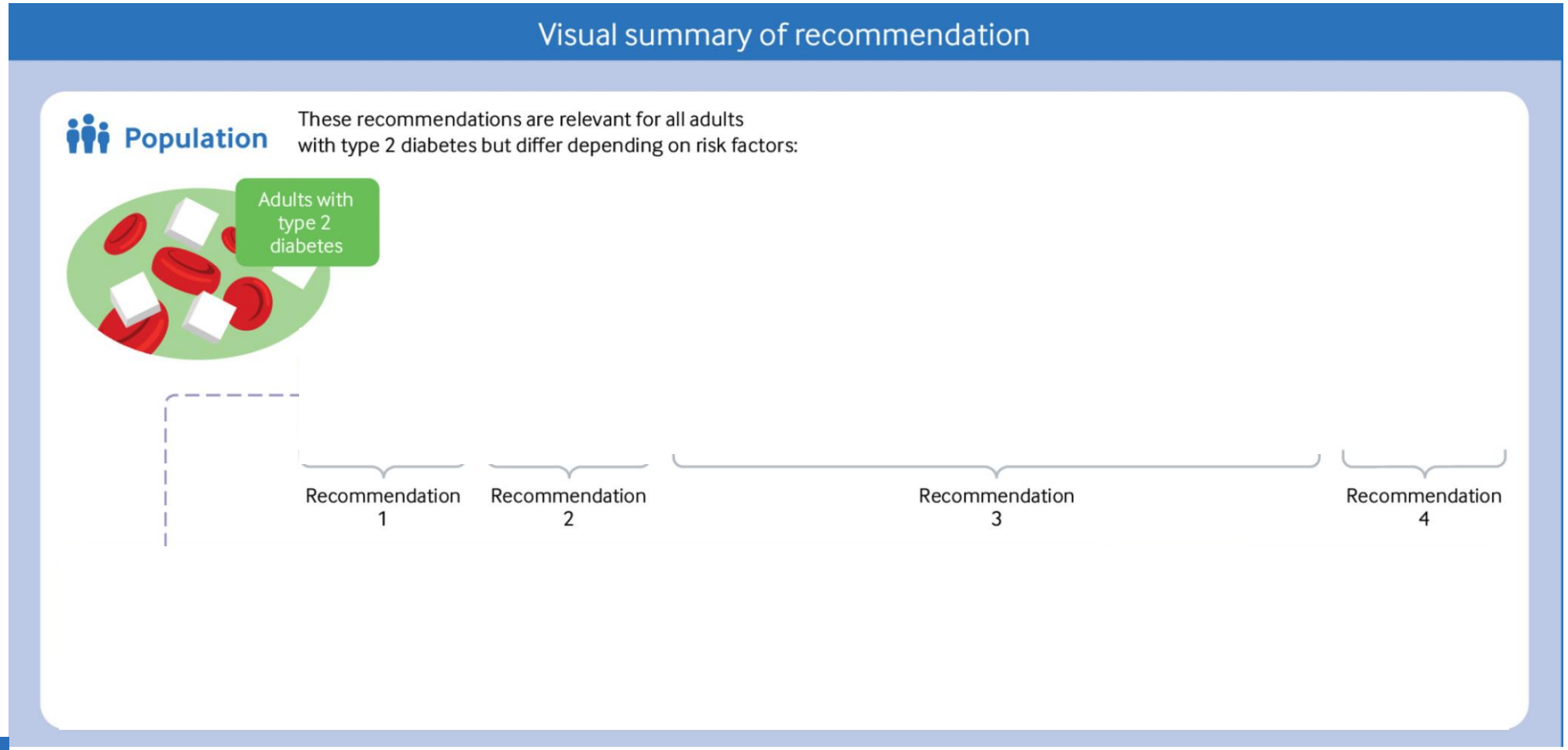
*Risk categories represent the following patient populations: very low=no or less than three cardiovascular risk factors; low=three or more cardiovascular risk factors; moderate=cardiovascular disease; high=chronic kidney disease (reduced glomerular filtration rate or macroalbuminuria); very high=cardiovascular disease and chronic kidney disease.
Certainty of the evidence for each estimate is shown: high certainty ⊕⊕⊕⊕; moderate certainty ⊕⊕⊕; low certainty ⊕⊕; very low certainty ⊕.

Table 2 | Summary of anticipated absolute differences comparing glucagon-like peptide-1 receptor agonist treatment with placebo treatment per 1000 patients with diabetes type 2 and with very low to very high cardiovascular risk, treated for five years

Risk*	All cause mortality	Cardiovascular mortality	Non-fatal myocardial infarction	Non-fatal stroke	Kidney failure	Hospital admission for heart failure	Severe gastrointestinal events	Body weight
Very low	2 fewer (3 fewer to 1 fewer) ⊕⊕⊕	2 fewer (3 fewer to 1 fewer) ⊕⊕⊕	2 fewer (4 fewer to 0) ⊕⊕⊕	5 fewer (7 fewer to 2 fewer) ⊕⊕⊕	0 (1 fewer to 0) ⊕⊕⊕	0 (1 fewer to 0) ⊕⊕⊕	58 more (9 more to 142 more) ⊕⊕	145 kg lower (1.72 lower to 1.18 lower) over 6 months ⊕⊕
Low cardiovascular risk factors	8 fewer (11 fewer to 4 fewer) ⊕⊕⊕⊕	5 fewer (9 fewer to 2 fewer) ⊕⊕⊕⊕	4 fewer (8 fewer to 1 fewer) ⊕⊕⊕⊕	9 fewer (13 fewer to 4 fewer) ⊕⊕⊕⊕	2 fewer (1 fewer to 3 fewer) ⊕⊕⊕⊕	2 fewer (4 fewer to 1 more) ⊕⊕⊕⊕		
Moderate	13 fewer (18 fewer to 6 fewer) ⊕⊕⊕⊕	9 fewer (15 fewer to 1 fewer) ⊕⊕⊕⊕	8 fewer (15 fewer to 1 fewer) ⊕⊕⊕⊕	16 fewer (24 fewer to 7 fewer) ⊕⊕⊕⊕	4 fewer (7 fewer to 2 fewer) ⊕⊕⊕⊕	4 fewer (11 fewer to 2 more) ⊕⊕⊕⊕		
High	17 fewer (25 fewer to 9 fewer) ⊕⊕⊕⊕	12 fewer (20 fewer to 4 fewer) ⊕⊕⊕⊕	9 fewer (16 fewer to 1 fewer) ⊕⊕⊕⊕	17 fewer (26 fewer to 7 fewer) ⊕⊕⊕⊕	19 fewer (28 fewer to 7 fewer) ⊕⊕⊕⊕	6 fewer (14 fewer to 3 more) ⊕⊕⊕⊕		
Very high	24 fewer (35 fewer to 12 fewer) ⊕⊕⊕⊕	18 fewer (30 fewer to 6 fewer) ⊕⊕⊕⊕	13 fewer (24 fewer to 2 fewer) ⊕⊕⊕⊕	25 fewer (39 fewer to 11 fewer) ⊕⊕⊕⊕	29 fewer (44 fewer to 10 fewer) ⊕⊕⊕⊕	11 fewer (28 fewer to 5 more) ⊕⊕⊕⊕		

*Risk categories represent the following patient populations: very low=no or less than three cardiovascular risk factors; low=three or more cardiovascular risk factors; moderate=cardiovascular disease; high=chronic kidney disease (reduced glomerular filtration rate or macroalbuminuria); very high=cardiovascular disease and chronic kidney disease.
Certainty of the evidence for each estimate is shown: high certainty ⊕⊕⊕⊕; moderate certainty ⊕⊕⊕; low certainty ⊕⊕; very low certainty ⊕.

SGLT-2 inhibitors or GLP-1 receptor agonists for adults with type 2 diabetes: a clinical practice guideline



Recommendations	SGLT-2 inhibitors	GLP-1 receptor agonists
1) Patients with **3 or fewer** cardiovascular risk factors		
2) Patients with **more than 3** cardiovascular risk factors		
3) Patients with established cardiovascular **or** renal disease		
4) Patients with established cardiovascular **and** renal disease		

thebmj

Safety and Harms

- Potential for increased risk of gastrointestinal events from GLP-1 receptor agonists—including abdominal pain, nausea, vomiting, and diarrhea (*start low and go slow*)
- The increase in genital infections (vaginitis for females and balanitis for males) from SGLT2-inhibitors is important for decision making.
  - A prior genital infection further increases the risk of infection **sevenfold in females** and **11-fold in males**
- Unclear risks:
  - SGLT-2 Fournier's and DKA, amputations
  - GLP-1 Agonists and pancreatic CA

SGLT-2 inhibitors or GLP-1 receptor agonists for adults with type 2 diabetes: a clinical practice guideline

BMJ 2021 ; 373 doi: https://doi.org/10.1136/bmj.n1091 (Published 11 May 2021)

American Diabetes Association. diabetes

37-OR: Racial and Socioeconomic Disparities in the Use of Newer Classes of Diabetes Medications

AHMED ELHUSSEIN, MICHAEL BANCKS, WILLIAM C. KNOWLER, ANNE L. PETERS, ELIZABETH M. VAUGHAN, NISA M. MARUTHUR, JEANNE CLARK and SCOTT J. PILLA

+ Author Affiliations

Diabetes 2020 Jun; 69(Supplement 1): -.
https://doi.org/10.2337/db20-37-OR

JAMA Network™

April 15, 2021

Association of Race/Ethnicity, Gender, and Socioeconomic Status With Sodium-Glucose Cotransporter 2 Inhibitor Use Among Patients With Diabetes in the US

Lauren A. Eberly, MD, MPH[1,2,3,4]; Lin Yang, MS[2]; Nwamaka D. Eneanya, MD, MPH[4,5]; et al

Lung Cancer Screening

Lung CA

- 2nd most common cancer in US
- Leading cause of cancer death in the US
- ~230k people a year in the US diagnosed, about ½ will die from it
- High % of people who present with lung CA present in advanced stages, where 5-year survival is very low

2013

U.S. Preventive Services TASK FORCE

Final Recommendation Statement

Lung Cancer: Screening

December 31, 2013

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

Recommendation Summary

Population	Recommendation	Grade
Adults Aged 55-80, with a History of Smoking	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 55 to 80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	B

2021

U.S. Preventive Services TASK FORCE

Final Recommendation Statement

Lung Cancer: Screening

March 09, 2021

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

Recommendation Summary

Population	Recommendation	Grade
Adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	B

2013	2021
Age 55-80	Age *50*-80
30 pack year history	*20* pack year history

Evidence

More evidence that CT screening reduces lung-cancer specific mortality, but not necessarily all cause mortality

Meta-analysis	*Ebell MH, Bentivegna M, Hulme C. Cancer-specific mortality, all-cause mortality, and overdiagnosis in lung cancer screening trials: a meta-analysis. Ann Fam Med 2020;18(6):545-552.*
RCT	*de Koning HJ, van der Aalst CM, de Jong PA, et al. Reduced lung cancer mortality with volume CT screening in a randomized trial. N Engl J Med 2020;382(6):503-513. ("NELSON")*
Meta-analysis	*Hoffman RM, Atallah RP, Struble RD, Badgett RG. Lung cancer screening with low-dose CT: a meta-analysis. J Gen Intern Med 2020;35(10):3015-3025.*

AAFP: never endorsed 2013 recommendation

USPSTF Modeling study: This criteria would reduce CA mortality by **13k deaths/year**

US Preventive Services Task Force | Modeling Study

FREE

March 9, 2021

Evaluation of the Benefits and Harms of Lung Cancer Screening With Low-Dose Computed Tomography

Modeling Study for the US Preventive Services Task Force

Rafael Meza, PhD[1]; Jihyoun Jeon, PhD[1]; Iakovos Toumazis, PhD[2,3]; et al

» Author Affiliations | Article Information

JAMA. 2021;325(10):988-997. doi:10.1001/jama.2021.1077

Other factors

Fewer than 20% of eligible individuals have accessed screening

some ineligible individuals with smoking exposure of less than 30 pack-years and some with severe comorbidities have been screened

Increased risk in some groups (such as Black men): at high risk for lung cancer even when not meeting the 2013 USPSTF–recommended criteria

Harms Considered:

- False positives (false pos rate 20-29% when studied)
- Overdiagnosis/worry/incidental findings
- Radiation exposure
- $$

American College of Radiology: coming up with more standardized criteria that would reduce false positives (“Lung-RADS” criteria from ACR)

Studies have been done in academic medical centers with specialized equipment

How to handle? Shared decision-making.

What does it mean that this doesn’t change overall mortality?

Gout Management Guideline

Some Strong" and "Conditional" Recs (based on evidence)

Strong Recommendations

Urate lowering therapy for patients with tophi, frequent gout flares (2 or more per year), or those with radiographic evidence of joint damage attributable to gout.

Acute flares: low-dose colchicine, NSAIDs, or corticosteroids (oral, intra-articular, or intramuscular)- ***any of these 3 based on pt factors and preference***

Use allopurinol as the drug of first choice for lowering urate, including for those with CKD

Adding an anti-inflammatory (colchicine, NSAIDs, or prednisone/prednisolone at the discretion of the clinician) for 3 to 6 months when initialing urate lowering therapy

Treat to a target urate levels of less than 6 mg/dL

FitzGerald JD, Dalbeth N, Mikuls T, et al. 2020 American College of Rheumatology guideline for the management of gout. Arthritis Rheumatol 2020;72(6):879-895.

Some Strong" and "Conditional" Recs (based on evidence)

Conditional Recommendations (evidence not as good)

ULT in patients with infrequent flares, stage 3+ CKD, urolithiasis, or those with urate levels >9 mg/dL.

*Rec **against*** starting ULT after a first flare and for those with asymptomatic hyperuricemia.

Ice application to the affected joint

Limiting the intake of alcohol, purines, high-fructose corn syrup, plus a conditional rec against the addition of vitamin C

Switching from HCTZ to a different antihypertensive in patients on HCTZ

FitzGerald JD, Dalbeth N, Mikuls T, et al. 2020 American College of Rheumatology guideline for the management of gout. Arthritis Rheumatol 2020;72(6):879-895.

Once Daily BP meds at Night

Nightly BP Meds

Large Spanish RCT, 19k pts

6.3 year median follow up, good medication adherence

- Primary outcome composite of:
  - CV-related death
  - myocardial infarction
  - Revascularization
  - heart failure
  - stroke

- **Daytime *and* nighttime BPs were significantly lower in the bedtime meds group than in the "upon awakening" group**

Hermida RC et al. Bedtime hypertension treatment improves cardiovascular risk reduction: The Hygia Chronotherapy Trial. Eur Heart J 2019 Oct 22; [e-pub]. (https://doi.org/10.1093/eurheartj/ehz754)

Nightly BP Meds

- Primary Outcome was significantly lower in the bedtime group than in the awakening group (6.5% vs. 11.9%)
- adjusted HR = 0.55; 95% CI 0.50 - 0.61
- NNT = **20.3**; 17.4 - 24.3
- Risk reductions of similar magnitude were seen in each component of the primary outcome. No excess risk for adverse events (e.g., fainting, falling on awakening) was seen in the bedtime group

Osteoarthritis and Knee Injections for Long Term Improvement

OA and Steroid Injections

RCT in the Military Health System, who met ACR criteria for osteoarthritis of the knee

156 participants, mean age of patients was 56 years, 48% were women

- Steroid injections (up to 3, mean of 2.6) vs PT session (mean of 11.8, most in the first 4-6 weeks) over a year
- Primary outcome was change in WOMAC Score

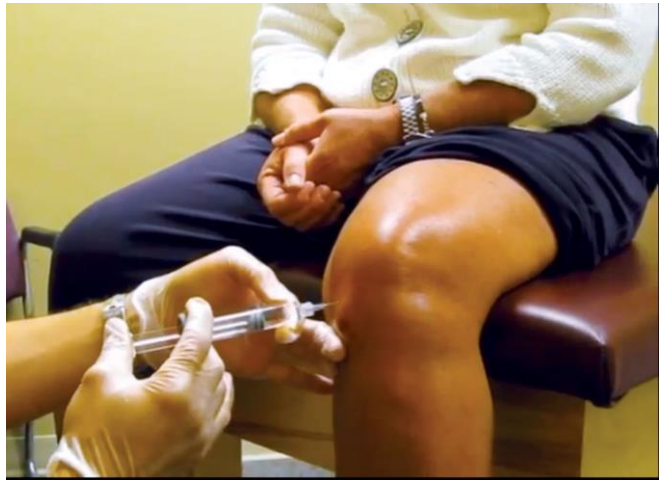
Deyle GD, Allen CS, Allison SC, et al. Physical therapy versus glucocorticoid injection for osteoarthritis of the knee. N Engl J Med 2020;382(15):1420-1429.

OA and Steroid Injections

Change in the WOMAC score at 1 year: improved more in the PT group than in the injection group

Secondary measure: the Global Rating of Change score, also improved slightly more in the PT group, and costs for knee care were similar between groups

Hawthorne effect vs Placebo effect

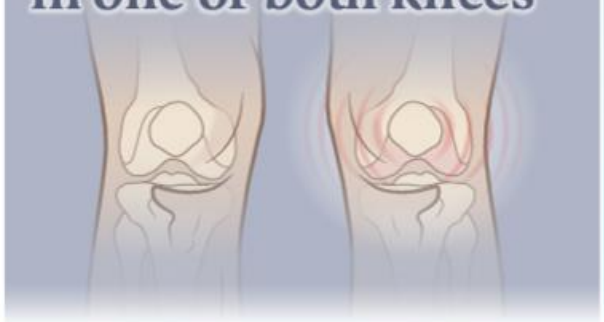


The NEW ENGLAND JOURNAL of MEDICINE

Physical Therapy vs. Glucocorticoid Injection for Knee Osteoarthritis

RANDOMIZED, CONTROLLED TRIAL IN U.S. MILITARY HEALTH SYSTEM

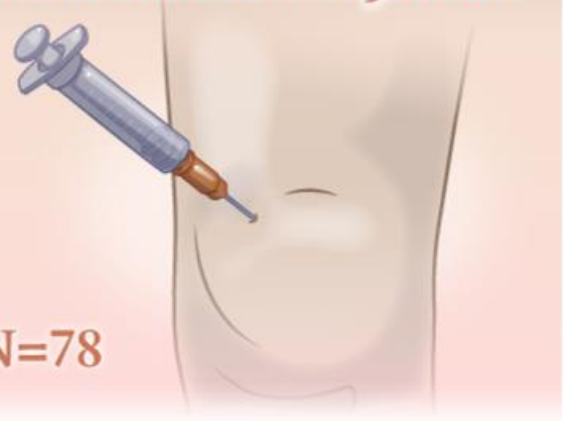
156 Patients with osteoarthritis in one or both knees



Physical Therapy

N=78

Glucocorticoid Injection

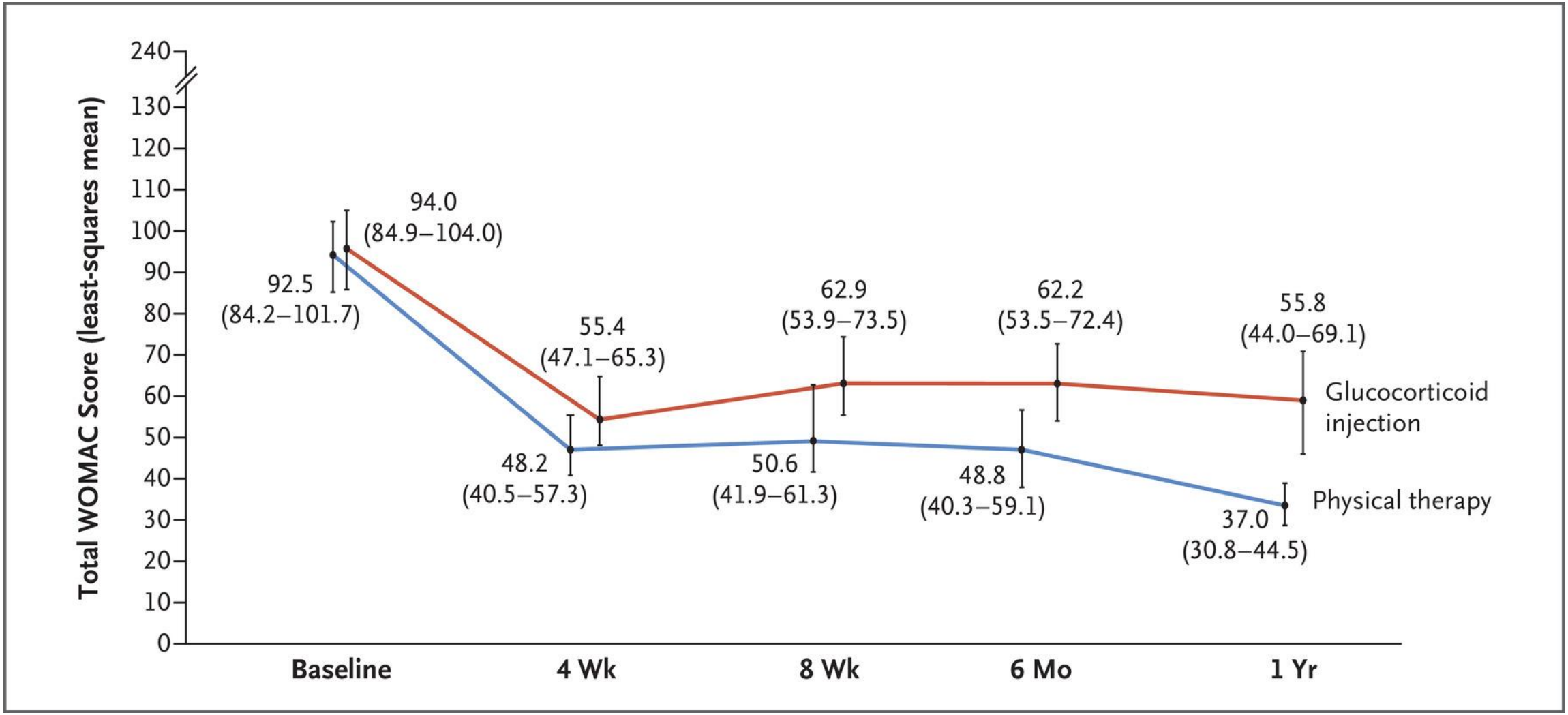


N=78

Mean WOMAC Osteoarthritis Index score at 1 yr (0–240; higher score=more disability)	Baseline, 107.1 → 37.0	Baseline, 108.8 → 55.8
	Mean difference, 18.8 points; 95% CI, 5.0 to 32.6; P=0.008	

Patients who underwent PT had less pain and disability at 1 yr than those who received a glucocorticoid injection

G. Deyle et al. 10.1056/NEJMoa1905877


Total WOMAC Score (least-squares mean)
240
130
120
110
100
90
80
70
60
50
40
30
20
10
0
92.5
(84.2–101.7)
94.0
(84.9–104.0)
55.4
(47.1–65.3)
48.2
(40.5–57.3)
62.9
(53.9–73.5)
50.6
(41.9–61.3)
62.2
(53.5–72.4)
48.8
(40.3–59.1)
55.8
(44.0–69.1)
37.0
(30.8–44.5)
Glucocorticoid injection
Physical therapy
Baseline
4 Wk
8 Wk
6 Mo
1 Yr

Use of Steroid Injections in OA?

- Utility of injections: acute painful flare? (increased pain, effusion, etc)
- Can help with return to baseline
- But likely not for improvement of chronic osteoarthritis of the knee

Penicillin Allergies

Penicillin Allergy Study

622 patients with a “history of reacting to penicillin” from 2 tertiary care sites in Melbourne, Australia

- Evaluate “PEN-FAST” rule
- Allergy confirmatory testing consisted of skin prick, intradermal, or patch testing,
  - positives confirmed by oral challenge

JAMA

JA, Vogrin S, Chua KY, et al. Development and validation of a penicillin allergy clinical decision rule. JAMA Intern Med 2020;180(5):745-752.

Figure. PEN-FAST Penicillin Allergy Clinical Decision Rule

PEN	*Penicillin allergy reported by patient*	☐ *If yes, proceed with assessment*
F	*Five years or less since reaction*[a]	☐ **2 points**
A	*Anaphylaxis or angioedema*	
	OR	☐ **2 points**
S	*Severe cutaneous adverse reaction*[b]	
T	*Treatment required for reaction*[a]	☐ **1 point**
		☐ **Total points**

Interpretation

Points	
0	**Very low risk** of positive penicillin allergy test <1% (<1 in 100 patients reporting penicillin allergy)
1-2	**Low risk** of positive penicillin allergy test 5% (1 in 20 patients)
3	**Moderate risk** of positive penicillin allergy test 20% (1 in 5 patients)
4-5	**High risk** of positive penicillin allergy test 50% (1 in 2 patients)

Quicker Summaries

Quick Summaries

2020 American Cancer Society Guidelines on Cervical Cancer (start at 25, HPV test alone is preferred). Not yet embraced by other societies...

No Short-Term Extra Benefit When Muscle Relaxants Are Added to Ibuprofen for Acute Low Back Pain

Friedman BW, Irizarry E, Solorzano C, et al. A randomized, placebo-controlled trial of ibuprofen plus metaxalone, tizanidine, or baclofen for acute low back pain. Ann Emerg Med 2019;74(4):512-520.

Hidden in Plain Sight — Reconsidering the Use of Race Correction in Clinical Algorithms

NEJM 383;9 nejm.org August 27, 2020

Shorter Penicillin Treatment for Strep Throat Is Effective (“European standard regimen” of PCN V 800mg qid x 5 days)

Skoog Ståhlgren G et al. Penicillin V four times daily for five days versus three times daily for 10 days in patients with pharyngotonsillitis caused by group A streptococci: Randomised controlled, open label, non-inferiority study. BMJ 2019 Oct 4; 367:l5337

Nearly ~ ½ of children with severe asthma no longer meet the criteria for severe disease after 3 years

Ross KR, Gupta R, DeBoer MD, et al. Severe asthma during childhood and adolescence: A longitudinal study. J Allergy Clin Immunol 2020;145(1):140-146.

Isolated diastolic hypertension not associated with increased risk of CVD

Rahman F, et al. Association of isolated diastolic hypertension as defined by the 2017 ACC/AHA blood pressure guideline with incident cardiovascular outcomes. JAMA 2020;323(4):329-338.

Point-of-care ultrasound is useful for ruling out skin and soft tissue abscess but a little less useful at ruling it in

Gottlieb M, Avila J, Chottiner M, Peksa GD. Point-of-care ultrasonography for the diagnosis of skin and soft tissue abscesses: a systematic review and meta-analysis. Ann Emerg Med 2020;76:67-77.

Buffering lidocaine 1% w/epi with sodium bicarb in a 3:1 ratio is as effective and less painful than a 9:1 ratio

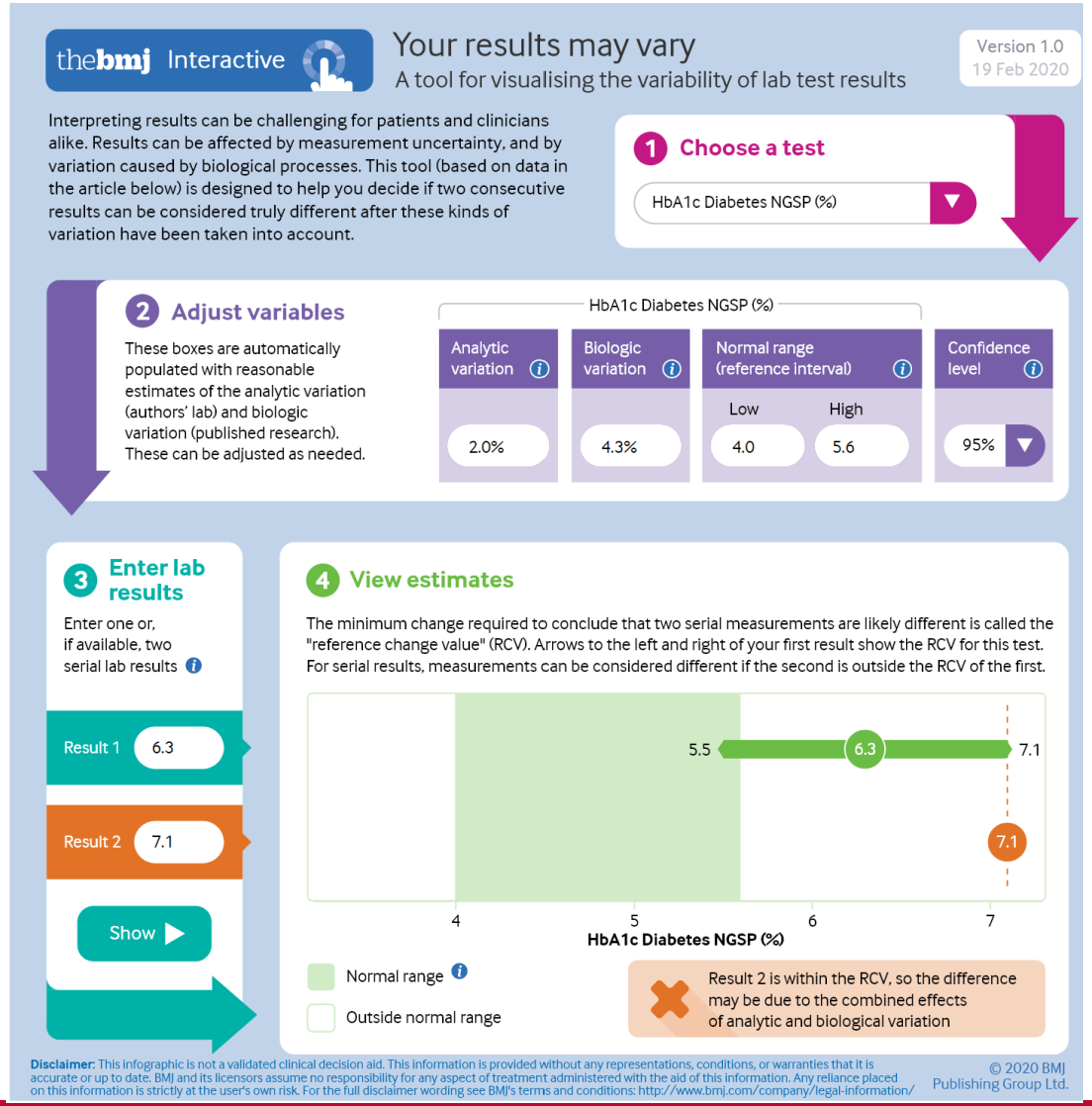
Vent A, Surber C, Graf Johansen NT, et al. Buffered lidocaine 1%/epinephrine 1:100,000 with sodium bicarbonate (sodium hydrogen carbonate) in a 3:1 ratio is less painful than a 9:1 ratio: A double-blind, randomized, placebo-controlled crossover trial. J Am Acad Dermatol 2020;83(1):159-165.

Mode of delivery unchanged with delayed or immediate pushing in second stage labor with epidural analgesia

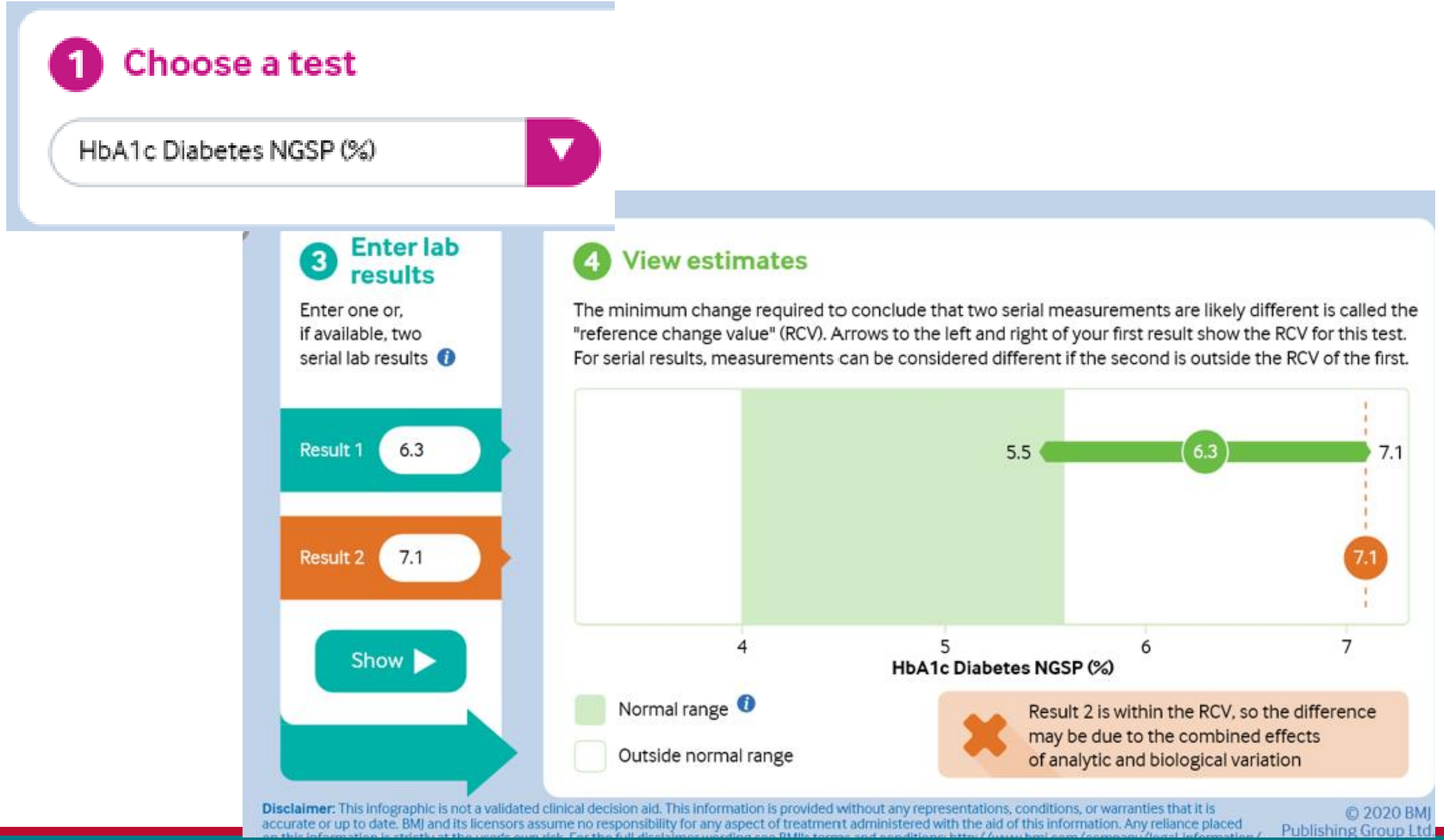
Di Mascio D, Saccone G, Bellussi F, et al. Delayed versus immediate pushing in the second stage of labor in women with neuraxial analgesia: a systematic review and meta-analysis of randomized controlled trials. Am J Obstet Gynecol 2020;223(2):189-203.

Your results may vary: the imprecision of medical measurements

BMJ 2020 ; 368 doi: https://doi.org/10.1136/bmj.m149 (Published 20 February 2020)
Cite this as: *BMJ* 2020;368:m149



google:
"BMJ your results may vary"


1 Choose a test
HbA1c Diabetes NGSP (%)
3 Enter lab results
Enter one or, if available, two serial lab results
Result 1 6.3
Result 2 7.1
Show
4 View estimates
The minimum change required to conclude that two serial measurements are likely different is called the "reference change value" (RCV). Arrows to the left and right of your first result show the RCV for this test. For serial results, measurements can be considered different if the second is outside the RCV of the first.
5.5
6.3
7.1
7.1
4
5
6
7
HbA1c Diabetes NGSP (%)
Normal range
Outside normal range
Result 2 is within the RCV, so the difference may be due to the combined effects of analytic and biological variation
Disclaimer: This infographic is not a validated clinical decision aid. This information is provided without any representations, conditions, or warranties that it is accurate or up to date. BMJ and its licensors assume no responsibility for any aspect of treatment administered with the aid of this information. Any reliance placed
© 2020 BMJ Publishing Group Ltd.

And finally…

Resident Work Hours

Multi-center study of peds residents during ICU rotations

Schedules that included 24+ hr shifts, *vs* those with 16 hrs or less

- 6 sites: 333 pgy2/3 residents, PICUs
- Primary outcome: serious medical errors made by resident physicians (assessed by surveillance including observation and chart review)

The NEW ENGLAND JOURNAL of MEDICINE

N Engl J Med 2020;382:2514-23.
DOI: 10.1056/NEJMoa1900669

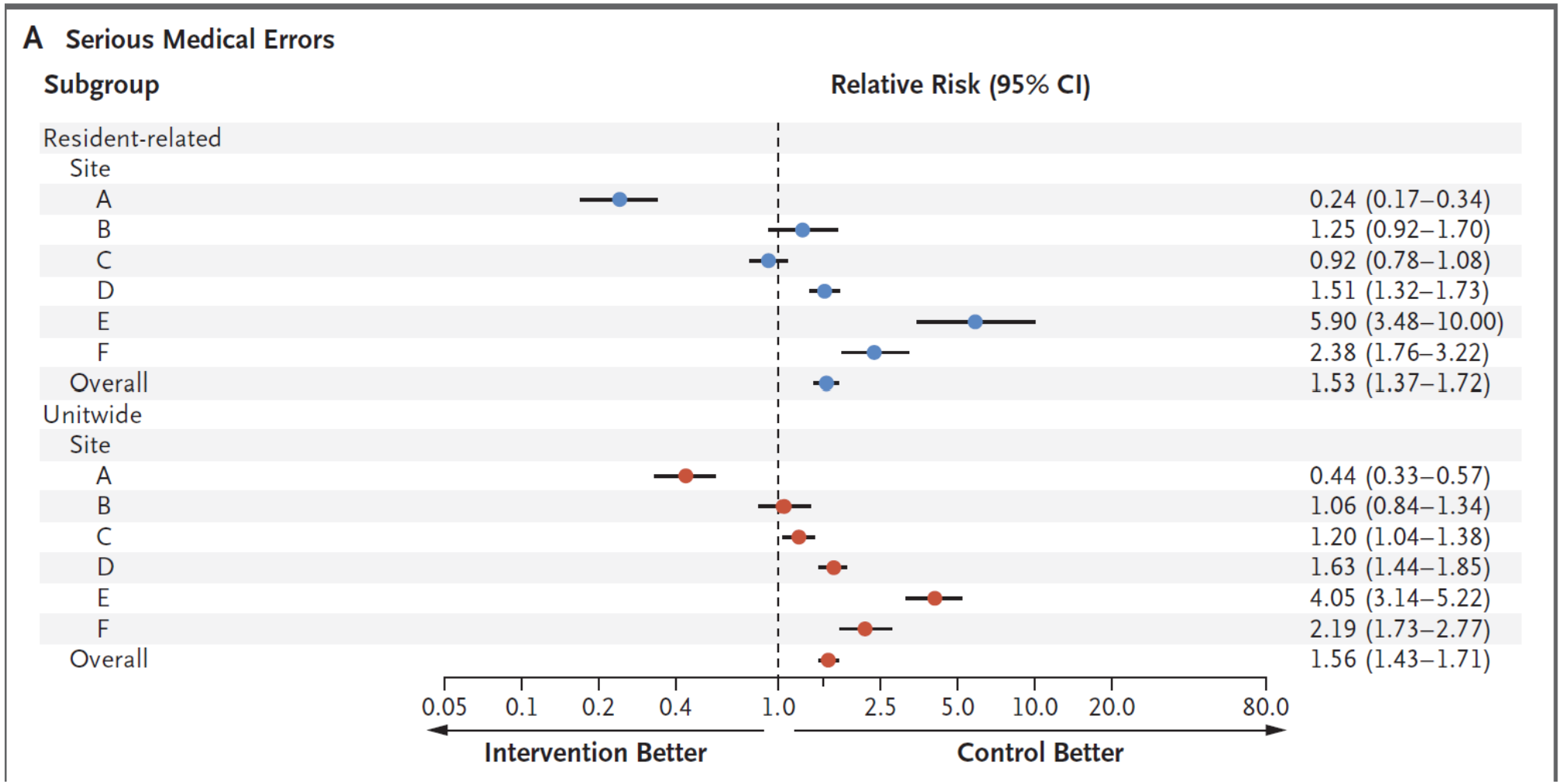
Table 2. Patient and ICU Characteristics.*

Characteristic	Control Schedule	Intervention Schedule
Patients — no.	3,267	3,310
ICU admissions — no.	3,508	3,591
Patient-days — no.	18,749	20,072
Age — yr	7.3±6.7	7.1±6.6
Male sex — no./total no. (%)	1853/3508 (52.8)	1943/3591 (54.1)
Median length of stay (IQR) — days	2 (2–5)	2 (2–5)
Median chronic condition indicator (IQR)†	2 (1–4)	2 (1–4)
ICU patients per resident physician — no.‡	6.7±2.2	8.8±2.8

* Plus–minus values are means ±SD. The control schedule included shifts of 24 hours or more. The intervention schedule eliminated extended shifts and cycled resident physicians through day and night shifts of 16 hours or less. ICU denotes intensive care unit, and IQR interquartile range.

† The chronic condition indicator is a marker of a patient's coexisting conditions, derived from administrative billing codes. Higher numbers indicate the presence of more coded chronic conditions.[35]

‡ The number of ICU patients per resident physician is calculated as the average census of patients at each site during each schedule divided by the average number of resident physicians present at each site during each schedule.



The NEW ENGLAND JOURNAL of MEDICINE

N Engl J Med 2020;382:2514-23.
DOI: 10.1056/NEJMoa1900669

Maybe only interesting to me

- Residents' mean weekly work hours were lower during the intervention schedule than during the control schedule (61.9±4.8 hours vs. 68.4±7.4 hours)
- Mean weekly sleep hours were a little greater (52.9±6.0 hours vs. 49.1±5.8 hours)
- The percentage of 24-hour intervals with fewer than 4 hours of sleep: 25% in the control group, 9% in the intervention group

The NEW ENGLAND JOURNAL of MEDICINE

N Engl J Med 2020;382:2514-23.
DOI: 10.1056/NEJMoa1900669

Conclusions

- Mean pt load per resident: 8.8 vs 6.7 (more in the compressed schedules)
- More serious errors in compressed schedules 97.1 vs 79.0 per 1000 pt-days
- Significant variability among sites
- Secondary analysis: adjusted for number of pts per resident: shorter schedules no longer associated with increased errors

N Engl J Med 2020;382:2514-23.
DOI: 10.1056/NEJMoa1900669

How to Stay Current?

Staying Current

Journal clubs with your colleagues

Services: Essential Evidence, Journal Watch, etc

Podcasts

Teach and Precept

ABFM CKSA's: 25 q's per quarter (they also have an app)

Do a talk like this!

Thanks!

Creating a health network that
practices, teaches, and researches
WITH our communities
so that we can all flourish.