CareQuest Institute for Oral Health®

Evidence-Based Practice: Aligning Care with Patient Values and Preferences

September 11, 2025

Webinar Notes

All lines will be muted to avoid background noise.

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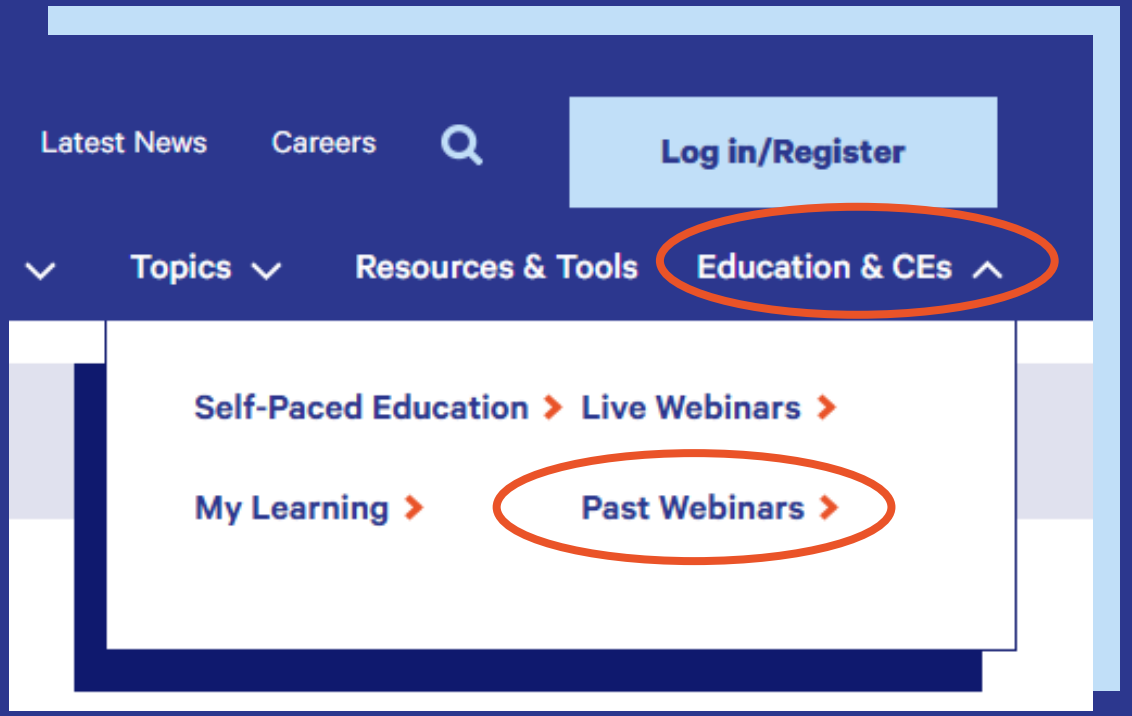

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- Feel free to enter your questions into the **Question & Answer box** throughout the presentations.
- We will turn to your questions and comments toward the end of the hour.

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CareQuest Institute for Oral Health

CareQuest
Institute for Oral Health®

Webinar

Evidence-Based Practice:

Aligning Care with Patient Values and Preferences

Thursday
September 11, 2025

7-8 p.m. ET

1 CE Credit

Moderator & Presenter

JoAnn Gurenlian, RDH, MS, PhD, AAFAAOM, FADHA
American Dental Hygienists' Association

Presenter

Alonso Carrasco-Labra, DDS, MSc, PhD
Center for Integrative Global Oral Health, Penn Dental Medicine

Learning Objectives

- **Describe** how patient values and preferences influence clinical decision-making in evidence-based practice.
- **Differentiate** between evidence, clinical expertise, and patient preferences when making treatment recommendations.
- **Apply** a shared decision-making framework to real-world scenarios, identifying potential barriers (e.g., time constraints, provider bias) and strategies to engage patients in their care decisions.

Polling Question

How familiar are you with evidence-based practice (EBP)?

a) Very unfamiliar – I've never heard of it.
b) Slightly unfamiliar – I've heard of it but don't know much.
c) Familiar – I understand the basics.
d) Very familiar – I use EBP concepts occasionally.
e) Extremely familiar – I regularly apply EBP in my work.

Polling Question

What are the benefits to using evidence in practice?

a) Improved patient outcomes
b) Higher quality of care delivered
c) Enhanced professional credibility and accountability
d) Better patient communication and education
e) More efficient and cost-effective care
f) Lifelong learning and professional development
g) Other

CareQuest Institute for Oral Health®

Evidence-Based Practice: Aligning Care with Patient Values and Preferences

Alonso Carrasco-Labra DDS, MSc, PhD
carrascl@upenn.edu

Disclaimer

- The guideline in this presentation was financially supported by grant U01FD007151 from the Food and Drug Administration (FDA) of the U.S. Department of Health and Human Services (HHS). The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement by, FDA/HHS or the U.S. Government.

- The American Dental Association (ADA) has endorsed these guidelines.

- The International Association of Pediatric Dentistry (IAPD) has endorsed the guideline applicable to pediatric population.

- The U.S. Centers for Disease Control and Prevention (CDC) peer-reviewed drafts of the guideline manuscripts and provided informal approval.

Disclaimer

- The funders had no decision-making role in designing and conducting the systematic reviews, data collection, analysis, and interpretation of the data, or approval privilege on the recommendation and good practice statements. As requested, FDA officers provided nonbinding feedback and technical support to the panel and methodological team.

Conflict-of-Interest

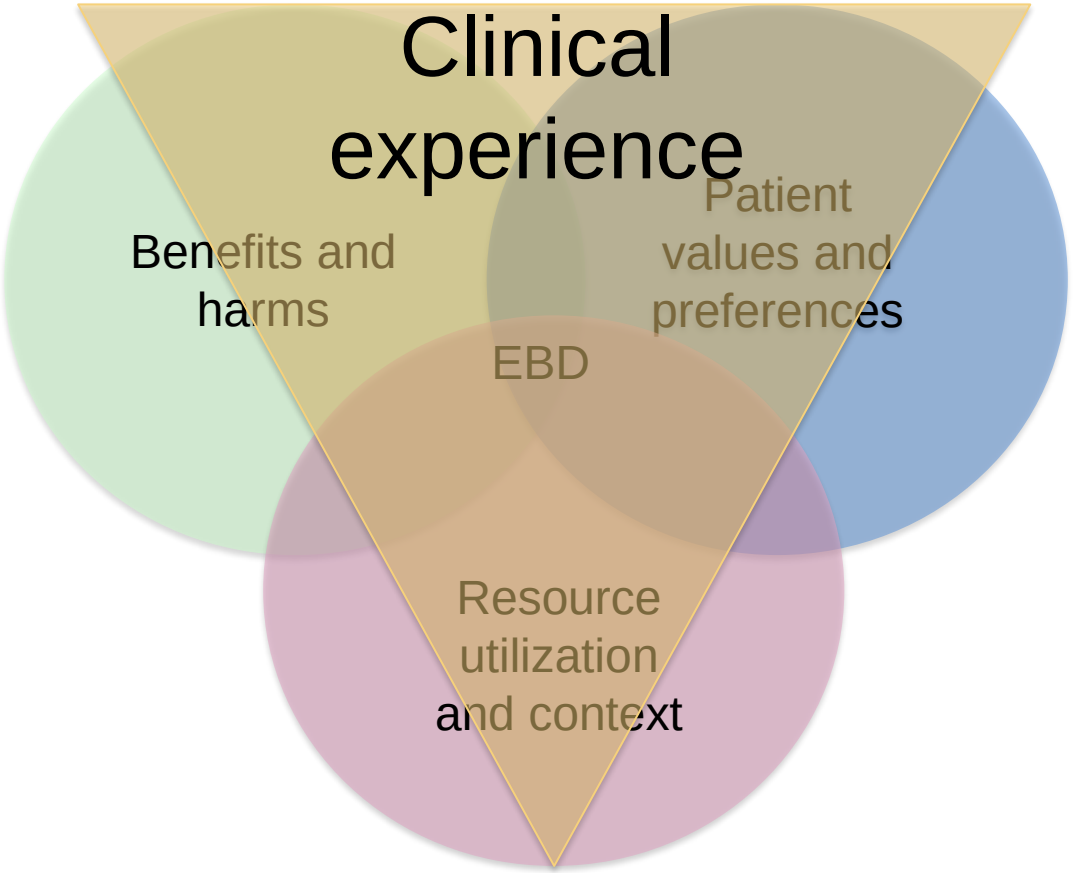
- **We do not have financial conflicts of interest** to disclose in relation to the content of this presentation, or interventions recommended in the discussed guidelines
- **We have intellectual conflicts of interest**
  - Member of the GRADE working group
  - Cochrane Oral Health Center at Penn Dental Medicine
  - Leader of the Cochrane Patient-Reported Outcome Methods Group
  - CIGOH: ADA Living Guidelines Program

Objectives

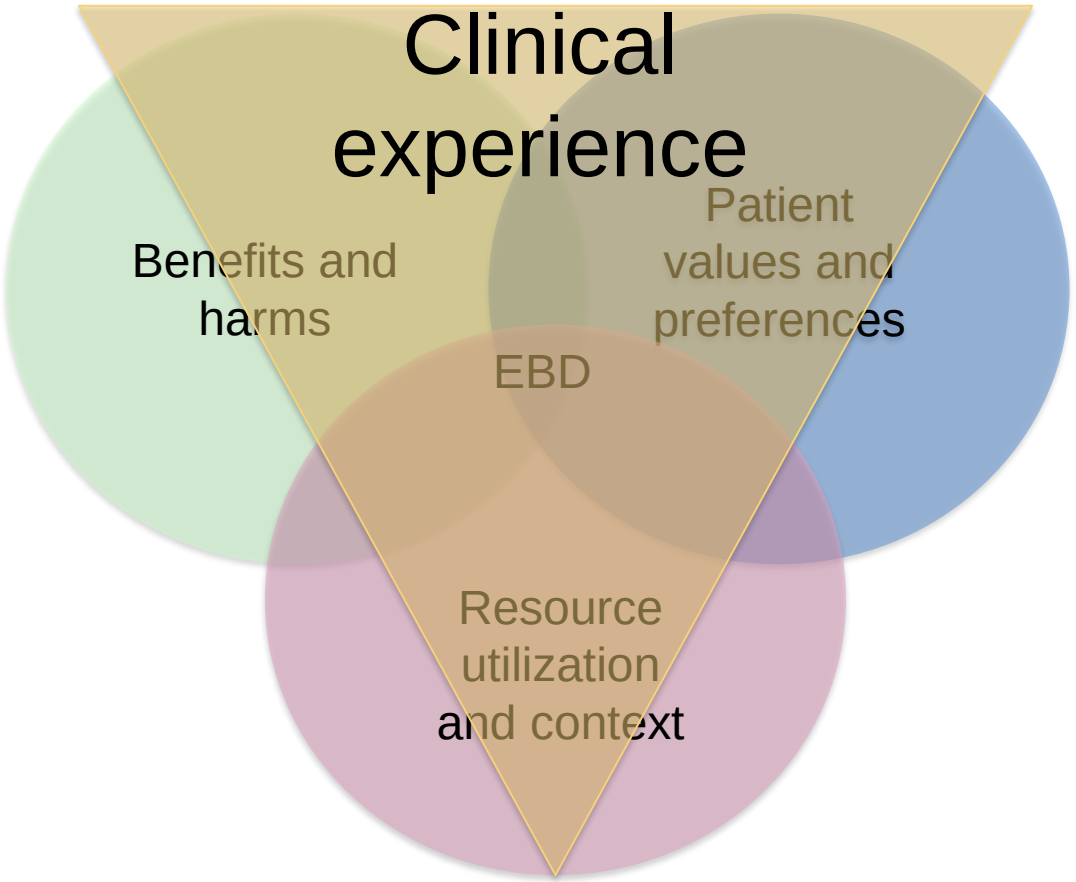
1. **Describe** what are patient values and preferences about
2. **Determine** how values and preferences drive evidence-informed decision-making
3. **Define** what is shared decision-making (SDM)
4. **How** decision aids can help with SDM implementation

Evidence-Based Clinical Practice

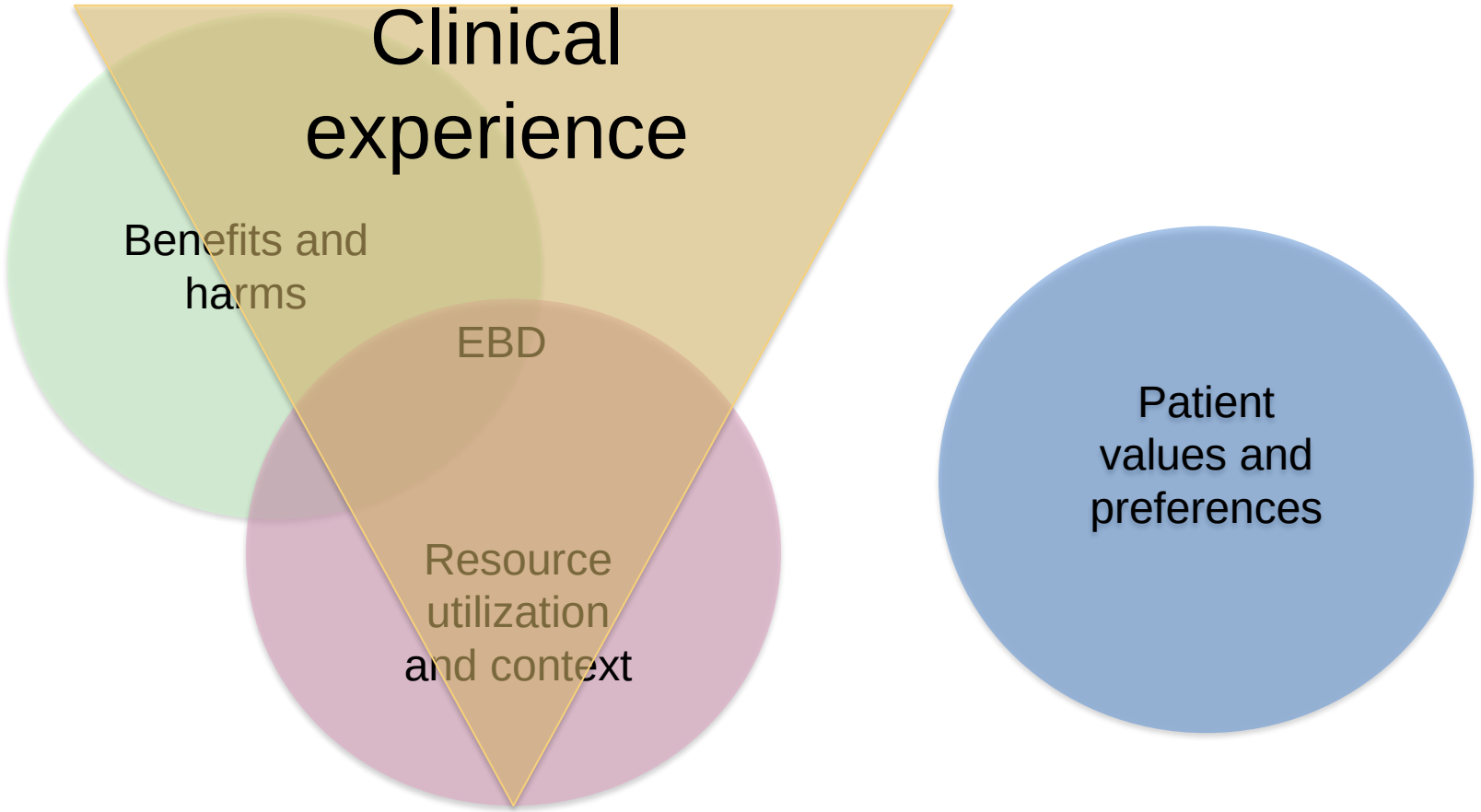
Evidence-based practice is the conscientious, explicit, and judicious use of the **current best available evidence** in helping individual patients make decisions about their care in the light of their **individual values and preferences**



Evidence-Based Clinical Practice



Evidence-Based Clinical Practice



Patient Values and Preferences

> “The relative importance people place on the health **outcomes**; since we consider an intervention in the context of the **consequences** it incurs, the preferences for or against an intervention is a consequence of the relative importance people place on the expected or definite health **outcomes** it incurs.”

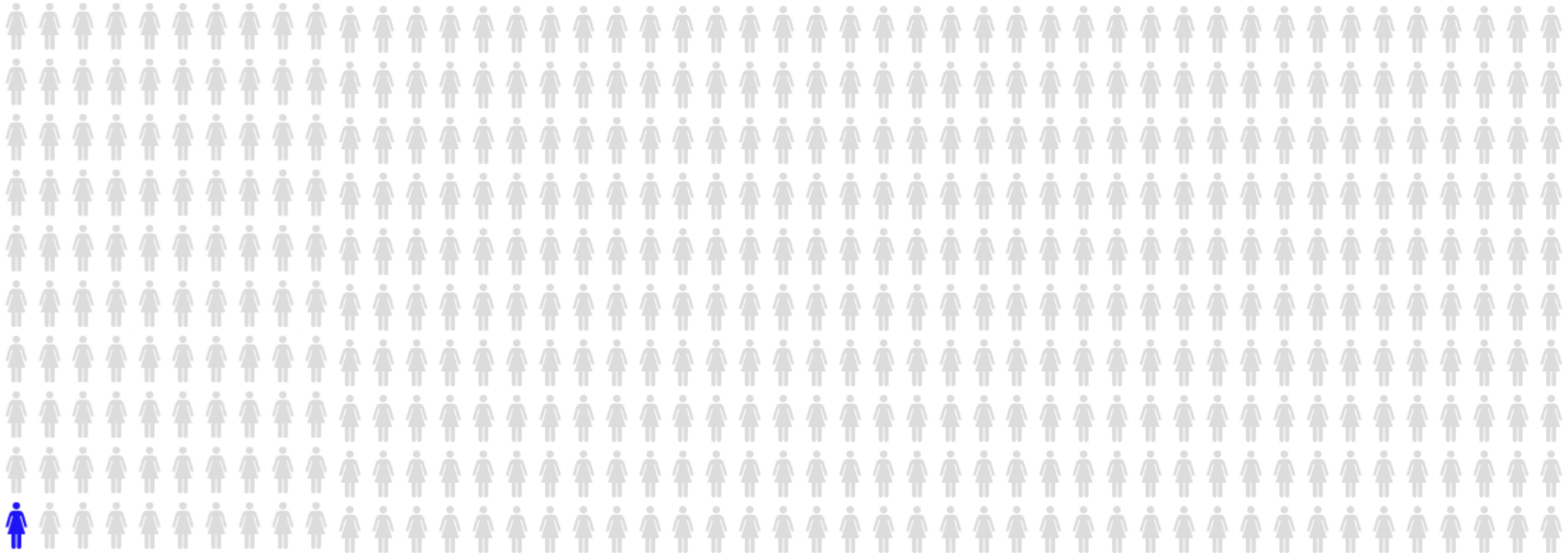
Values

Preferences

Zhang Y, et al. Using patient values and preferences to inform the importance of health outcomes in practice guideline development following the GRADE approach. Health Qual Life Outcomes. 2017 May 2;15(1):52.

Breast Cancer Screening (40 to 49 Years Old)

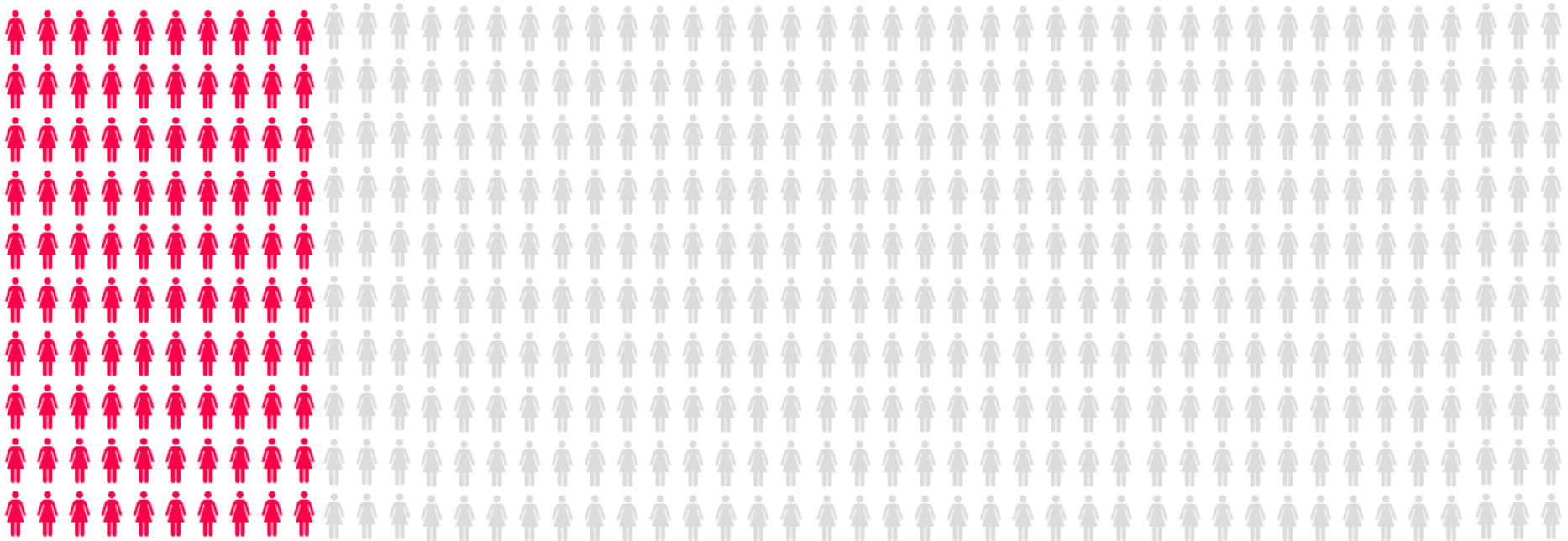
Lives saved over 10 years



1 life saved over 1,000 mammograms

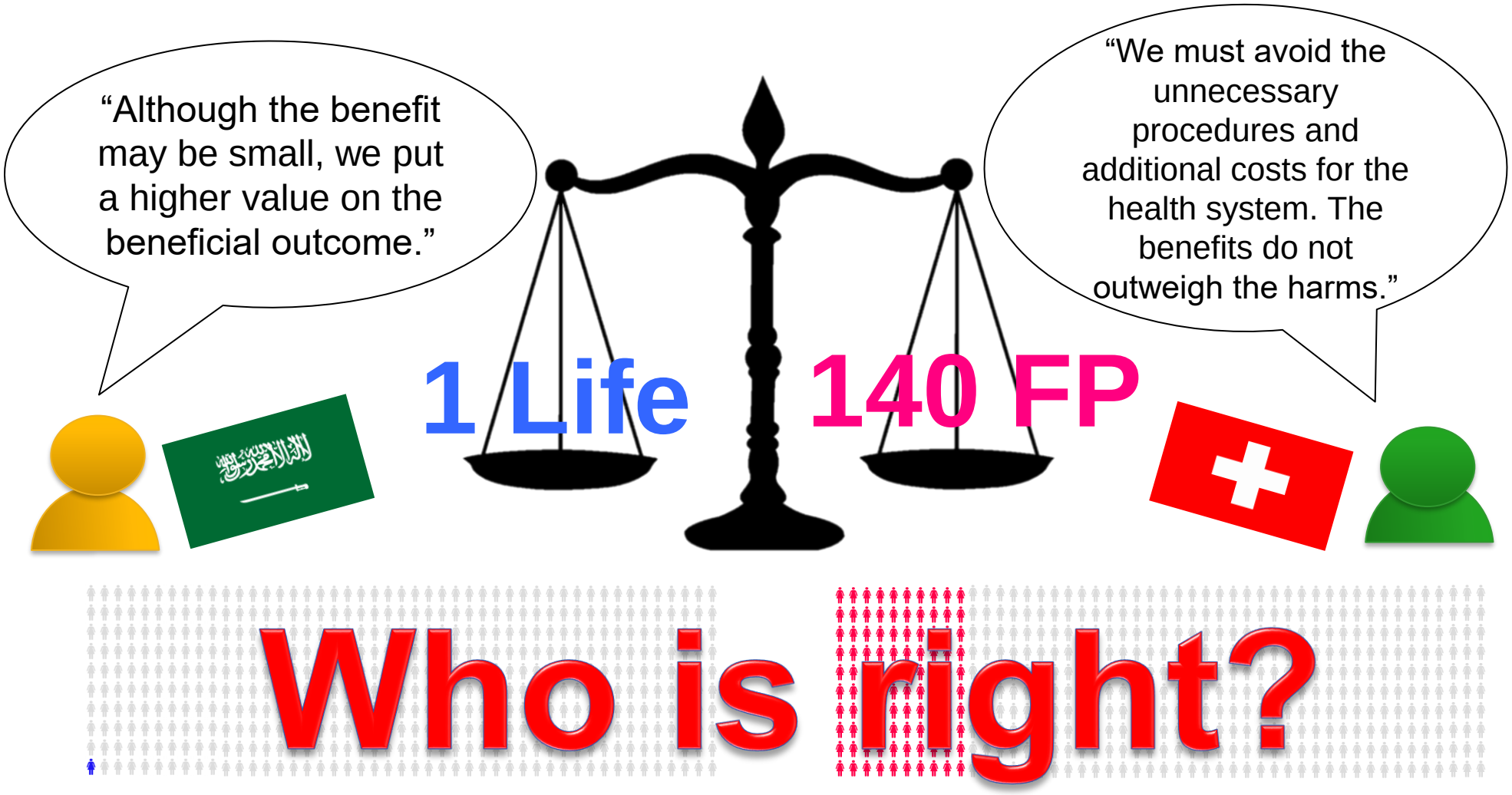
Breast Cancer Screening (40 to 49 Years Old)

False positive over 10 years (biopsy, surgery, anxiety)



140 false positive results over 1,000 mammograms

Balance Between Benefits and Harms



The Importance of Patient Values and Preferences

The evidence of the effects of interventions (i.e., benefits and harms) is not enough for decision-making, it is always in the context of patients' values and preferences.

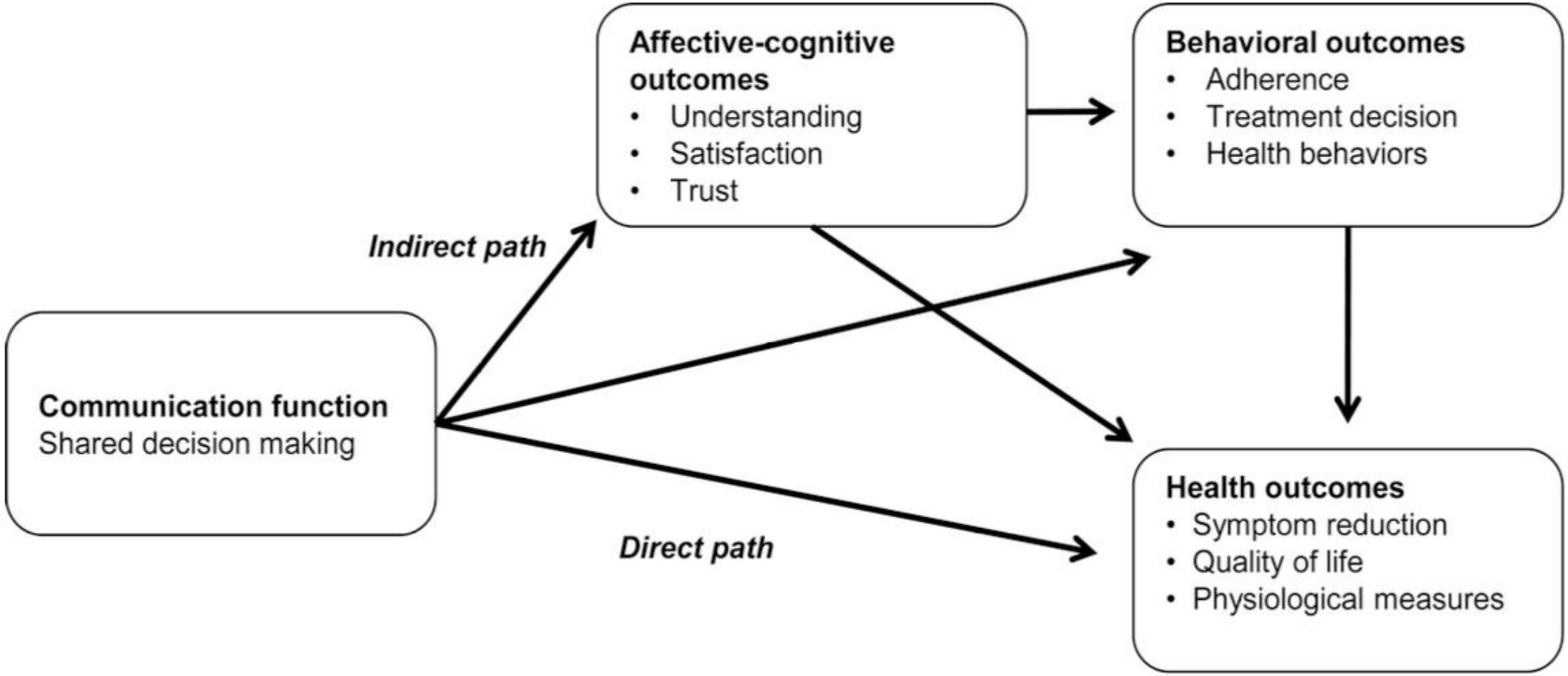
Shared Decision-Making . . .

". . . is an approach in which clinicians and patients **work together** by sharing the best available evidence **about options** and supporting patients to consider those options so they can form and express informed preferences aligned with **what matters most to them**."

Link to patient values and preferences

Elwyn G, Frosch D, Thomson R, Joseph-Williams N, Lloyd A, Kinnersley P, Cording E, Tomson D, Dodd C, Rollnick S, Edwards A, Barry M. Shared decision making: a model for clinical practice. J Gen Intern Med. 2012 Oct;27(10):1361-7.

Conceptual Framework Linking SDM to Health Outcomes



Shay et al. Med Decis Making. 2015 January ; 35(1): 114–131

JAMA Clinical Evidence Synopsis

Patient Decision Aids to Engage Adults in Treatment or Screening Decisions

JAMA August 15, 2017 Volume 318, Number 7

CLINICAL QUESTION Are patient decision aids (PtDAs) associated with (1) improved decision quality defined as a decision informed by the evidence and a value-based decision; (2) improved decision-making processes defined as feeling informed, defining clear values related to the decision, and active participation in making the decision; and (3) better patient and health system outcomes compared with either usual care or a non-PtDA intervention?

Penn Dental Medicine University of Pennsylvania

Center for Integrative Global Oral Health

Evidence Profile

No. of randomized clinical trials: 105

Study years: Conducted, 1983-2013 (data in 86 trials); published, 1988-2015

No. of participants: 31 043

Men: 45.3% **Women:** 54.7% (data in 102 trials; 30 642 participants)

Race/ethnicity: White, 60.4%; black, 13.9%; Asian, 3.0%; aboriginal, 0.1%; other, 6.7%; unknown, 16.5% (data in 42 trials; 13 724 participants)

Education: Secondary school diploma or less, 43.9%; postsecondary education, 46.3%; unknown, 9.8% (data in 85 trials; 26 595 participants)

Settings: Primary care, specialty care, public health, emergency department

Countries: Australia, Canada, China, Finland, Germany, the Netherlands, Spain, Sweden, United Kingdom, United States

Intervention: Patient decision aids (PtDAs)

Comparisons: Usual care, no intervention, or non-PtDA intervention (eg, guideline, placebo intervention, or general information). Comparisons between PtDAs were excluded.

Primary outcomes: Choice attributes: patient having knowledge and accurate risk perceptions with selected option congruent with their values; decision-making process attributes: decisional conflict, clinician-controlled decision making.

Secondary outcomes: Behavior: selected health care option; health outcomes: general or condition-specific health outcomes (eg, anxiety or depression); health care system: consultation length.

Table. Meta-Analysis Findings in the Systematic Review of Patient Decision Aids (N = 105 Randomized Cl

	No. of Trials	Participants, No.		Rates/1000 Patients[a]			lity
		PtDA	Control	PtDA	Control		
Primary Outcome: Attributes of the Choice Made							
Knowledge of options and outcomes	52	6779	6537	70[c]	57[c]	MD, 13.27 (	
Selected option congruent with patients' values	10	2536	2090	595	289	RR, 2.06 (1.46 to 2	Low
Accurate risk perception of outcomes	17	2584	2512	565	269	RR, 2.10 (1.66 to 2.66)	Moderate
Primary Outcome: Attributes of the Decision-Making Process							
Feeling uninformed[d]	27	3116	2591	21.2[e]	30.5[e]	MD, −9.28 (−12.20 to −6.36)[e]	High
Unclear values[d]	23	2794	2274	21.3[f]	30.1[f]	MD, −8.81 (−11.99 to −5.63)[f]	High
Clinician makes decisions without patient participation	16	1743	1437	155	228	RR, 0.68 (0.55 to 0.83)	Mode
Secondary Outcome: Actual or Preferred Option Chosen							
New medication for diabetes	4	243	204	194	118	RR, 1.65 (1.06 to 2.56)	Low
Prostate-specific antigen testing	10	2020	1976	389	442	RR, 0.88 (0.80 to 0.98)	Moderate
Elective surgery							
All studies	18	1921	1923	320	372	RR, 0.86 (0.75 to 1.00)	Moderate
Excludes prophylactic mastectomy	17	1557	1551	379	451	RR, 0.84 (0.73 to 0.97)	Moderate
Breast cancer genetic testing	3	342	396	380	384	RR, 0.99 (0.71 to 1.38)	Very low
Colon cancer screening	10	2406	2123	379	339	RR, 1.12 (0.95 to 1.31)	Low

Abbreviations: GRADE, Grading of Recommendations Assessment, Development [d] Identified by the International Patient Decision Aid Standards Collaboration as

a percentage.

Helped adjust expectations

Perception of being informed

Helped clarify values

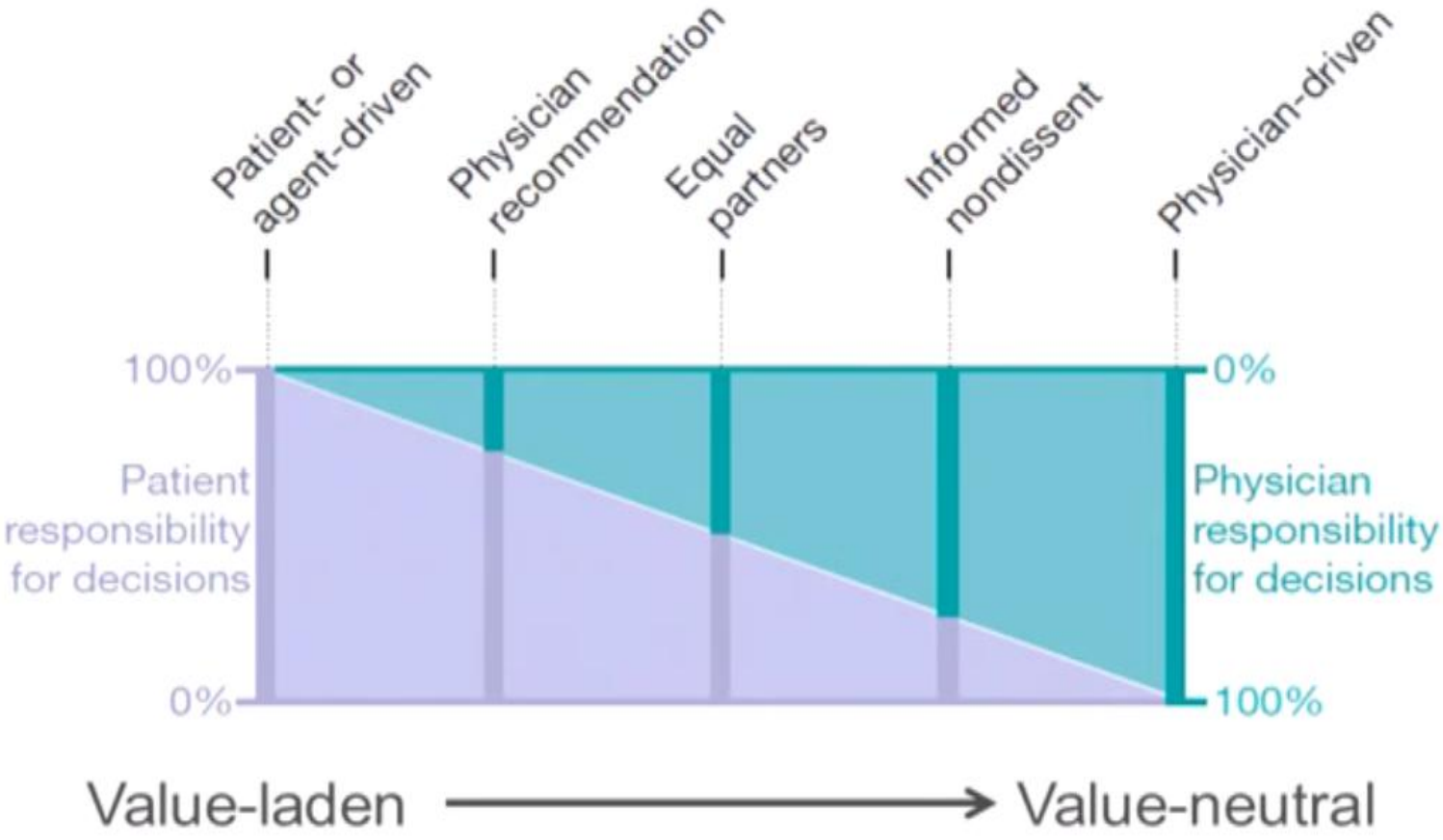
Reduced clinician-driven decisions

BOTTOM LINE Patient decision aids are associated with improved decision quality and decision-making processes without worse patient or health system outcomes.

Assessing Values with Patients in Practice

Conversation Starters
“When you think about possible risks, what matters most to you?”
“As you think about your options, what’s important to you?”
“Which of the options fits best with treatment goals we’ve discussed?”
“Is there anything that may get in the way of doing this (a treatment)?”

Shared Decision-Making Continuum



Kon AA. The shared decision-making continuum. JAMA. 2010 Aug 25;304(8):903-4.

PERGAMON

Social Science & Medicine 49 (1999) 437–447

SOCIAL SCIENCE & MEDICINE

www.elsevier.com/locate/socscimed

When is a shared decision not (quite) a shared decision? Negotiating preferences in a general practice encounter

Richard Gwyn[a,*], Glyn Elwyn[b]

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[b] *Department of Postgraduate Education for General Practice, University of Wales College of Medicine, Cardiff CF4 4XN, UK*

Abstract

We consider whether there are situations in which 'shared decision making' in primary care is inherently problematic, such as in the demand for antibiotics to treat viral disorders. In such an instance there might be a lack of the equipoise necessary for a decision-making context in which apparent choices are genuine options. Using the techniques of discourse analysis on the transcript of a consultation with the parents of an infant with tonsillitis, we illustrate how a general practitioner's (GP's) efforts to reach a 'shared decision' come unstuck through a combination of the embedded power imbalance and the conflict between the GP's own prescription preferences and those of the parent.

Keywords: Shared decision-making; Primary care; Treatment preferences

Is There Always a Choice?

- "When there is not ***equipoise***, for example, in the demand for antibiotics to treat viral disorders, problems may arise for both doctor and patient, rendering the successful negotiation of a genuinely shared decision difficult.

- In such a case *shared decision-making* might be a misnomer (Charles et al., 1997) and although a *shared decision* is reached, it would be more accurately described as an informed decision engineered according to doctor preference."

Gwyn R, Elwyn G. When is a shared decision not (quite) a shared decision? Negotiating preferences in a general practice encounter. Soc Sci Med. 1999 Aug;49(4):437-47.

When No Real Choice Exists . . .

- Some disease processes do not afford choices.
- Should clinicians assume decisional authority?
- How do we define a “no real choice scenario”?
- What if an intervention has no medically acceptable alternative but remains very preference-sensitive?

The Issue of Free Choice

Pediatrics. 2013 Dec;132(6):1037-46. doi: 10.1542/peds.2013-2037. Epub 2013 Nov 4.

The architecture of provider-parent vaccine discussions at health supervision visits.

Opel DJ[1], Heritage J, Taylor JA, Mangione-Smith R, Salas HS, Devere V, Zhou C, Robinson JD.

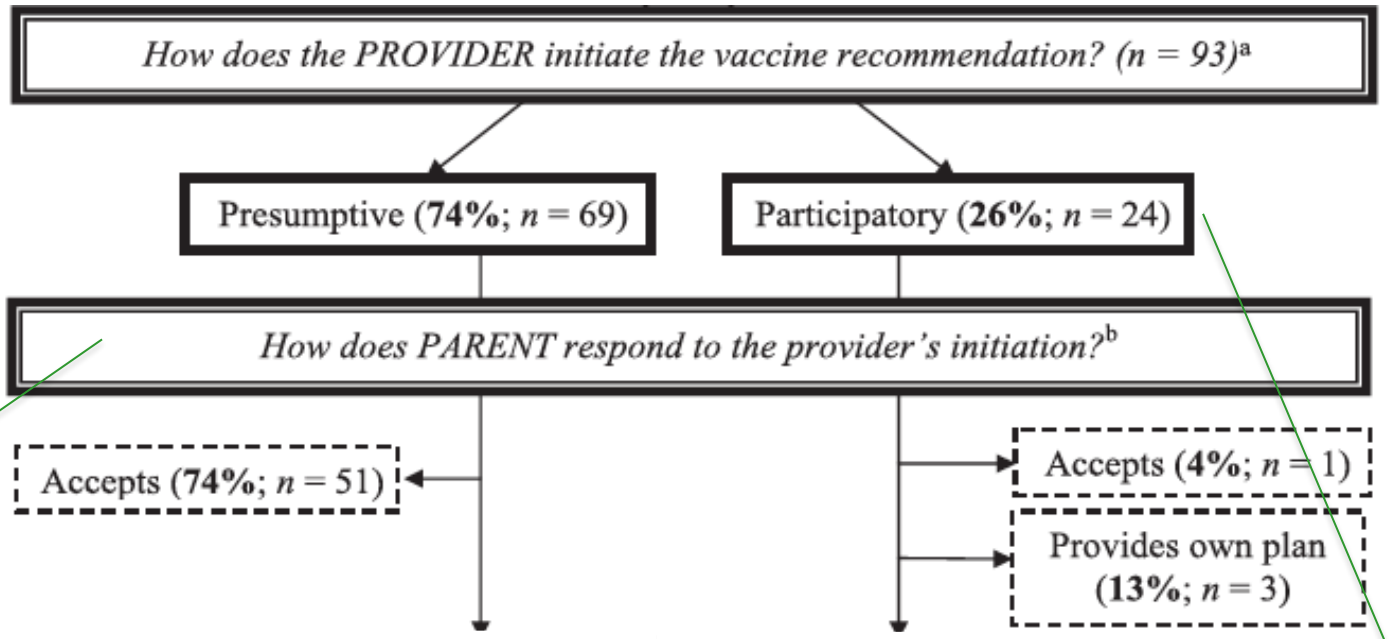
⊕ Author information

Abstract

OBJECTIVE: To characterize provider-parent vaccine communication and determine the influence of specific provider communication practices on parent resistance to vaccine recommendations.

METHODS: We conducted a cross-sectional observational study in which we videotaped provider-parent vaccine discussions during health supervision visits. Parents of children aged 1 to 19 months old were screened by using the Parent Attitudes about Childhood Vaccines survey. We oversampled vaccine-hesitant parents (VHPs), defined as a score ≥50. We developed a coding scheme of 15 communication practices and applied it to all visits. We used multivariate logistic regression to explore the association between provider communication practices and parent resistance to vaccines, controlling for parental hesitancy status and demographic and visit characteristics.

The Issue of Free Choice



"Well, we have to do some shots today"

"Parents had significantly higher odds of resisting vaccine recommendations if the provider used a participatory rather than a presumptive initiation format."
(OR 17.5; 95% CI: 1.2 - 253.5)

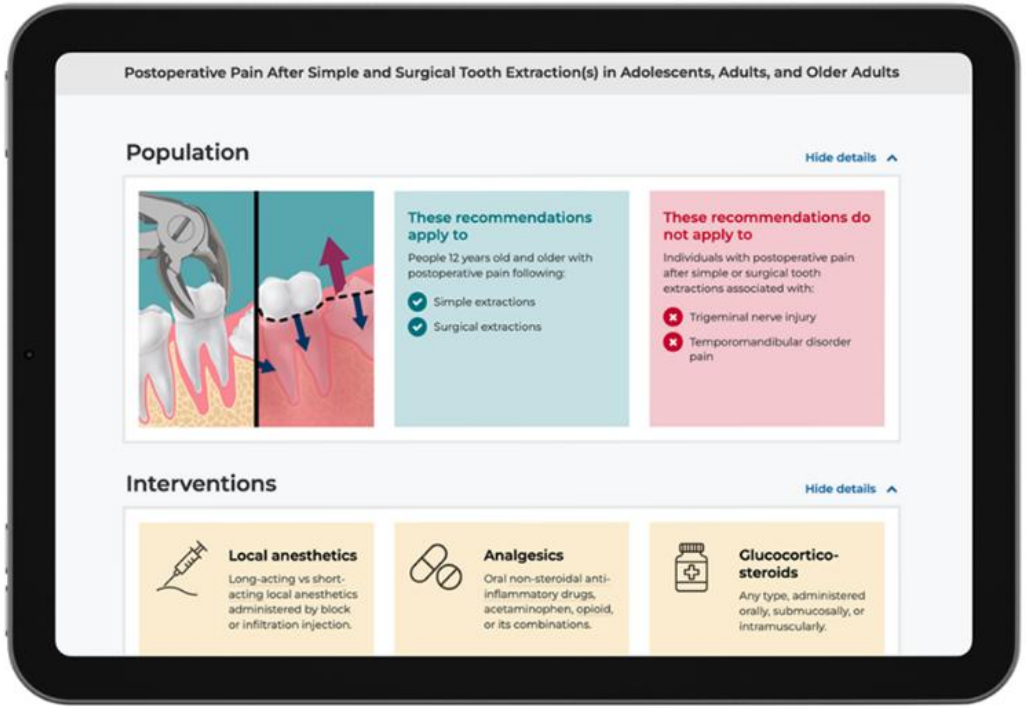
"What do you want to do about the shots?"

Decision Aids

Are an evidence-informed tool that:

1. makes a decision explicit,
2. presents evidence-based information on available options and their benefits/harms,
3. helps people clarify and communicate what matters the most to them (values-congruent choice),
4. to complement, not replace, clinician–patient conversation.

Stacey D, Légaré F, Volk RJ, et al. The International Patient Decision Aid Standards (IPDAS) Collaboration: evidence update 2021. Med Decis Making. 2021;41(7):736-754.



ADA Living Guideline Program

- First and only living guideline program focusing on oral health
- AI and other tech identify information so experts can analyze and update in real-time
- Recommendations developed in months, not years
- **Designed for decision makers:** dentists, researchers, medical clinicians, policymakers & patients

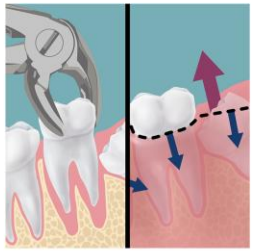
“A living guideline is a clinical practice guideline that is continually updated, identifying new evidence as soon as it becomes available, and appraising, synthesizing, and incorporating it into living recommendations.”

Cheyne S et al. Methods for living guidelines: early guidance based on practical experience. Paper 1: Introduction. J Clin Epidemiol. 2023 Mar;155:84-96.

Postoperative Pain After Simple and Surgical Tooth Extraction(s) in Adolescents, Adults, and Older Adults

Population

Hide details



These recommendations apply to

People 12 years old and older with postoperative pain following:

- Simple extractions
- Surgical extractions

These recommendations do not apply to

Individuals with postoperative pain after simple or surgical tooth extractions associated with:

- Trigeminal nerve injury
- Temporomandibular disorder pain

Interventions

Hide details

Local anesthetics

Long-acting vs short-acting local anesthetics administered by block or infiltration injection.

Analgesics

Oral non-steroidal anti-inflammatory drugs, acetaminophen, opioid, or its combinations.

Glucocorticosteroids

Any type, administered orally, submucosally, or intramuscularly.

Recommendations

Hide details

Recommendation 1

Low certainty

Conditional recommendation

Non-opioids vs. opioids: Surgical tooth extraction

Use post-procedure non-opioid analgesics as first-line therapy.

Conditional recommendation

Low certainty

Recommendation 1.1 (First-line therapy)

Initiate post-operative pain management using a non-steroidal anti-inflammatory drug (NSAID) alone or in combination with acetaminophen.

Conditional recommendation

Low certainty

Recommendation 1.2 (Second-line therapy)

When post-procedural pain control using NSAIDs alone is inadequate, add to this previous first-line therapy prescription acetaminophen plus a combination of acetaminophen with an opioid .

Conditional recommendation

Low certainty

Recommendation 1.3 (Second-line therapy)

When post-procedural pain control using NSAIDs in combination with acetaminophen is inadequate, replace that initial first-line therapy prescription with another prescription of an NSAID and acetaminophen plus a combination of acetaminophen with an opioid.

Conditional recommendation

Low certainty

Recommendation 1.4

When NSAIDs are contraindicated, use post-procedure acetaminophen alone at full therapeutic dose or acetaminophen at a lower therapeutic dose plus a combination of acetaminophen with an opioid.

Evidence Profiles (treatment effects across outcomes)

Conditional recommendation

Very low certainty

Recommendation 1.5

Corticosteroids vs. no corticosteroids: Surgical tooth extraction

Do not add oral, submucosal, or intra-muscular corticosteroids to standard analgesic therapy for post-procedural pain control.

Evidence Profiles (treatment effects across outcomes)

Recommendation 2

Low certainty

Conditional recommendation

Non-opioids vs. opioids: Simple tooth extraction

Use post-procedural non-opioid analgesics only and do not use opioid analgesics after a simple tooth extraction

Conditional recommendation

Low certainty

Recommendation 2.1

Initiate pain management using a nonsteroidal anti-inflammatory drug (NSAID) alone or in combination with acetaminophen.

Conditional recommendation

Low certainty

Recommendation 2.2

When NSAIDs are contraindicated, use post-procedure acetaminophen alone at full therapeutic dose.

Evidence Profiles (treatment effects across outcomes)

ADA JADA Evidence

JDR Clinical & Translational Research April 2024

ORIGINAL REPORT: MULTI-METHODS RESEARCH

Patient Values and Preferences for Managing Acute Dental Pain Elicited through Online Deliberation

T. Dawson[1], S. Pahlke[2], A. Carrasco-Labra[3], and D. Polk[4]

Most people…

- think it is critical or important to have **available additional medication** to relieve pain (rescue analgesia).
- Identify the possibility of experiencing dizziness, drowsiness, and nausea as **important but not critical** to their decision-making.
- Prefer to manage any level of acute dental pain **with non-opioid** pain relief medications.
- are willing to consider the use of opioids for **severe or extreme pain**.
- When needed, prefer a combination of pain relief medications that includes **a "light" use of opioids** for no more than 2 to 3 days.

American Dental Association/JADA


Namrita Johal


Kelly O'Brien


Jorge Rojas


Tim Wright

Epistemonikos


Camila Ávila


Alex Silva


Daniel Nava


Juan Vásquez

MAGICapp


Frankie Achille


Chris Champion


Gordon Guyatt


Lyubov Lytvyn


Per Olav Vandvik

Penn Dental Medicine


Kathryn Kamowski


Wenrui Li


Carolina Martins-Pfeifer


Julia Pimentel


Abdullah Alalyani


Michael Glick


Ankita Bhosale


Alonso Carrasco-Labra


Natalie Sadek


Olivia Urquhart


Francisca Verdugo


Mehrnaz Zakershahrak

An interactive tool to help you explore the evidence

Pharmacologic management of acute dental pain in adolescents, adults, and older adults

Population with no contraindications to NSAIDs

Most effective interventions including ibuprofen + acetaminophen, acetaminophen + oxycodone, ibuprofen, and naproxen.

Population with contraindications to NSAIDs

Interventions containing NSAIDs (ibuprofen or naproxen) are excluded.

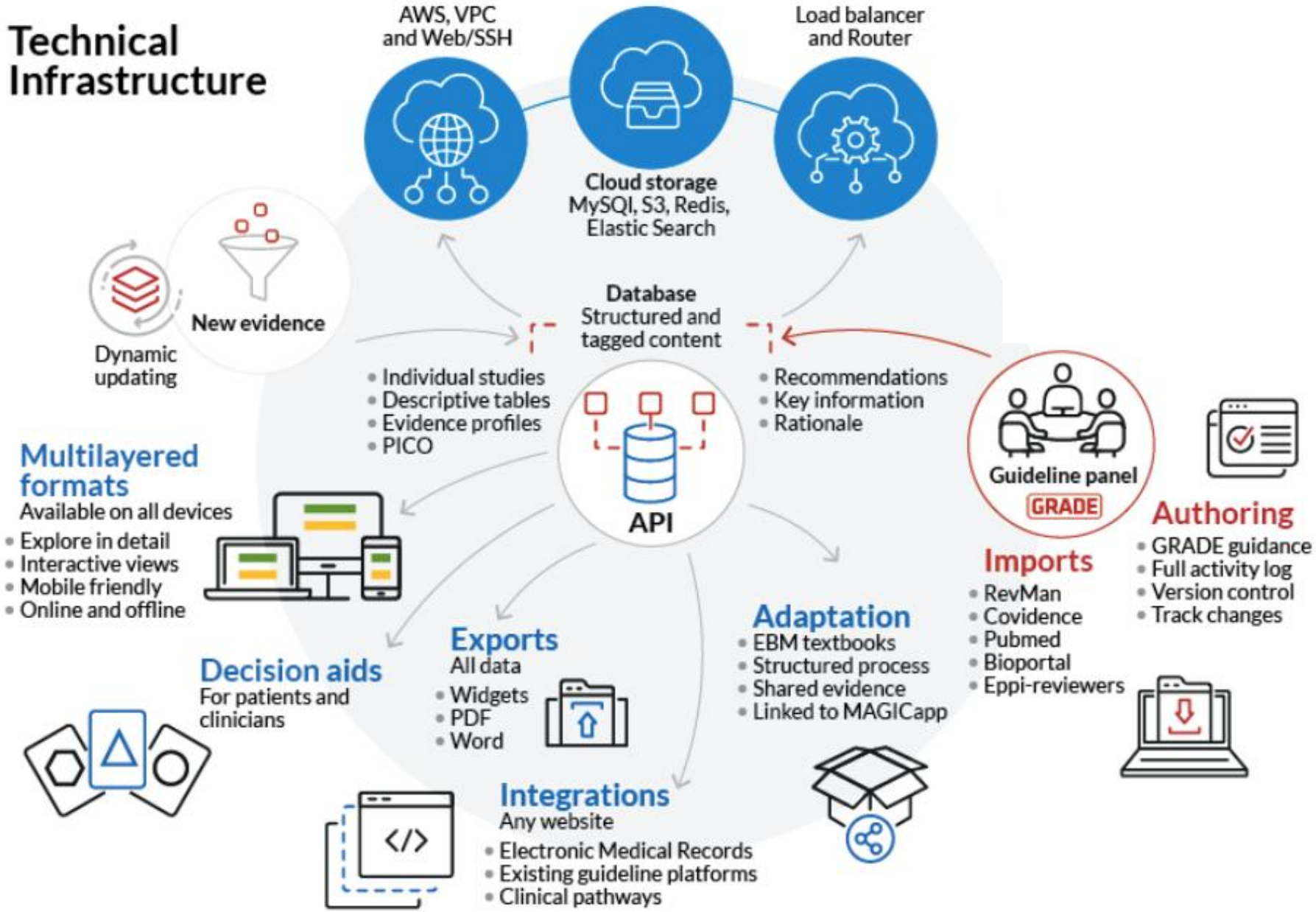
FAQ

How do I use MATCH-IT

Developed by MAGIC Evidence Ecosystem Foundation

Digital Conversation Aids and Chairside Guides

Bringing the Evidence to the Point of Care



MAGIC. Evidence Ecosystem Foundation (www.magicevidence.org) [last visited Aug 13, 2025]

Toothache

Adolescents: Ages 12 to less than 17 years

Adults: Ages 17 to less than 65 years

Older Adults: 65+

		MEDICATION	MAXIMUM DAILY DOSE	PAIN RELIEF	SIDE EFFECTS
First line therapy	PURCHASED OVER THE COUNTER	**IBUPROFEN** 400 mg	2,400 mg	★★★★ 6 Hours of pain relief	
		NAPROXEN SODIUM 440 mg	1,100 mg	★★★★ 12 Hours of pain relief	
		IBUPROFEN 400 mg *plus* **ACETAMINOPHEN** 500 mg	Ibuprofen 2,400 mg Acetaminophen 4,000 mg	★★★★ 6-8 Hours of pain relief	
		NAPROXEN SODIUM 440 mg *plus* **ACETAMINOPHEN** 500 mg	Naproxen Sodium 1,100 mg Acetaminophen 4,000 mg	★★★★ 12 Hours of pain relief	
For short-term temporary pain management (Optional)	LOCAL ANESTHETIC	**10% OR 20% TOPICAL BENZOCAINE**	Up to four pea-size applications	★★ 1-2 Hours of pain relief	
For extended temporary pain management (Optional)	LOCAL ANESTHETIC	**LONG-ACTING LOCAL ANESTHETIC**	One time only	★★★★ 4-6 Hours of pain relief	

Potential for severe liver damage

DO NOT SWALLOW

drowsiness

nausea and vomiting

needle

numbness

This project was financially supported by the Food and Drug Administration (FDA) of the U.S. Department of Health and Human Services (HHS). The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by, FDA/HHS or the U.S. Government.

Penn Dental Medicine University of Pennsylvania

University of Pittsburgh

ADA American Dental Association®

Toothache

Adolescents: Ages 12 to less than 17 years

Adults: Ages 17 to less than 65 years

Older Adults: 65+

		MEDICATION	MAXIMUM DAILY DOSE	PAIN RELIEF	SIDE EFFECTS
If NSAID options above are contraindicated	PURCHASED OVER THE COUNTER	**ACETAMINOPHEN** 1,000 mg	4,000 mg	★★★ 4-6 Hours of pain relief	
If NSAID options above are contraindicated	PRESCRIPTION	Tablet 1: **ACETAMINOPHEN** 325 mg *plus either* **OXYCODONE** 5mg *or* **HYDROCODONE** 5-7.5 mg AND Tablet 2: **ACETAMINOPHEN** 325 mg	Acetaminophen 4,000 mg lowest effective dose, fewest tablets, and the shortest duration	★★★ 6 Hours of pain relief	
If pain control is inadequate	PRESCRIPTION	Tablet 1: **ACETAMINOPHEN** 325 mg *plus either* **OXYCODONE** 5mg *or* **HYDROCODONE** 5-7.5 mg AND Tablet 2: **ACETAMINOPHEN** 325 mg	Acetaminophen 4,000 mg lowest effective dose, fewest tablets, and the shortest duration	★★★ 6 Hours of pain relief	

Extreme CAUTION in adolescents. High risk of misuse or substance use disorder. Caregiver consent is advised.

Potential for severe liver damage

constipation

dizziness

drowsiness

nausea and vomiting

needle

numbness

This project was financially supported by the Food and Drug Administration (FDA) of the U.S. Department of Health and Human Services (HHS). The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by, FDA/HHS or the U.S. Government.

Penn Dental Medicine University of Pennsylvania

University of Pittsburgh

ADA American Dental Association®

Evidence-Based Clinical Practice Guideline for the Temporary Pharmacologic Management of Acute Dental Pain: Toothache in Adolescents, Adults, and Older Adults With No Immediate Access to Definitive Dental Treatment

GRADE Certainty of the Evidence

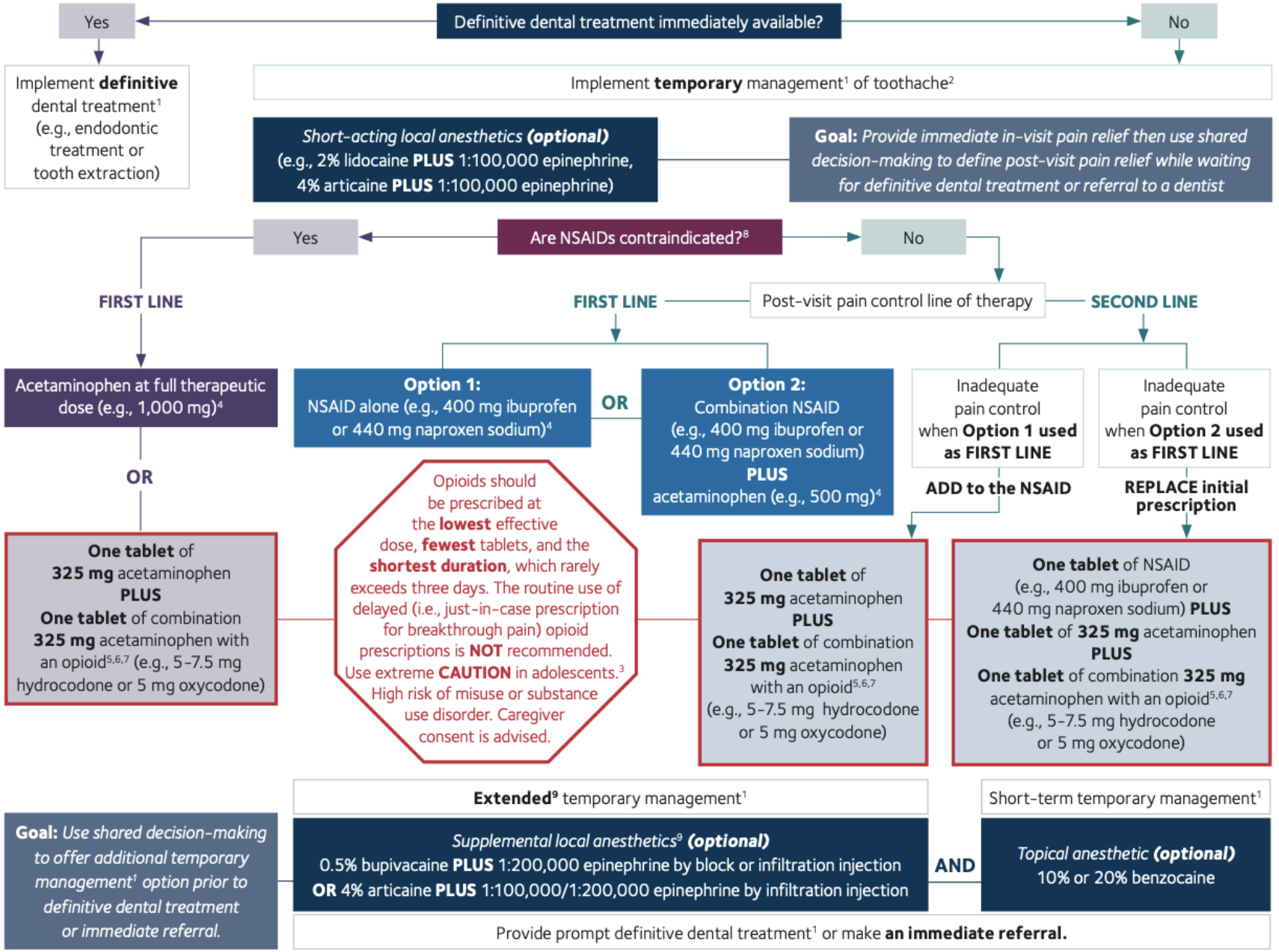
High	We are very confident that the true effect lies close to that of the estimate of the effect.
Moderate	We are moderately confident in the effect estimate. The true effect is likely to be close to the estimate of the effect.
Low	Our confidence in the effect estimate is limited.
Very Low	We have very little confidence in the effect estimate.

GRADE Interpretation of Strength of Recommendations

Implications	Strong Recommendations	Conditional Recommendations
For Patients	Most individuals in this situation would want the recommended course of action and only a small proportion would not.	The majority of individuals in this situation would want the suggested course of action, but many would not.
For Clinicians	Most individuals should receive the intervention.	Recognize that different choices will be appropriate for individual patients and that you must help each patient arrive at a management decision consistent with his or her values and preferences.
For Policy Makers	The recommendation can be adapted as policy in most situations.	Policy making will require substantial debate and involvement of various stakeholders.

Guideline Panel Recommendations

1. For the **temporary** management[1] of **toothache**[2] before to definitive dental treatment in adolescents, adults, and older adults[3], the guideline panel suggests the use of a short-acting local anesthetic (e.g., 2% lidocaine **plus** 1:100,000 epinephrine or 4% articaine **plus** 1:100,000 epinephrine) for **immediate pain relief** (Conditional, Very low certainty).
2. For the **temporary** management[1] of **toothache**[2] prior to definitive dental treatment in adolescents, adults, and older adults[3], the guideline panel recommends the post-visit use of non-opioid analgesics[4] as **first-line therapy** instead of opioid analgesics (Conditional, Low certainty).
    - 2.1. For the temporary management[1] of **toothache**[2], the guideline panel suggests initiating post-visit pain management using a nonsteroidal anti-inflammatory drug (NSAID) alone (e.g., 400 mg ibuprofen or 440 mg naproxen sodium) **OR** in combination with acetaminophen (e.g., 500 mg) (Conditional, Low certainty).
    - 2.2. In the rare instances when post-visit pain control using NSAIDs alone proved inadequate, the guideline panel suggests the **addition** to the previous first-line therapy (i.e., NSAID) prescription of 325 mg acetaminophen **plus** a combination of 325 mg acetaminophen with an opioid[5,6,7] (e.g., 5-7.5 mg hydrocodone or 5 mg oxycodone) at the lowest effective dose, fewest tablets, and the shortest duration, which rarely exceeds three days (Conditional, Low certainty).
    - 2.3. In the rare instances when post-visit pain control using NSAIDs in combination with acetaminophen (e.g., 500 mg) proved inadequate, the guideline panel suggests **replacing** the initial first-line therapy prescription with an NSAID (e.g., 400 mg ibuprofen or 440 mg naproxen sodium) and 325 mg acetaminophen **plus** a combination of 325 mg acetaminophen with an opioid[5,6,7] (e.g., 5-7.5 mg hydrocodone or 5 mg oxycodone). The opioid prescription should consider the lowest effective dose, fewest tablets, and the shortest duration, which rarely exceeds three days (Conditional, Low certainty).
    - 2.4. When NSAIDs are contraindicated[8], the guideline panel suggests the post-visit use of acetaminophen alone at full therapeutic dose (e.g., 1,000 mg) **OR** 325 mg acetaminophen **plus** a combination of 325 mg acetaminophen with an opioid[5,6,7] (e.g., 5-7.5 mg hydrocodone or 5 mg oxycodone) at the lowest effective dose, fewest tablets, and the shortest duration, which rarely exceeds three days (Conditional, Low certainty).
3. For the **extended**[9] temporary management[1] of **toothache**[2] prior to definitive dental treatment in adolescents, adults, and older adults[3], the guideline panel suggests the supplemental use of 0.5% bupivacaine **plus** 1:200,000 epinephrine by block or infiltration injection **OR** 4% articaine **plus** 1:100,000/1:200,000 epinephrine by infiltration injection (Conditional, Very low certainty).
4. For the short-term temporary management[1] of **toothache**[2] prior to definitive dental treatment in adolescents, adults, and older adults[3], the guideline panel suggests the use of 10% **OR** 20% topical benzocaine compared with not using topical benzocaine (Conditional, Low certainty).



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Evidence-Based Clinical Practice Guideline for the Pharmacologic Management of Acute Dental Pain:
Postoperative Pain After Simple and Surgical Tooth Extraction(s) in Adolescents, Adults, and Older Adults

GRADE Certainty of the Evidence

High	We are very confident that the true effect lies close to that of the estimate of the effect.
Moderate	We are moderately confident in the effect estimate. The true effect is likely to be close to the estimate of the effect.
Low	Our confidence in the effect estimate is limited.
Very Low	We have very little confidence in the effect estimate.

GRADE Interpretation of Strength of Recommendations

Implications	Strong Recommendations	Conditional Recommendations
For Patients	Most individuals in this situation would want the recommended course of action and only a small proportion would not.	The majority of individuals in this situation would want the suggested course of action, but many would not.
For Clinicians	Most individuals should receive the intervention.	Recognize that different choices will be appropriate for individual patients and that you must help each patient arrive at a management decision consistent with his or her values and preferences.
For Policy Makers	The recommendation can be adapted as policy in most situations.	Policy making will require substantial debate and involvement of various stakeholders.

Guideline Panel Recommendations

1. For the management of acute post-operative dental pain in adolescents, adults, and older adults[1] undergoing **surgical** tooth extraction(s), the guideline panel recommends the post-procedural use of non-opioid analgesics[2] **as first-line therapy** instead of opioid analgesics (Conditional, Low certainty).
    - 1.1. For **surgical** tooth extraction(s), the guideline panel suggests initiating post-operative pain management using a nonsteroidal anti-inflammatory drug (NSAID) alone (e.g., 400 mg ibuprofen or 440 mg naproxen sodium) **OR** in combination with acetaminophen (e.g., 500 mg) (Conditional, Low certainty).
    - 1.2. In the rare instances when post-procedural (i.e., **surgical** tooth extraction) pain control using NSAIDs alone is inadequate, the guideline panel suggests the addition to the previous first-line therapy prescription (i.e., NSAID) of 325 mg acetaminophen plus a combination of 325 mg acetaminophen with an opioid[3,4,5] (e.g., 5-7.5 mg hydrocodone or 5 mg oxycodone) at the lowest effective dose, fewest tablets, and the shortest duration, which rarely exceeds three days (Conditional, Low certainty).
    - 1.3. In the rare instances when post-procedural (i.e., **surgical** tooth extraction) pain control using NSAIDs in combination with acetaminophen (e.g., 500 mg) is inadequate, the guideline panel suggests **replacing** the initial first-line therapy prescription with an NSAID (e.g., 400 mg ibuprofen or 440 mg naproxen sodium) and 325 mg acetaminophen **plus** a combination of 325 mg acetaminophen with an opioid[3,4,5] (e.g., 5-7.5 mg hydrocodone or 5 mg oxycodone). The opioid prescription should consider the lowest effective dose, fewest tablets, and the shortest duration, which rarely exceeds three days (Conditional, Low certainty).
    - 1.4. When NSAIDs are contraindicated[6], the guideline panel suggests the post-procedural use of acetaminophen alone at full therapeutic dose (e.g., 1,000 mg) **OR** 325 mg acetaminophen **plus** a combination of 325 mg acetaminophen with an opioid[3,4,5] (e.g., 5-7.5 mg hydrocodone or 5 mg oxycodone) at the lowest effective dose, fewest tablets, and the shortest duration, which rarely exceeds three days (Conditional, Low certainty).
    - 1.5. For the management of acute post-operative dental pain in adolescents, adults, and older adults undergoing **surgical** tooth extraction(s), the guideline panel suggests **against** adding oral, submucosal, or intra-muscular corticosteroids[7] to standard analgesic therapy (Conditional, Very low certainty).
2. For the management of acute post-operative dental pain in adolescents, adults, and older adults[1] undergoing **simple** tooth extraction(s), the guideline panel recommends the post-procedural use of non-opioid analgesics[2] **only** and recommends **against** the use of opioid analgesics (Conditional, Low certainty).
    - 2.1. For a **simple** tooth extraction, the guideline panel suggests initiating pain management using a nonsteroidal anti-inflammatory drug (NSAID) alone (e.g., 400 mg ibuprofen or 440 mg naproxen sodium) **OR** in combination with acetaminophen (e.g., 500 mg) (Conditional, Low certainty).
    - 2.2. When NSAIDs are contraindicated[6], the guideline panel suggests the post-procedural use of acetaminophen alone at full therapeutic dose (e.g., 1,000 mg) (Conditional, Low certainty).
3. For the management of acute post-operative dental pain in adolescents, adults, and older adults[1] undergoing **simple** or **surgical** tooth extraction(s), the guideline panel suggests the post-procedural use (i.e., before patient discharge[8]) of 0.5% bupivacaine **PLUS** 1: 200,000 epinephrine by block or infiltration injection or 4% articaine **PLUS** 1:100,000 / 1:200,000 epinephrine by infiltration injection **instead of** 2% lidocaine **PLUS** 1:100,000 epinephrine or 3% mepivacaine (Conditional, Low certainty).

Supplemental local anesthetics[8] ***(optional)***
0.5% bupivacaine **PLUS** 1:200,000 epinephrine by block or infiltration injection
OR
4% articaine **PLUS** 1:100,000/1:200,000 epinephrine by infiltration injection

Goal: *Provide immediate in-visit pain relief. Use shared decision-making to offer additional temporary management option for post-visit pain relief.*

Are NSAIDs contraindicated?[6]

Yes

FIRST LINE

Simple extraction(s)

Acetaminophen at full therapeutic dose (e.g.,1,000 mg)[2]

Surgical extraction(s)

Acetaminophen at full therapeutic dose (e.g.,1,000 mg)[2]

OR

One tablet of **325 mg** acetaminophen **PLUS** **One tablet** of combination **325 mg** acetaminophen with an opioid[3,4,5] (e.g., 5-7.5 mg hydrocodone or 5 mg oxycodone)

Opioids should be prescribed at the **lowest** effective dose, **fewest** tablets, and the **shortest duration**, which rarely exceeds three days. The routine use of delayed (i.e., just-in-case prescription for breakthrough pain) opioid prescriptions is **NOT** recommended. Use extreme **CAUTION** in adolescents.[1] High risk of misuse or substance use disorder. Caregiver consent is advised.

No

FIRST LINE

Option 1: NSAID alone (e.g., 400 mg ibuprofen or 440 mg naproxen sodium)[2]

OR

Option 2: Combination NSAID (e.g., 400 mg ibuprofen or 440 mg naproxen sodium) **PLUS** acetaminophen (e.g., 500 mg)[2]

Post-visit pain control line of therapy

SECOND LINE

Inadequate pain control when **Option 1 used as FIRST LINE**

ADD to the NSAID

One tablet of **325 mg** acetaminophen **PLUS** **One tablet** of combination **325 mg** acetaminophen with an opioid[3,4,5] (e.g., 5-7.5 mg hydrocodone or 5 mg oxycodone)

Inadequate pain control when **Option 2 used as FIRST LINE**

REPLACE initial prescription

One tablet of NSAID (e.g., 400 mg ibuprofen or 440 mg naproxen sodium) **PLUS** **One tablet** of **325 mg** acetaminophen **PLUS** **One tablet** of combination **325 mg** acetaminophen with an opioid[3,4,5] (e.g., 5-7.5 mg hydrocodone or 5 mg oxycodone)

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Acute dental pain / No contraindications to NSAIDs

FAQ How do I use MATCH-IT

Among 1000 people

Change risk strata Show adverse outcomes Hide color coding Color guide

	Placebo	Ibuprofen + acetaminophen	Oxycodone or codeine	Acetaminophen + oxycodone	Ibuprofen	Tramadol + acetaminophen	Acetaminophen	Acetaminophen + codeine	Naproxen	Ibuprofen + hydrocodone	Hydrocodone + acetaminophen
Pain Relief 6 hrs MID: -0.4/0.4	0.6 mean	**1.7 higher** 1.1 higher - 2.3 higher ⊘⊘⊘○	**0.1 higher** 0.1 lower - 0.2 higher ⊘⊘⊘○	**1.2 higher** 0.8 higher - 1.5 higher ⊘⊘⊘○	**1.3 higher** 1.2 higher - 1.4 higher ⊘⊘⊘○	**0 fewer** 0.3 lower - 0.4 higher ⊘⊘⊘○	**0.4 higher** 0.2 higher - 0.6 higher ⊘⊘○○	**0.5 higher** 0.3 higher - 0.7 higher ⊘⊘○○	**1.5 higher** 1.1 higher - 1.8 higher ⊘⊘⊘○	No data	No data
Total Pain Relief 6 hrs MID: -2.4/2.4	4.1 mean	**11.1 higher** 8.2 higher - 13.9 higher ⊘⊘⊘○	**1.1 higher** 0.2 higher - 2.1 higher ⊘⊘⊘○	**7.9 higher** 6.5 higher - 9.3 higher ⊘⊘⊘○	**8.7 higher** 7.8 higher - 9.5 higher ⊘⊘⊘○	No data	**4.2 higher** 3.3 higher - 5.1 higher ⊘⊘⊘○	**5 higher** 4.0 higher - 6.0 higher ⊘⊘⊘○	**8.5 higher** 6.2 higher - 10.8 higher ⊘⊘⊘○	No data	No data
Summed Pain Intensity Difference 6 hrs MID: -1.8/1.8	0.3 mean	**4.5 higher** 3.0 higher - 5.8 higher ⊘⊘○○	**0.8 higher** 0.0 higher - 1.6 higher ⊘⊘⊘○	**5.6 higher** 5.3 higher - 6.0 higher ⊘⊘⊘○	**5.6 higher** 4.8 higher - 6.3 higher ⊘⊘⊘○	No data	**3 higher** 2.3 higher - 3.6 higher ⊘⊘⊘○	**3 higher** 2.3 higher - 3.5 higher ⊘⊘⊘○	**5.3 higher** 3.5 higher - 7.0 higher ⊘⊘⊘○	No data	No data
Global Efficacy Rating 6 hrs MID: -0.4/0.4	0.7 mean	No data	**0.2 higher** 0.1 lower - 0.6 higher ⊘⊘○○	**1.8 higher** 1.4 higher - 2.2 higher ⊘⊘⊘⊘	**1.5 higher** 1.3 higher - 1.7 higher ⊘⊘○○	No data	**0.8 higher** 0.6 higher - 1.1 higher ⊘⊘○○	**1 higher** 0.7 higher - 1.2 higher ⊘⊘⊘○	No data	No data	No data
Rescue Analgesia 6 hrs MID: -8.0/8.0	800 per 1000	**556 fewer** 703 fewer - 312 fewer ⊘⊘○○	**36 fewer** 205 fewer - 76 more ⊘⊘○○	**452 fewer** 629 fewer - 221 more ⊘○○○	**430 fewer** 495 fewer - 360 fewer ⊘⊘⊘⊘	No data	**240 fewer** 320 fewer - 163 fewer ⊘⊘⊘⊘	**212 fewer** 321 fewer - 111 fewer ⊘⊘⊘⊘	**515 fewer** 647 fewer - 333 fewer ⊘⊘○○	No data	No data

Hide all outcomes

Acute dental pain / No contraindications

FAQ How do I use MATCH-IT

Among 1000 people

Change risk strata Show adverse outcomes Hide c

	Placebo	Ibuprofen + acetaminophen	Ox	xen	Ibuprofen + hydrocodone	Hydrocodone + acetaminophen
Pain Relief 6 hrs MID: -0.4/0.4	0.6 mean	**1.7 higher** 1.1 higher - 2.3 higher ⊘⊘⊘○		her .8 higher ○○	No data	No data
Total Pain Relief 6 hrs MID: -2.4/2.4	4.1 mean	**11.1 higher** 8.2 higher - 13.9 higher ⊘⊘⊘○		her 0.8 higher ○○	No data	No data
Summed Pain Intensity Difference 6 hrs MID: -1.8/1.8	0.3 mean	**4.5 higher** 3.0 higher - 5.8 higher ⊘⊘○○		her .0 higher ○○	No data	No data
Global Efficacy Rating 6 hrs MID: -0.4/0.4	0.7 mean	No data		ata	No data	No data
Rescue Analgesia 6 hrs MID: -8.0/8.0	800 per 1000	**556 fewer** 703 fewer - 312 fewer ⊘⊘○○		wer 33 fewer ○○	No data	No data

Rescue Analgesia

556 fewer

6 hrs

703 fewer - 312 fewer

Placebo	Ibuprofen + acetaminophen
800 per 1000	244 per 1000

Risk difference

−556.0 (−702.7 to −312.2)

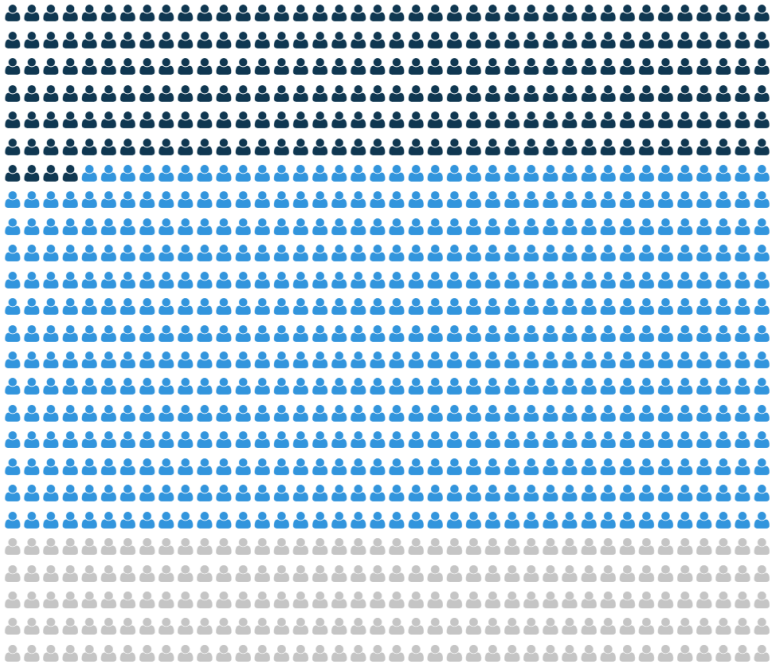
Certainty

⊘⊘○○

Low

Based on direct evidence from 1 study with 184 participants and indirect evidence from the NMA

Ibuprofen (200–400 mg) plus acetaminophen (500–1,000 mg) might result in a large decrease in the need for rescue analgesia.



Among 1000 people

Close

Acute dental pain / No contraindications

FAQ How do I use MATCH-IT

Among 1000 people

Change risk strata Show adverse outcomes Hide c

	Placebo	Ibuprofen + acetaminophen	Ox	xen	Ibuprofen + hydrocodone	Hydrocodone + acetaminophen
Pain Relief 6 hrs MID: -0.4/0.4	0.6 mean	**1.7 higher** 1.1 higher - 2.3 higher ⊘⊘⊘○		her .8 higher ○○	No data	No data
Total Pain Relief 6 hrs MID: -2.4/2.4	4.1 mean	**11.1 higher** 8.2 higher - 13.9 higher ⊘⊘⊘○		her .8 higher ○○	No data	No data
Summed Pain Intensity Difference 6 hrs MID: -1.8/1.8	0.3 mean	**4.5 higher** 3.0 higher - 5.8 higher ⊘⊘○○		her .0 higher ○○	No data	No data
Global Efficacy Rating 6 hrs MID: -0.4/0.4	0.7 mean	No data		ata	No data	No data
Rescue Analgesia 6 hrs MID: -8.0/8.0	800 per 1000	**556 fewer** 703 fewer - 312 fewer ⊘⊘○○		wer 33 fewer ○○	No data	No data

Pain Relief

1.7 higher

6 hrs

1.1 higher - 2.3 higher

Placebo	Ibuprofen + acetaminophen
0.6 mean	2.3 mean

Mean difference

1.68 (1.06 to 2.31)

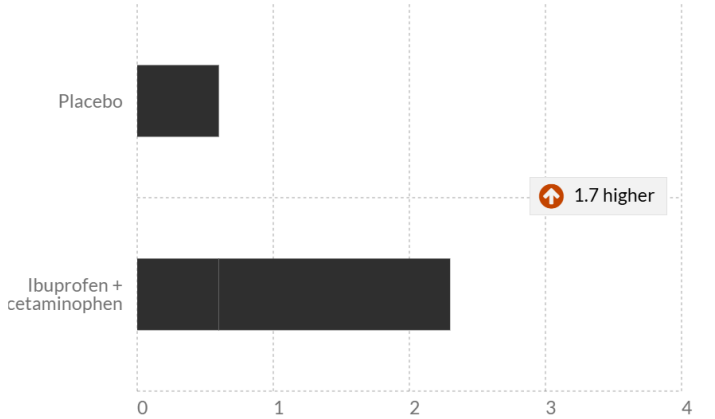
Certainty

⊘⊘⊘○

Moderate

Based on direct evidence from 1 study with 302 participants and indirect evidence from the NMA

Ibuprofen (200–400 mg) plus acetaminophen (500–1,000 mg) probably results in a moderate increase in pain relief at 6 hrs.



Scale: 0 (no pain relief) to 4 (complete pain relief); higher score is better

Close

Acute dental pain / No contraindications to NSAIDs

FAQ How do I use MATCH-IT

Among 1000 people

Change risk strata Show benefit outcomes Hide color coding Color guide

	Placebo	Ibuprofen + acetaminophen	Oxycodone or codeine	Acetaminophen + oxycodone	Ibuprofen	Tramadol + acetaminophen	Acetaminophen	Acetaminophen + codeine	Naproxen	Ibuprofen + hydrocodone	Hydrocodone + acetaminophen
Drowsiness Up to 6 weeks MID: -0.3/0.3	30 per 1000	No data	**25 more** 6 fewer - 87 more ⊘⊘○○	**17 fewer** 30 fewer - 193 more ⊘⊘○○	**39 more** 7 more - 93 more ⊘⊘○○	No data	**56 more** 10 more - 141 more ⊘⊘○○	**62 more** 6 more - 182 more ⊘⊘○○	No data	No data	No data
Dizziness Up to 6 weeks MID: -0.4/0.4	40 per 1000	**16 fewer** 26 fewer - 4 more ⊘⊘○○	**77 more** 9 more - 218 more ⊘⊘○○	**68 more** 21 more - 147 more ⊘⊘○○	**9 fewer** 18 fewer - 5 more ⊘⊘○○	**11 more** 19 fewer - 86 more ⊘⊘○○	**2 fewer** 15 fewer - 18 more ⊘⊘○○	**38 more** 2 more - 100 more ⊘⊘○○	**22 more** 24 fewer - 194 more ⊘⊘○○	No data	No data
Headache Up to 6 weeks MID: -0.5/0.5	50 per 1000	**28 fewer** 40 fewer - 8 fewer ⊘⊘○○	**21 fewer** 43 fewer - 52 more ⊘⊘○○	**10 fewer** 44 fewer - 134 more ⊘⊘○○	**9 fewer** 20 fewer - 6 more ⊘⊘○○	**35 fewer** 49 fewer - 28 more ⊘⊘○○	**1 more** 14 fewer - 22 more ⊘⊘○○	**11 fewer** 26 fewer - 14 more ⊘⊘○○	**37 fewer** 48 fewer - 9 more ⊘⊘○○	No data	No data
Nausea and Vomiting Up to 6 weeks MID: -0.8/0.8	80 per 1000	**52 fewer** 62 fewer - 40 fewer ⊘⊘○○	**86 more** 29 fewer - 331 more ⊘⊘○○	**151 more** 46 more - 302 more ⊘⊘○○	**23 fewer** 35 fewer - 8 fewer ⊘⊘○○	**24 fewer** 61 fewer - 60 more ⊘⊘○○	**17 fewer** 32 fewer - 2 more ⊘⊘○○	**50 more** 1 more - 121 more ⊘⊘○○	**16 fewer** 69 fewer - 173 more ⊘⊘○○	No data	No data
Constipation Up to 6 weeks MID: -0.1/0.1	10 per 1000	**8 fewer** 9 fewer - 27 more ⊘⊘○○	No data	No data	**7 fewer** 9 fewer - 20 more ⊘⊘○○	No data	**0 fewer** 9 fewer - 301 more ⊘⊘○○	**1 fewer** 9 fewer - 289 more ⊘⊘○○	**8 fewer** 9 fewer - 15 more ⊘⊘○○	No data	No data

Hide all outcomes

Acute dental pain / No contraindications to NSAIDs

FAQ | How do I use MATCH-IT

Among 1000 people

Change risk strata | Show adverse outcomes | Hide color coding | Color guide

	Placebo	Ibuprofen + acetaminophen	Ibuprofen	Acetaminophen	Naproxen
Pain Relief 6 hrs MID: -0.4/0.4	0.6 mean	**1.7 higher** 1.1 higher - 2.3 higher Moderate	**1.3 higher** 1.2 higher - 1.4 higher Moderate	**0.4 higher** 0.2 higher - 0.6 higher Low	**1.5 higher** 1.1 higher - 1.8 higher Moderate
Total Pain Relief 6 hrs MID: -2.4/2.4	4.1 mean	**11.1 higher** 8.2 higher - 13.9 higher Moderate	**8.7 higher** 7.8 higher - 9.5 higher Moderate	**4.2 higher** 3.3 higher - 5.1 higher Moderate	**8.5 higher** 6.2 higher - 10.8 higher Moderate
Summed Pain Intensity Difference 6 hrs MID: -1.8/1.8	0.3 mean	**4.5 higher** 3.0 higher - 5.8 higher Low	**5.6 higher** 4.8 higher - 6.3 higher Moderate	**3 higher** 2.3 higher - 3.6 higher Moderate	**5.3 higher** 3.5 higher - 7.0 higher Moderate
Global Efficacy Rating 6 hrs MID: -0.4/0.4	0.7 mean	No data	**1.5 higher** 1.3 higher - 1.7 higher Low	**0.8 higher** 0.6 higher - 1.1 higher Low	No data
Rescue Analgesia 6 hrs MID: -8.0/8.0	800 per 1000	**556 fewer** 703 fewer - 312 fewer Low	**430 fewer** 495 fewer - 360 fewer High	**240 fewer** 320 fewer - 163 fewer High	**515 fewer** 647 fewer - 333 fewer Low

Hydrocodone + acetaminophen

Ibuprofen + hydrocodone

Acetaminophen + codeine

Tramadol + acetaminophen

Acetaminophen + oxycodone

Oxycodone or codeine

Hide all outcomes

Acute dental pain / No contraindications to NSAIDs

FAQ How do I use MATCH-IT

Among 1000 people

Change risk strata Show benefit outcomes Hide color coding Color guide

	Placebo	Ibuprofen + acetaminophen	Ibuprofen	Acetaminophen	Naproxen
Drowsiness Up to 6 weeks MID: -0.3/0.3	30 per 1000	No data	**39 more** 7 more - 93 more ⊘⊘○○	**56 more** 10 more - 141 more ⊘⊘○○	No data
Dizziness Up to 6 weeks MID: -0.4/0.4	40 per 1000	**16 fewer** 26 fewer - 4 more ⊘⊘○○	**9 fewer** 18 fewer - 5 more ⊘⊘○○	**2 fewer** 15 fewer - 18 more ⊘⊘○○	**22 more** 24 fewer - 194 more ⊘⊘○○
Headache Up to 6 weeks MID: -0.5/0.5	50 per 1000	**28 fewer** 40 fewer - 8 fewer ⊘⊘○○	**9 fewer** 20 fewer - 6 more ⊘⊘○○	**1 more** 14 fewer - 22 more ⊘⊘○○	**37 fewer** 48 fewer - 9 more ⊘⊘○○
Nausea and Vomiting Up to 6 weeks MID: -0.8/0.8	80 per 1000	**52 fewer** 62 fewer - 40 fewer ⊘⊘○○	**23 fewer** 35 fewer - 8 fewer ⊘⊘○○	**17 fewer** 32 fewer - 2 more ⊘⊘○○	**16 fewer** 69 fewer - 173 more ⊘⊘○○
Constipation Up to 6 weeks MID: -0.1/0.1	10 per 1000	**8 fewer** 9 fewer - 27 more ⊘⊘○○	**7 fewer** 9 fewer - 20 more ⊘⊘○○	**0 fewer** 9 fewer - 301 more ⊘⊘○○	**8 fewer** 9 fewer - 15 more ⊘⊘○○

Hydrocodone + acetaminophen

Ibuprofen + hydrocodone

Acetaminophen + codeine

Tramadol + acetaminophen

Acetaminophen + oxycodone

Oxycodone or codeine

Hide all outcomes

Acute dental pain / No contraindications to NSAIDs

FAQ How do I use MATCH-IT

Among 1000 people

Change risk strata Show adverse outcomes Hide color coding Color guide

	Naproxen	Acetaminophen	Ibuprofen + acetaminophen	Ibuprofen	Placebo
Pain Relief 6 hrs MID: -0.4/0.4	2.1 mean	**1.1 lower** 1.2 lower - 0.8 lower Low	**0.2 higher** 0.4 lower - 0.9 higher Moderate	**0.2 lower** 0.3 lower - 0.0 higher Moderate	**1.5 lower** N/A No rating available
Summed Pain Intensity Difference 6 hrs MID: -1.8/1.8	5.6 mean	**2.3 lower** 3.0 lower - 1.7 lower Moderate	**0.8 lower** 2.2 lower - 0.5 higher Low	**0.3 higher** 0.4 lower - 1.0 higher Moderate	**5.3 lower** N/A No rating available
Rescue Analgesia 6 hrs MID: -8.0/8.0	285 per 1000	**275 more** 195 more - 352 more High	**41 fewer** 188 fewer - 203 more Low	**85 more** 20 more - 155 more High	**515 more** N/A No rating available
Total Pain Relief 6 hrs MID: -2.4/2.4	12.6 mean	**4.3 lower** 5.2 lower - 3.4 lower Moderate	**2.6 higher** 0.2 lower - 5.4 higher Moderate	**0.2 higher** 0.7 lower - 1.0 higher Moderate	**8.5 lower** N/A No rating available
Global Efficacy Rating 6 hrs MID: -0.4/0.4	No data	No data	No data	No data	No data

Hydrocodone + acetaminophen

Ibuprofen + hydrocodone

Acetaminophen + codeine

Tramadol + acetaminophen

Acetaminophen + oxycodone

Oxycodone or codeine

Hide all outcomes

Acute dental pain / No contraindications to NSAIDs

FAQ How do I use MATCH-IT

Among 1000 people

Change risk strata Show adverse outcomes Hide color coding Color guide

	Acetaminophen	Placebo	Ibuprofen + acetaminophen	Ibuprofen	Naproxen
Pain Relief 6 hrs MID: -0.4/0.4	1 mean	**0.4 lower** N/A No rating available	**1.3 higher** 0.6 higher - 1.9 higher Moderate	**0.9 higher** 0.8 higher - 1.0 higher Moderate	**1.1 higher** 0.6 higher - 1.4 higher Moderate
Summed Pain Intensity Difference 6 hrs MID: -1.8/1.8	3.3 mean	**3 lower** N/A No rating available	**1.5 higher** 0.1 higher - 2.8 higher Low	**2.6 higher** 1.9 higher - 3.4 higher Moderate	**2.3 higher** 0.5 higher - 4.1 higher Moderate
Rescue Analgesia 6 hrs MID: -8.0/8.0	560 per 1000	**240 more** N/A No rating available	**316 fewer** 463 fewer - 72 fewer Low	**190 fewer** 255 fewer - 120 fewer High	**275 fewer** 407 fewer - 93 fewer Low
Total Pain Relief 6 hrs MID: -2.4/2.4	8.3 mean	**4.2 lower** N/A No rating available	**6.9 higher** 4.0 higher - 9.7 higher Moderate	**4.5 higher** 3.6 higher - 5.3 higher Moderate	**4.3 higher** 1.9 higher - 6.6 higher Moderate
Global Efficacy Rating 6 hrs MID: -0.4/0.4	1.5 mean	**0.8 lower** N/A No rating available	No data	**0.7 higher** 0.4 higher - 0.8 higher Low	No data

Hydrocodone + acetaminophen

Ibuprofen + hydrocodone

Acetaminophen + codeine

Tramadol + acetaminophen

Acetaminophen + oxycodone

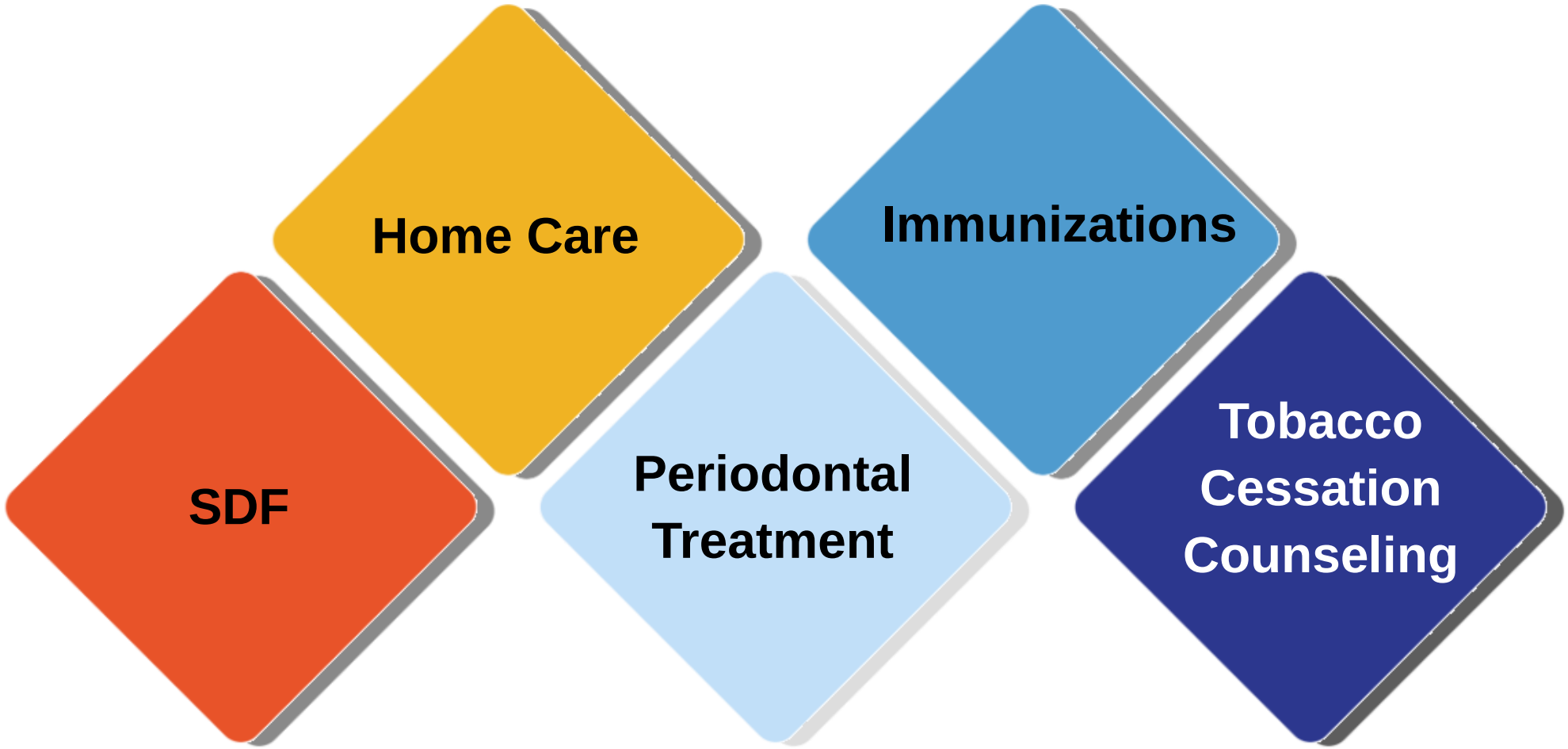
Oxycodone or codeine

Hide all outcomes

Practical Applications

JoAnn Gurenlian, RDH, MS, PhD, AAFAAOM, FADHA
Director of Education, Research, & Advocacy
American Dental Hygienists' Association

Examples of Evidence to Consider



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Polling Question

Do you use SDF in your practice?

a) Yes
b) No

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Silver Diamine Fluoride

- Non-invasive, effective way to arrest caries, especially in children and older adults
- Non-surgical, painless treatment option
- Appeals to fearful, cost-sensitive individuals
- Present evidence to support the option, then engage in shared decision-making

CareQuest Institute for Oral Health

REVIEW ARTICLE

Silver Diamine Fluoride in Preventing Caries: A Review of Current Trends

Padmapriya Surendranath[1], Srinath Krishnappa[2], Sahana Srinath[3]

Abstract

Aim and objective: To evaluate whether silver diamine fluoride (SDF) is effective in the management of dental caries.

Background: Dental caries is most common chronic disease and conventional treatment method could not tackle the problem completely. The use of silver compounds in dentistry is over a 100 years. Silver diamine fluoride has become a newer trend in handling the caries especially in young and apprehensive children. It is a noninvasive method of arresting caries which is painless, safe, and cost effective. This article describes the trends in silver diamine fluoride in arresting caries. The combined effects of remineralizing and antibacterial property make SDF an effective cariostatic agent.

Review results: Articles were searched in electronic data bases for literature. *In vivo* studies, *in vitro* studies, systematic reviews and case reports were included.

Conclusion: Silver diamine fluoride is effective in the management of caries in primary dentition. There is a little effect of silver diamine fluoride in permanent molars.

Clinical importance: In the current scenario of raising importance of minimal invasive dentistry and preventive dentistry, silver diamine fluoride is an efficient tool in the management of caries.

Keywords: Silver diamine fluoride, Caries, Primary dentition, Minimal invasive dentistry.

International Journal of Clinical Pediatric Dentistry (2022): 10.5005/jp-journals-10005-2167

Introduction

Dental caries is a biofilm-mediated, sugar-driven, multifactorial, dynamic disease that results in the phasic demineralization and remineralization of dental hard tissues.[1] In past 25 years, caries is affected by half of the Indian children and increase in caries burden is seen in children.[2] The worse socioeconomic status are often associated with greater risk of severity of caries.[3] Child cooperation to the treatment is another challenging aspect of caries to the dentist . So, in order to reduce the burden of caries and to avoid possible sequel associated with it, an alternative method which is cost-effective and effective in treating patients with high-risk to dental caries and with limited access to dental caries is required.[4] Silver compounds are used in treating dental caries from century and they are the simple and low cost method in caries management techniques.[5] Silver diamine fluoride (SDF) is composed of flouide ion and diamine-silver ion. Introduction of SDF has led to a noninvasive, easy to apply, and invasive management of dental caries. It primarily consists of fluoride ion and diamine-silver ion.[6] This review discuss in detail of various aspects of silver diamine fluoride in the management of dental caries.

Search Strategy

A strategy for search was developed for articles in three electronic databases, Pubmed, Science direct, and Google scholar from the year 1990 to 2020. Keywords given were "silver diamine fluoride," "silver fluoride," "diamine silver fluoride," and "arresting dental caries." Inclusion criteria were all *in vivo* and *in vitro* studies and reviews of SDF. Case reports, letter to editor, and non-English publications were excluded. The selected articles were reviewed for full text.

Composition of Silver Diamine Fluoride[7]

It is an alkaline solution and the constituents are given in Table 1.

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Source of support: Nil

Conflict of interest: None

Indications

- Dental caries in young children
- Dental caries in medically compromised children
- Caries management in uncooperative children
- To arrest root caries
- To prevent pit and fissure caries
- To prevent recurrent caries
- In desensitization of teeth
- Infected root canals
- To prevent fracture of pulpally treated teeth

Mode of Action of Silver Diamine Fluoride

Silver is a potent antibacterial agent before the introduction of antibiotics. It has been used in the medical field about six millennia. It has placed a immense role in wound healing and the field of radiology.[8] Silver ions kill the microorganism by blocking the

Polling Question

Which of these products do you typically recommend for your patients?

a) Electric toothbrushes
b) Stannous fluoride toothpastes
c) Antimicrobial rinses

Home Care

- Electric toothbrushes
- Stannous Fluoride toothpastes
- Antimicrobial rinses

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INTERNATIONAL FEDERATION OF DENTAL HYGIENISTS

Evidence-based self-care recommendations matter: Findings from IFDH global surveys

This IFDH White Paper identifies opportunities and strategies for dental hygienists to make even more impactful evidence-based preventive self-care recommendations based on global IFDH survey findings. These actions will help improve patients' periodontal health, positively impact their well-being, and contribute towards sustainable dentistry.

INTRODUCTION

Health promotion and disease prevention have been recognized as being critical to the maintenance of good oral health for decades. However, despite prevention being the hallmark of dental hygiene education globally, implementation of these strategies has continued to be a challenge. Support from a recent resolution of the 74th Assembly of the World Health Organization (WHO) urging oral health providers to focus more on a "health-centered preventive approach and less on a pathology-driven treatment approach"[1] may help bring more attention to the importance of prevention. This resolution led to further action by the WHO in their subsequent 2022 publication of a *"Global Oral Health Status Report: Towards universal health coverage for oral health by 2030"*.[2] This report states, "the primary focus of oral health professionals' activities should therefore be on delivering evidence-based preventive care and minimally invasive interventions, supporting patients in effective self-care practices and acting as advocates for policies to promote population oral health".[2] In addition, the report emphasized both cost and environmental benefits of such preventive efforts stating that "successful prevention strategies can lead to reduced practice visits, favor minimal intervention techniques & minimize oral health care waste, helping to improve the environment."[2]

Periodontal diseases are recognized as a major public health concern and estimated to affect around 1 billion cases worldwide.[3] Severe periodontitis has been labelled as the 6th most prevalent disease globally.[3] Another concern is the growing evidence on the associations of periodontal diseases with systemic diseases. Monsarrat et al.[4] conducted a systematic mapping of clinical trials investigating associations between periodontal diseases and systemic conditions and found 57 diseases currently underway hypothesized to be linked with periodontal diseases. In addition to the burden of disease caused by periodontitis and these potential systemic linkages, the economic impact is alarming. A recent study by Botelho and colleagues[5] estimated the economic burden to be $154.06 billion in the US and €158.64 billion in Europe.

It has been difficult to put a price on the effects of prevention until recently. Two *Economist Impact* reports published the results of a cost-benefit analysis of treatment versus prevention that included six European countries[6] and the United States.[7] From their analysis, their report determined that eliminating gingivitis through improved self-care would not only prevent progression to periodontitis, but would

Polling Question

Approximately what percent of patients do you recommend flossing?

a) 10–30%
b) 40–60%
c) 70–90%
d) 100%

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Home Care – Interdental Cleaning

- Floss
- Water flossers
- Toothpicks
- Woodsticks
- Interdental brushes

The European Federation of Periodontology (EFP) strongly recommends using interdental brushes as the primary method for interproximal plaque removal in most cases, emphasizing their effectiveness over flossing. The EFP guidelines suggest that interdental brushes are superior to floss for plaque removal between teeth, particularly for individuals with wider interdental spaces.

International Journal of Dental Hygiene / Volume 6, Issue 4 / pp. 253-264

Free Access

The efficacy of interdental brushes on plaque and parameters of periodontal inflammation: a systematic review

DE Slot, CE Dörfer, GA Van der Weijden

First published: 12 November 2008
https://doi.org/10.1111/j.1601-5037.2008.00330.x
Citations: 130

D. E. Slot
Academic Centre for Dentistry Amsterdam (ACTA)
Department of Periodontology

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EFP Guideline: Treatment of Periodontitis, 2020.

Periodontal Treatment

EFP Guideline: Treatment of periodontitis

Summarised from:
Treatment of stage I-III periodontitis–The EFP S3 level clinical practice guideline.

(Journal of Clinical Periodontology; doi: 10.1111/jcpe.13290)

Authors:
Mariano Sanz, David Herrera, Moritz Kebschull, Iain Chapple, Søren Jepsen, Tord Berglundh, Anton Sculean, Maurizio S. Tonetti, On behalf of the EFP Workshop Participants and Methodological Consultants

Summarised by:
Dr Varkha Rattu

The following adjuncts (supplemental therapies) are NOT suggested or NOT recommended to use:

- Lasers or adjunctive photo-dynamic therapy
- Routinely use systemic antibiotics as adjuncts (supplemental therapy) to subgingival instrumentation
- Systemic sub-antimicrobial dose Doxycycline
- Administration of statin gels, systemic or local bisphosphonates, systemic or local non-steroidal anti-inflammatory drugs, omega-3 polyunsaturated fatty acids and metformin gel
- Probiotics

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EFP Guideline: Treatment of Periodontitis, 2020.

Immunizations

- Update immunization records
- Promote vaccinations
- Administer vaccines if allowed by state

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Commentary

Check for updates

Including vaccinations in the scope of dental practice

The time has come

Alessandro Villa, DDS, PhD, MPH; Milda Chmieliauskaite, DMD, MPH; Lauren L. Patton, DDS

The COVID-19 pandemic is having devastating public health consequences, including limiting access to preventive care for patients. On March 13, 2020, the government of the United States declared a nationwide emergency.[1] Since then, the noninfluenza and pediatric measles-containing vaccine administrations recommended by the Advisory Committee on Immunization Practices have dropped significantly.[2] Similarly, human papillomavirus (HPV) vaccination rates were down 73% compared with the previous year.[3]

The worrisome decrease in vaccination rates requires immediate attention from physicians and public health officials, including dentists, as vaccination is an important practice to help mitigate the future communicable disease burden in our society. Historically, dentists have been strong advocates of prevention measures and played a significant role in several preventive care campaigns, including cancer and infectious disease prevention.[4,5] In a 2006 JADA editorial, Dr. Michael Glick underlined the importance of including immunization as part of dental practices to contain infectious disease outbreaks in the public.[6] Furthermore, a 2018 American Dental Association (ADA) policy statement urged dentists to help promote the HPV vaccine as a form of cancer prevention.[7] In 2019, the ADA's Center for Evidence-Based Dentistry conducted an umbrella review of systematic reviews summarizing the evidence of the safety, efficacy, and effectiveness of HPV vaccines to help dentists understand the evidence on benefits and potential harms of the HPV vaccine for the general population.[8]

The question of dentists' readiness to engage in promotion and delivery of the HPV vaccine has been raised. A systematic review by Walker and colleagues[9] indicated that the complex environment for managing HPV-oropharyngeal cancer education and vaccination communication calls for additional interventions to help dentists engage in delivering effective recommendations. Importantly, surveys of dentist in Arizona and Minnesota reveal the willingness of dentists to receive training regarding HPV discussions and to recommend the vaccine.[10,11]

This question was further assessed in late 2019 by the ADA, using its private practitioner Clinical Evaluators Panel, in which only 38% of 329 respondents stated that if the scope of dental practice were expanded to include HPV vaccine delivery, they would feel uncomfortable administering the vaccine, largely owing to lack of reimbursement and need for vaccine management and preservation.[12] Yet, most US states prohibit dentists from administering vaccines to their patients. Minnesota and Illinois passed legislation in 2014 and 2016, respectively, that allow dentists to administer influenza vaccines to people 19 years and older after completing a training program through their respective state dental boards.[13,14] In 2019, Oregon passed legislation to allow dentists to prescribe and administer any vaccine.[15] Oregon has provided a model that may be beneficial for other states to follow.

As we wait for the delivery of the vaccine against severe acute respiratory syndrome coronavirus 2, the virus that causes COVID-19, there is an urgent need to increase patient access to immunization education and services. It was just 10 years ago that vaccine delivery entered the scope of practice of pharmacists in all 50 US states, and the impact of pharmacists as immunizers for the pneumococcal and influenza vaccines has helped increase vaccinations rates.[16,17] Dentists are also well positioned to increase access to vaccinations, as well as to educate patients on the importance of vaccinations. The role of dentists in promoting HPV vaccination for HPV-associated cancers is a prime example of how the dental community is at the front line of preventive care and can engage

Editorials represent the opinions of the authors and not necessarily those of the American Dental Association.

Tobacco Cessation Counseling

Guest Commentary

Motivational Interviewing in Dental Hygiene Education: Past Lessons, Present Practices, and Future Directions

Michelle C. Arnett, MS, RDH *Jennifer Cullen, RDH, MPH* *Kimberly Bray, PhD, RDH*

Oral health affects an individual's quality of life, employability, and general health and well-being.[1,2] Oral diseases negatively impact an individual's speech, social development, and school and work performance.[1] Many oral diseases (i.e. caries, periodontitis, oropharyngeal cancers (OPCs)) can be prevented, yet are still epidemics in the United States (US).[1,2] Evidence-based behavioral science research indicates the application of patient-centered counseling to prompt positive health behavior change can reduce chronic oral diseases.[3,4]

Motivational Interviewing (MI) is a person-centered, goal-directed method of communication for eliciting and strengthening intrinsic motivation by eliciting change conversations for positive behavior change.[3] Motivational Interviewing encompasses a philosophy known as the *Spirit of MI*; this can be described when a provider and a patient have developed a collaborative partnership, rapport, and trust.[3] This engagement is required to evoke the patient's own thoughts or ideas, rather than the provider imposing goals or expectations set by the provider.

MI is widely applied to address behavior change including tobacco cessation, exercise, sexual risk reduction, gambling, and treatment adherence.[4–10] What characterizes MI is the specific way these skills are strategically used to help individuals move in the direction of change by implementing the processes in a manner that is consistent with the underlying philosophy (*Spirit of MI*). Through the four processes, MI uses a guiding communication style to engage with individuals, clarify their strengths and aspirations to evoke their own motivations for change, while promoting their autonomy in decision making. Since the early 2000's MI and brief MI have been utilized in dentistry to promote healthy behavior changes.[11–22] Reflecting on past lessons and present practices can provide valuable insights to develop future opportunities for MI to improving patient health outcomes, education and training for clinicians, embedding in dental education, and investigating the theory of '*why*' MI is effective.

PAST LESSONS

Motivation matters when building a commitment to healthier behaviors and is supported by several health psychology models. Individuals are more likely to do what they *hear* themselves say than what a dental provider tells them to do. Reflect on your own experiences, and think about what you are more likely to do 1) what you offer to do or 2) what you are told to do? Historically, dental hygienists provide information and educate patients as part of their daily clinical practice. Persuasive advice giving, sometimes referred to as the tell-show-do method, is commonly used in the dental hygiene (DH) profession. This method has not been shown to promote sustainable positive health

Short Report

Motivational Interviewing and Case-Based Learning Approach Toward Tobacco Cessation Behavior Changes

M. Suann Gaydos, MSDH, CPAHA-TT
R. Constance Wiener, MA, DMD, PhD
Susan Morgan, DDS, NCTTP
Elizabeth S. Puette, MSDH, CTTS

ABSTRACT

Health care professionals and health care students need effective skills to address the public health issue of tobacco use disorder. An accredited tobacco treatment specialist (TTS) program that includes case-based motivational interviewing (MI) instruction and role-playing with case-based tobacco scenarios, provides an opportunity to obtain or improve tobacco cessation skills. It is important for health care students to develop competency in MI as part of the evidence-based strategies used to assist individuals with tobacco cessation. The purpose of this short report was to evaluate the effectiveness of case-based teaching of MI concepts and assess health care students' ability to apply these techniques during tobacco cessation scenarios. Ten percent of the TTS program's certification examination consisted of case-based questions in MI skills developed by a team of experts. A total of 156 West Virginia University Health Sciences Center students (including dental and dental hygiene students) were examined. The mean overall correct response for MI case-based questions score was 89.0% (SD, 0.29). With an 80% competency score, this assessment of tobacco cessation case-based learning questions displayed proficient application of MI and case-based learning was considered a valuable method to teach a complex skill.

Keywords health care students, dental hygiene students, tobacco cessation, case-based learning, motivational interviewing, interdisciplinary collaboration

NDHRA priority area, **Professional development: Education** (educational models).

Submitted for publication: 2/13/2025; accepted after revisions: 4/16/2025

INTRODUCTION

Tobacco use and related tobacco products, such as pure nicotine, and the vaping of other substances, continues to be a public health concern despite concerted efforts to reduce use and to encourage never initiating use. Despite the greater than 480,000 deaths each year related to cigarette smoking and secondhand smoke exposure; and the greater than16 million people in the United States (US) living with a disease caused by smoking, people continue to smoke.[1] To their credit many tobacco users continue to make cessation attempts.[1] Public health efforts are challenged by the enormity of the tobacco industry and the profits that it generates. In 2022, $8.6 billion was spent on tobacco advertising/promotion/discount coupons in the US.[2] The direct health care costs due to smoking is estimated at $170 billion and smoking-related loss of productivity costs are estimated at $156 billion.[3]

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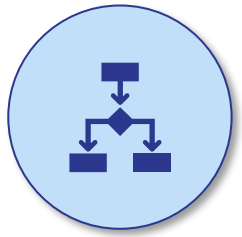

Present evidence to support the option, then engage in shared decision-making

Patients have the right to refuse recommendations

Offering evidence-supported alternatives respects patient preferences and increases adherence

Using motivational interviewing respects autonomy and supports behavior change

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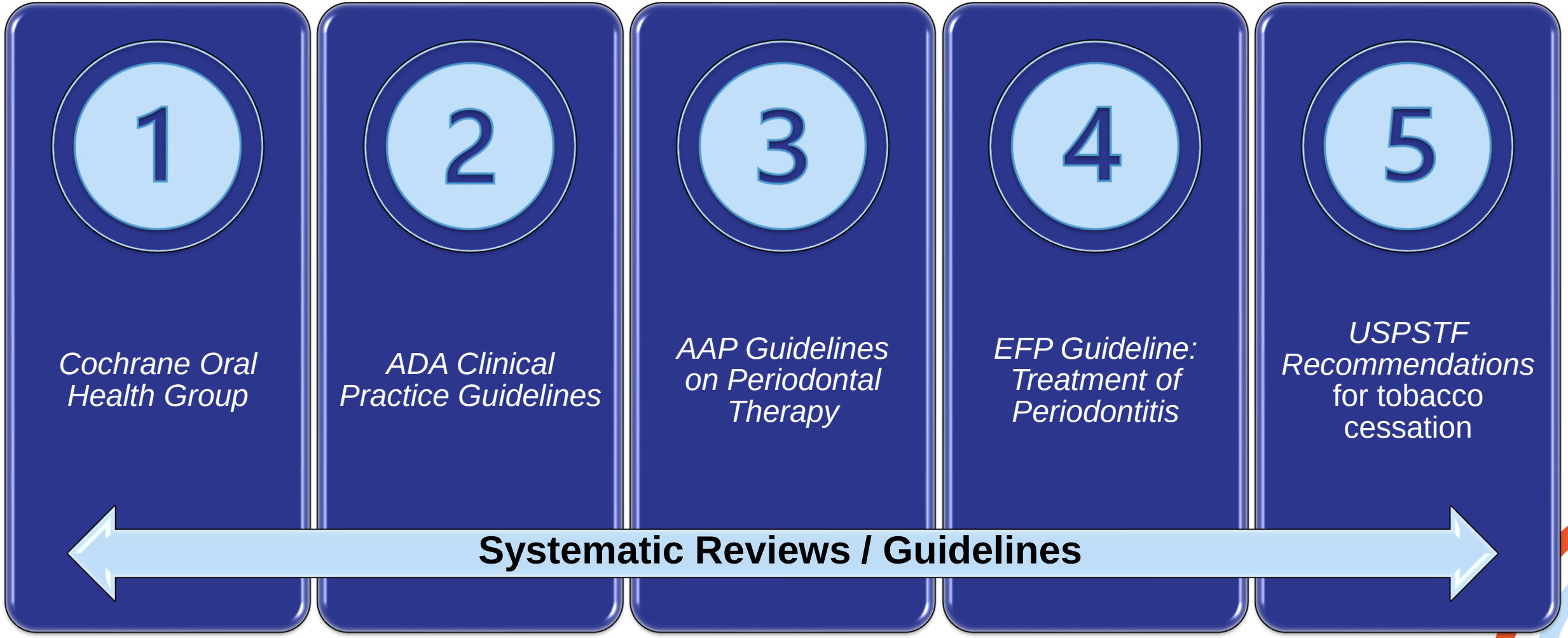
Key Sources for Evidence



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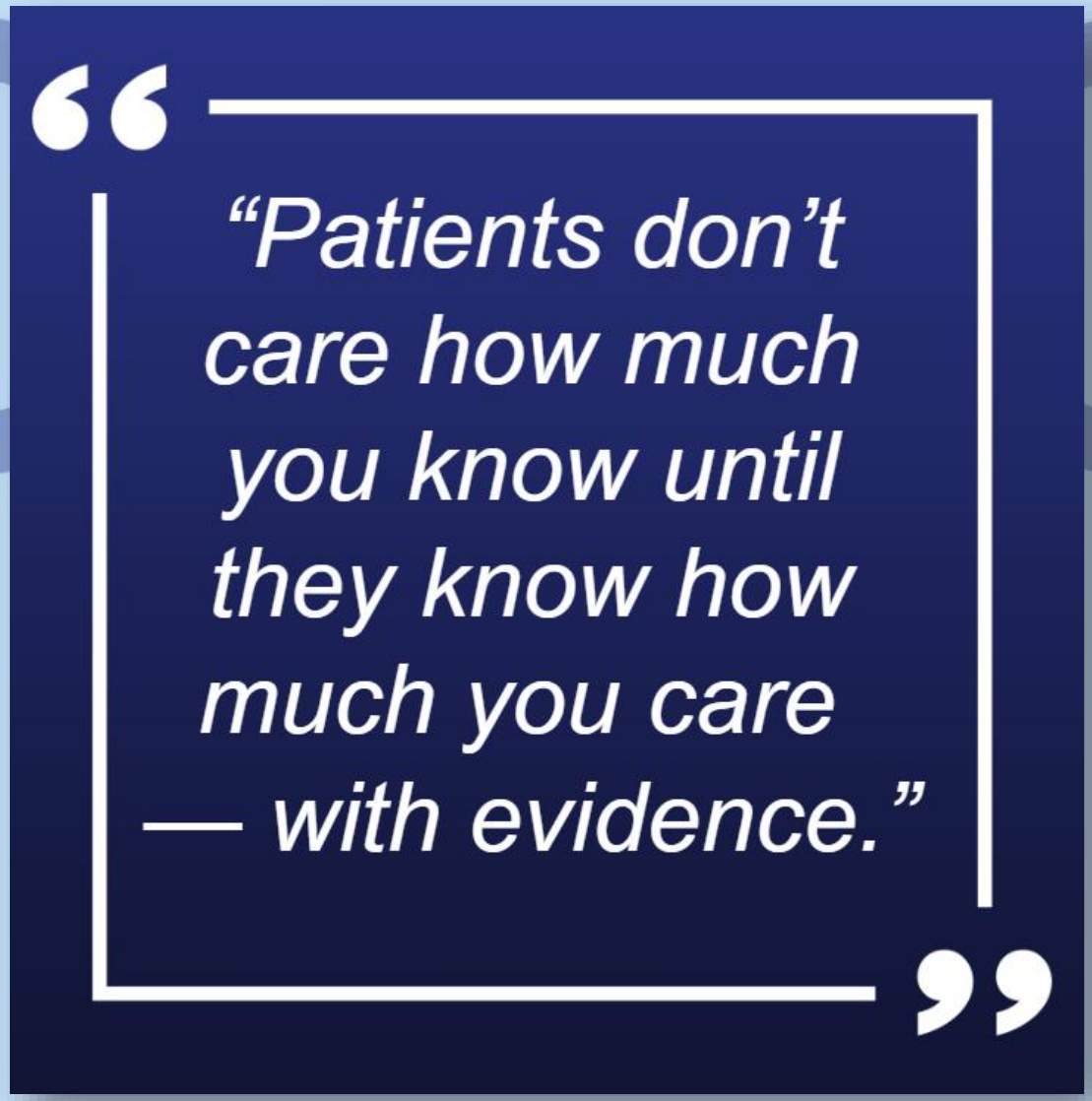

Theodore Roosevelt and JoAnn Gurenlian

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