Dental Procedures and Prosthetic Joint Infection

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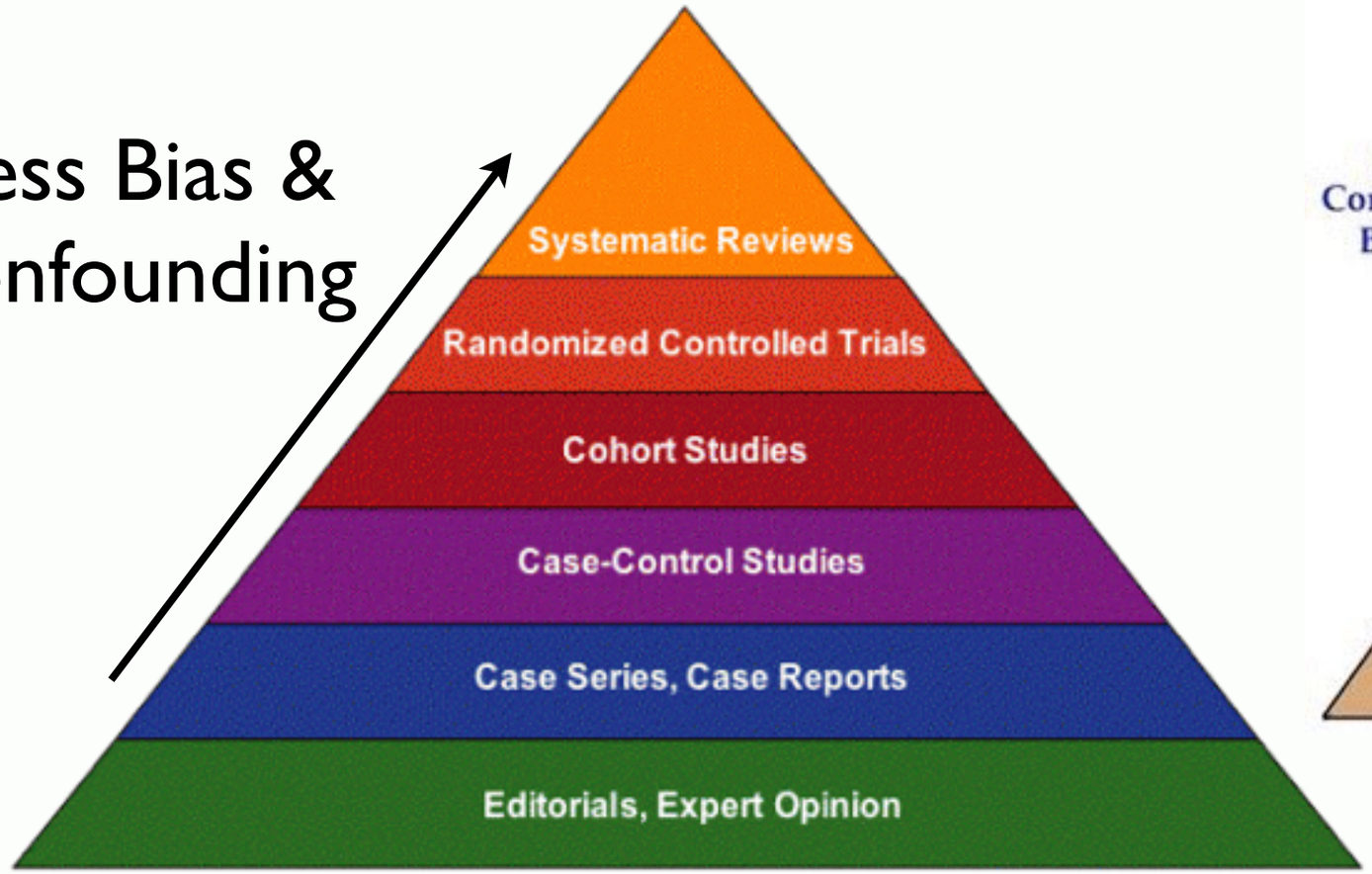
Learning Objectives

- What are clinical practice guidelines and why do we need them
- What are the current guidelines for dental procedures and PJI
- What is an appropriate use criteria (AUC) and what are the findings for dental procedures and PJI

STUDY DESIGNS

Less Bias & confounding



Cross-sectional studies?

Evidence Pyramid

Research Design

- Systematic Reviews/ Meta-analysis
- Randomized Controlled Trials
- Cohort
- Case-Control
- Cross-sectional
- Case Series
- Narrative Review
- Opinion

Research Design

- Randomized Controlled Trials

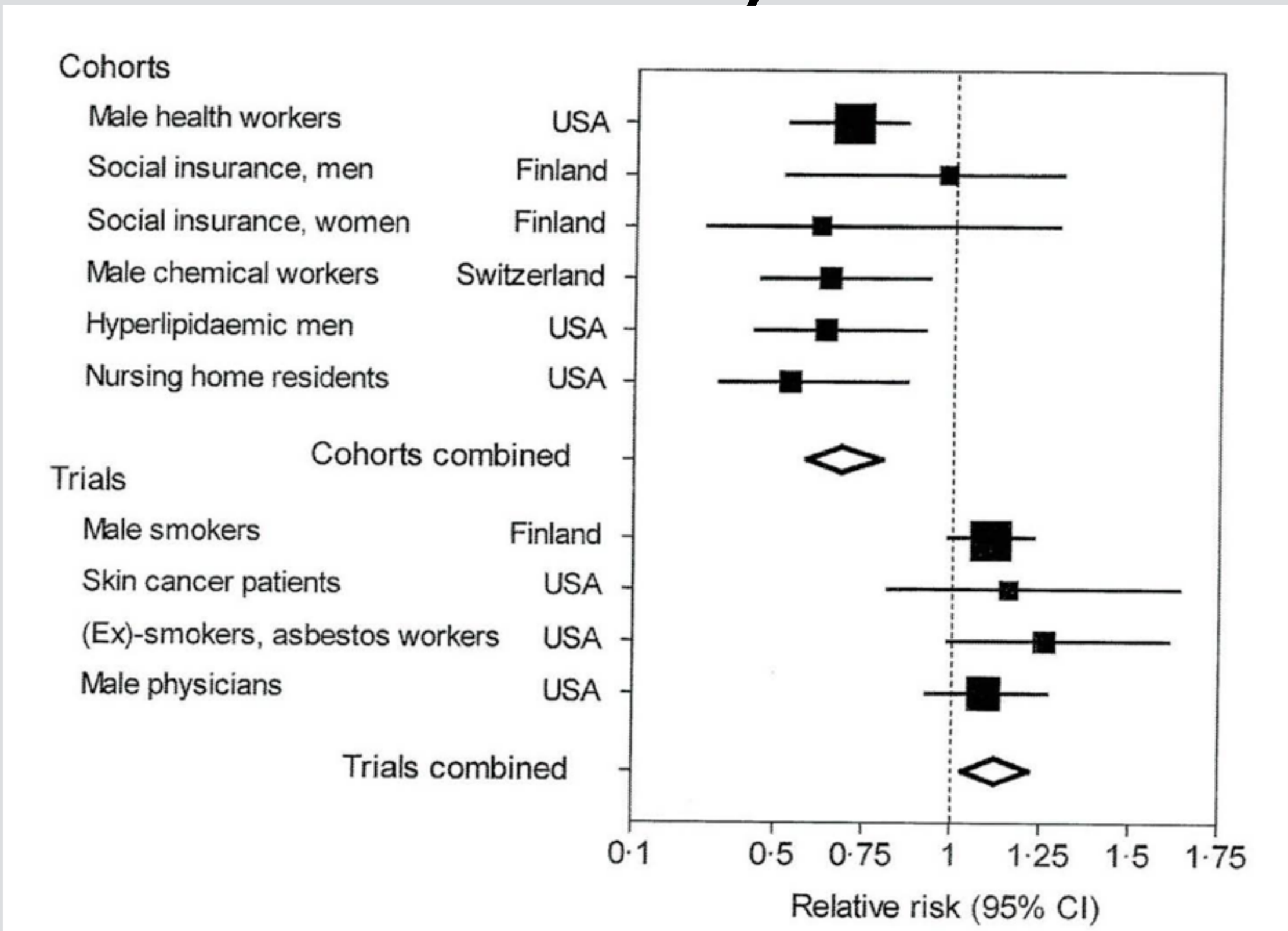
Interventional design

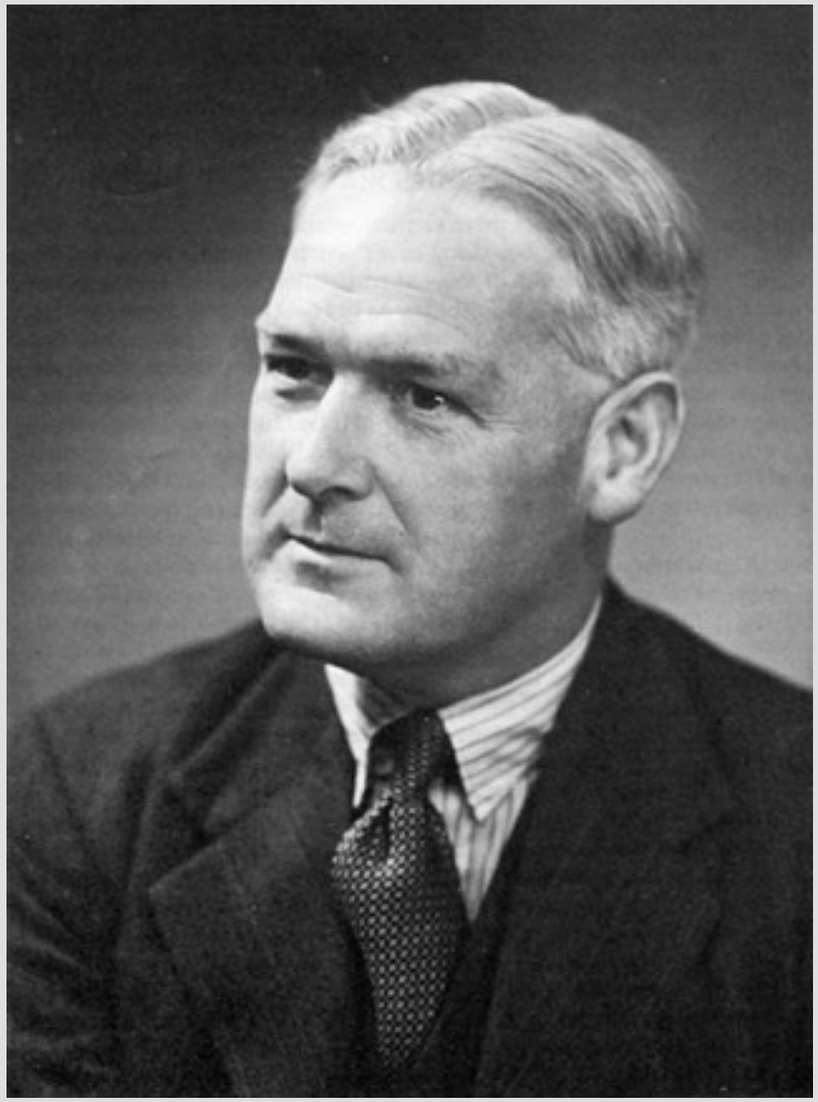
- Cohort Study
- Case-Control Study
- Cross-sectional Study

Observational designs

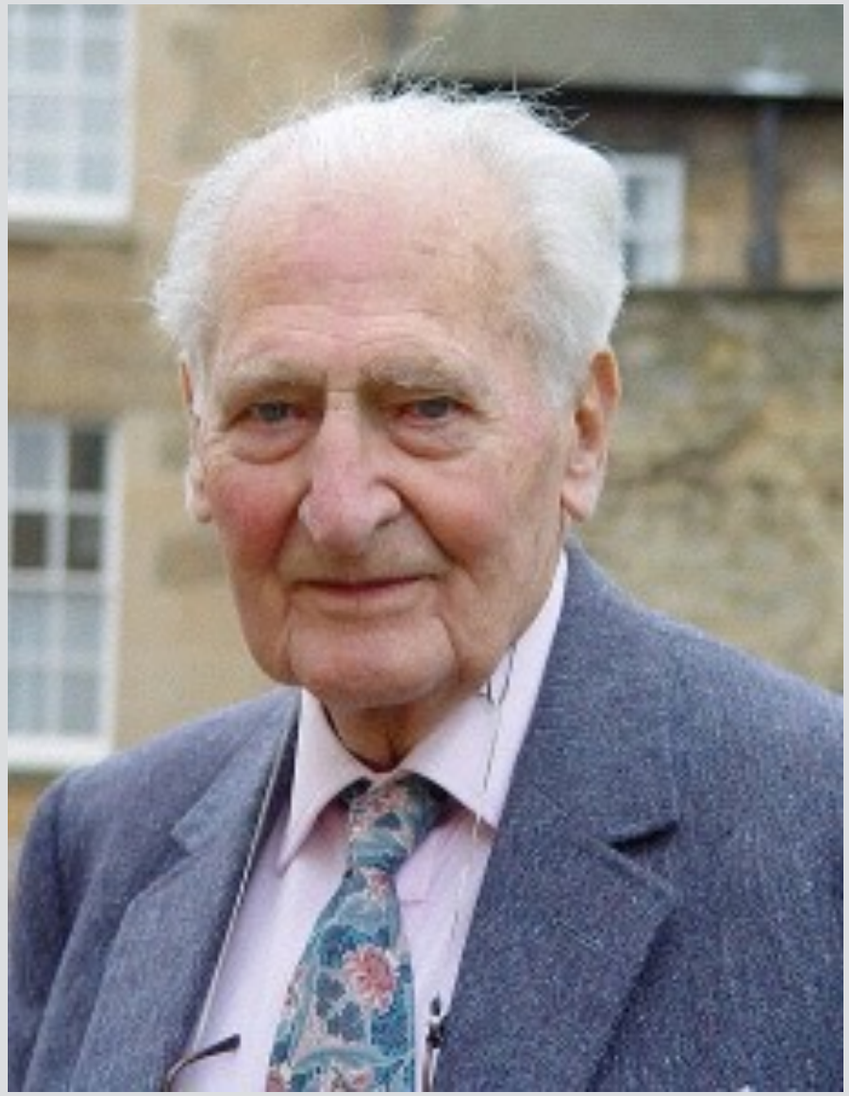
Why do these designs??

Beta-carotene & cardiovascular mortality





Sir Austin Bradford Hill



Sir Richard Doll

Dental Procedures as Risk Factors for Prosthetic Hip or Knee Infection: A Hospital-Based Prospective Case-Control Study

Elie F. Berbari,[1] Douglas R. Osmon,[1] Alan Carr,[2] Arlen D. Hanssen,[3] Larry M. Baddour,[1] Doris Greene,[1] Leo I. Kupp,[5] Linda W. Baughan,[5] W. Scott Harmsen,[4] Jayawant N. Mandrekar,[4] Terry M. Therneau,[4] James M. Steckelberg,[1] Abinash Virk,[1] and Walter R. Wilson[1]

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(See the editorial commentary by Zimmerli and Sendi, on pages 17–9.)

Background. The actual risk of prosthetic joint infection as a result of dental procedures and the role of antibiotic prophylaxis have not been defined.

Methods. To examine the association between dental procedures with or without antibiotic prophylaxis and prosthetic hip or knee infection, a prospective, single-center, case-control study for the period 2001–2006 was performed at a 1200-bed tertiary care hospital in Rochester, Minnesota. Case patients were patients hospitalized with total hip or knee infection. Control subjects were patients who underwent a total hip or knee arthroplasty but without a prosthetic joint infection who were hospitalized during the same period on the same orthopedic floor. Data regarding demographic features and potential risk factors were collected. Logistic regression was used to assess the association of variables with the odds of infection.

Results. A total of 339 case patients and 339 control subjects were enrolled in the study. There was no increased risk of prosthetic hip or knee infection for patients undergoing a high-risk or low-risk dental procedure who were not administered antibiotic prophylaxis (adjusted odds ratio [OR], 0.8; 95% confidence interval [CI], 0.4–1.6), compared with the risk for patients not undergoing a dental procedure (adjusted OR, 0.6; 95% CI, 0.4–1.1) respectively. Antibiotic prophylaxis in high-risk or low-risk dental procedures did not decrease the risk of subsequent total hip or knee infection (adjusted OR, 0.9 [95% CI, 0.5–1.6] and 1.2 [95% CI, 0.7–2.2], respectively).

Conclusions. Dental procedures were not risk factors for subsequent total hip or knee infection. The use of antibiotic prophylaxis prior to dental procedures did not decrease the risk of subsequent total hip or knee infection.

Because of the aging US population, it is estimated that, by 2030, ~4 million total hip or knee arthroplasties will be performed annually in the United States [1]. Although the overall outcome of joint arthroplasty is ex-

bidity and mortality [2, 3]. The attributable financial cost of management of each episode of PJI is estimated to be 3–4 times the cost of a primary total joint arthroplasty and usually exceeds $50,000 [4].

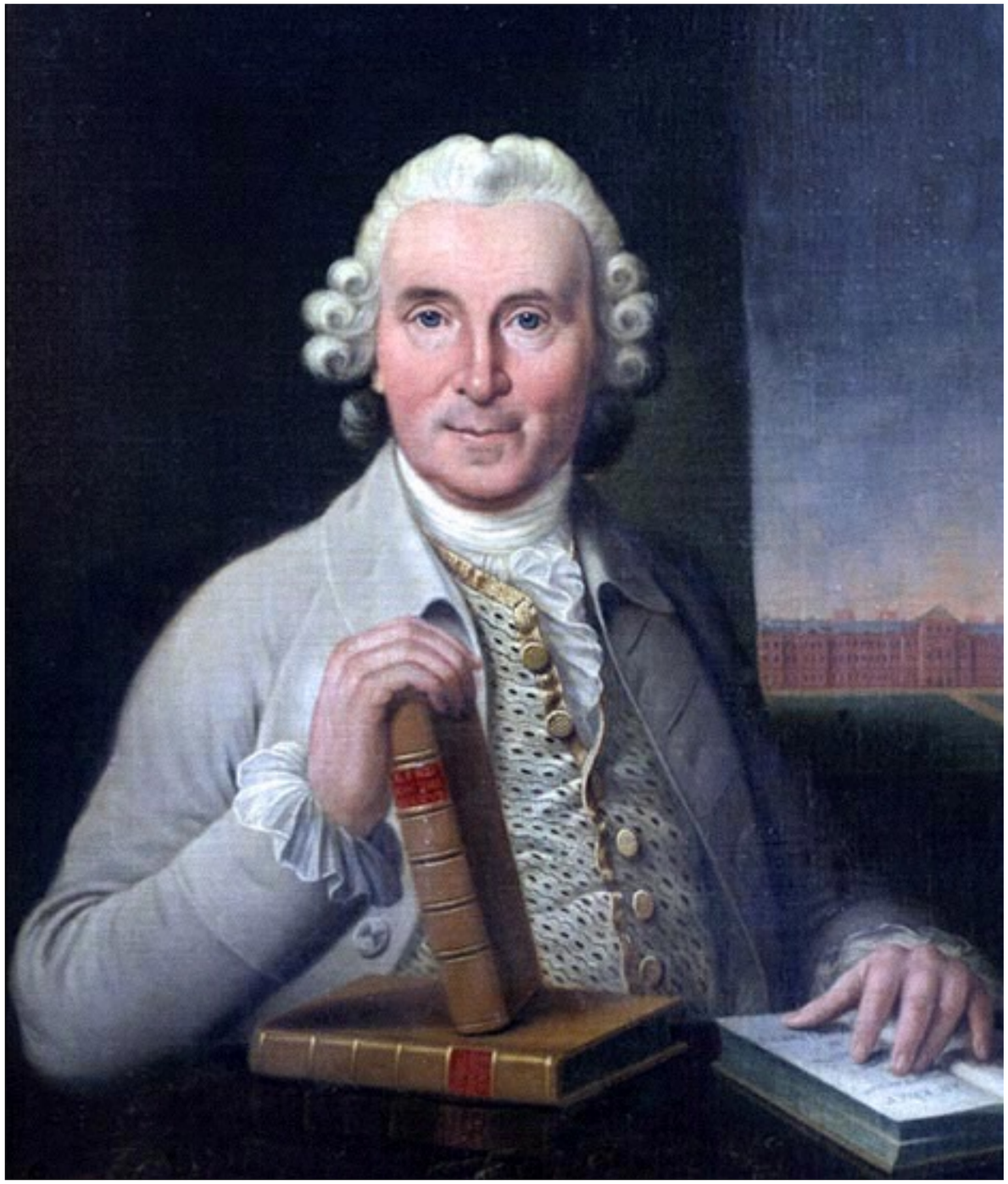
Research Design

- Narrative Review

Broad topic
Few inclusion criteria
Susceptible to bias
Non-reproducible

- Systematic Review

Narrow topic
Exhaustive literature search
Strict inclusion/exclusion criteria
Reproducible



Getting Research into Clinical Practice

TREATISE

OF THE SCURVY.

IN THREE PARTS.

CONTAINING

An inquiry into the Nature, Cauſes, and Cure, of that Diſeaſe.

Together with

A Critical and Chronological View of what has been publiſhed on the ſubject.

By *JAMES LIND*, M. D.

Fellow of the Royal College of Phyſicians in *Edinburgh*.

EDINBURGH:

Printed by SANDS, MURRAY, and COCHRAN.

For A. KINCAID & A. DONALDSON.

MDCCLIII.

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What should be here?

Evidence Pyramid

Clinical Practice Guidelines

- 20 years ago: GOBSAT Guidelines
- EB Guidelines: look for or do a systematic review of the literature

Clinical Practice Guidelines

Definition

- **Clinical Practice Guideline**: what & why
- Protocol
- Standard of Care

Clinical Practice Guidelines (what?)

- Summarize the evidence (systematic review)
- Provide recommendations (for or against taking an action)

Clinical Practice Guidelines (why?)

- Improve the quality and outcomes of care
- Reduce inappropriate variation in practice
- Promote efficient use of resources
- Inform public policy

Definition

- **Clinical Practice Guideline**: what & why
- Protocol
- Standard of Care

AAOS-ADA Clinical Practice Guideline Summary

Prevention of Orthopaedic Implant Infection in Patients Undergoing Dental Procedures

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Abstract

The Prevention of Orthopaedic Implant Infection in Patients Undergoing Dental Procedures evidence-based clinical practice guideline was codeveloped by the American Academy of Orthopaedic Surgeons (AAOS) and the American Dental Association. This guideline replaces the previous AAOS Information Statement, "Antibiotic Prophylaxis in Bacteremia in Patients With Joint Replacement," published in 2009. Based on the best current evidence and a systematic review of published studies, three recommendations have been created to guide clinical practice in the prevention of orthopaedic implant infections in patients undergoing dental procedures. The first recommendation is graded as Limited; this recommendation proposes that the practitioner consider changing the long-standing practice of routinely prescribing prophylactic antibiotic for patients with orthopaedic implants who undergo dental procedures. The second, graded as Inconclusive, addresses the use of oral topical antimicrobials in the prevention of periprosthetic joint infections. The third recommendation, a Consensus statement, addresses the maintenance of good oral hygiene.

Overview and Rationale

values when making treatment decisions.

This clinical practice guideline was

‘The practitioner might consider discontinuing the practice of prescribing prophylactic antibiotics for patient with hip and knee prosthetic joint implants undergoing dental procedures.’

COVER STORY

The use of prophylactic antibiotics prior to dental procedures in patients with prosthetic joints

Evidence-based clinical practice guideline for dental practitioners—a report of the American Dental Association Council on Scientific Affairs

Thomas P. Sollecito, DMD, FDS RCSEd; Elliot Abt, DDS, MS, MSc; Peter B. Lockhart, DDS, FDS RCSEd, FDS RCPS; Edmond Truelove, DDS, MSD; Thomas M. Paumier, DDS; Sharon L. Tracy, PhD; Malavika Tampi, MPH; Eugenio D. Beltrán-Aguilar, DMD, MPH, MS, DrPH; Julie Frantsve-Hawley, PhD

In 2012, a panel of experts representing the American Academy of Orthopaedic Surgeons (AAOS) and the American Dental

ABSTRACT

Background. A panel of experts (the 2014 Panel) convened by the American Dental Association Council on Scientific Affairs developed an evidence-based clinical practice guideline (CPG) on the use of prophylactic antibiotics in patients with prosthetic joints who are undergoing dental procedures. This CPG is intended to clarify the "Prevention of Orthopaedic Implant Infection in Patients Undergoing Dental Procedures: Evidence-based Guideline and Evidence Report," which was developed and published by the American Academy of Orthopaedic Surgeons and the American Dental Association (the 2012 Panel).

Types of Studies Reviewed. The 2014 Panel based the current CPG on literature search results and direct evidence contained in the comprehensive systematic review published by the 2012 Panel, as well as the results from an updated literature search. The 2014 Panel identified 4 case-control studies.

Results. The 2014 Panel judged that the current best evidence failed to demonstrate an association between dental procedures and prosthetic joint infection (PJI).

‘In general, for patients with prosthetic joint implants, prophylactic antibiotics are NOT recommended prior to dental procedures to prevent prosthetic joint infection.’

Dental Procedures as Risk Factors for Prosthetic Hip or Knee Infection: A Hospital-Based Prospective Case-Control Study

Elie F. Berbari,[1] Douglas R. Osmon,[1] Alan Carr,[2] Arlen D. Hanssen,[3] Larry M. Baddour,[1] Doris Greene,[1] Leo I. Kupp,[5] Linda W. Baughan,[5] W. Scott Harmsen,[4] Jayawant N. Mandrekar,[4] Terry M. Therneau,[4] James M. Steckelberg,[1] Abinash Virk,[1] and Walter R. Wilson[1]

Departments of [1]Medicine, Division of Infectious Diseases, [2]Dental surgery, [3]Orthopedic Surgery, and [4]Biostatistics and Epidemiology, Mayo Clinic College of Medicine, Rochester, and [5]Department of Periodontics, Burnsville, Minnesota; and [6]Department of Endodontics, Virginia Commonwealth University, Richmond, Virginia

(See the editorial commentary by Zimmerli and Sendi, on pages 17–9.)

Background. The actual risk of prosthetic joint infection as a result of dental procedures and the role of antibiotic prophylaxis have not been defined.

Methods. To examine the association between dental procedures with or without antibiotic prophylaxis and prosthetic hip or knee infection, a prospective, single-center, case-control study for the period 2001–2006 was performed at a 1200-bed tertiary care hospital in Rochester, Minnesota. Case patients were patients hospitalized with total hip or knee infection. Control subjects were patients who underwent a total hip or knee arthroplasty but without a prosthetic joint infection who were hospitalized during the same period on the same orthopedic floor. Data regarding demographic features and potential risk factors were collected. Logistic regression was used to assess the association of variables with the odds of infection.

Results. A total of 339 case patients and 339 control subjects were enrolled in the study. There was no increased risk of prosthetic hip or knee infection for patients undergoing a high-risk or low-risk dental procedure who were not administered antibiotic prophylaxis (adjusted odds ratio [OR], 0.8; 95% confidence interval [CI], 0.4–1.6), compared with the risk for patients not undergoing a dental procedure (adjusted OR, 0.6; 95% CI, 0.4–1.1) respectively. Antibiotic prophylaxis in high-risk or low-risk dental procedures did not decrease the risk of subsequent total hip or knee infection (adjusted OR, 0.9 [95% CI, 0.5–1.6] and 1.2 [95% CI, 0.7–2.2], respectively).

Conclusions. Dental procedures were not risk factors for subsequent total hip or knee infection. The use of antibiotic prophylaxis prior to dental procedures did not decrease the risk of subsequent total hip or knee infection.

Because of the aging US population, it is estimated that, by 2030, ~4 million total hip or knee arthroplasties will be performed annually in the United States [1]. Although the overall outcome of joint arthroplasty is ex-

bidity and mortality [2, 3]. The attributable financial cost of management of each episode of PJI is estimated to be 3–4 times the cost of a primary total joint arthroplasty and usually exceeds $50,000 [4].

Table 5. Analysis of Dental Procedures Performed within 6 Months and within 2 Years of Hospital Admission and Risk of Prosthetic Hip or Knee Infection among Case Patients and Control Subjects at the Mayo Clinic, 2001–2006

Variable	Case patients (n = 303)[a]	Control subjects (n = 318)[a]	Odds ratio (95% confidence interval)[b]			
			6 Months	P	2 Years	P
Low-risk dental procedure[c]						
Any	192 (57)	161 (47)	1.0 (Reference)		1.0 (Reference)	
Edentulous	47 (14)	26 (8)	1.8 (0.9–3.7)	.10	1.7 (0.8–3.4)	.16
Low-risk procedure without antibiotic prophylaxis	41 (12)	65 (19)	1.1 (0.6–2.1)	.77	0.6 (0.4–1.1)	.11
Low-risk procedure with antibiotic prophylaxis	59 (17)	87 (26)	0.7 (0.3–1.5)	.33	0.8 (0.5–1.2)	.29
High-risk dental procedure[d]	164 (48)	116 (34)	1.0 (Reference)		1.0 (Reference)	
Edentulous	47 (14)	26 (8)	1.7 (0.9–3.5)	.13	1.7 (0.8–3.4)	.16
High-risk procedure, without antibiotic prophylaxis	33 (10)	49 (14)	0.8 (0.4–1.7)	.60	0.8 (0.4–1.6)	.56
High-risk procedure, with antibiotic prophylaxis	95 (28)	148 (44)	0.5 (0.3–0.9	.01	0.7 (0.5–1.1)	.14

Variable	No. (%) of case patients	No. (%) of control subjects	Odds ratio[a] (95% CI)	*P*	Overall *P*
Preoperative factor					
Body mass index					<.001
<25	76 (22)	51 (15)	1.0 (Reference)		
25–30	89 (26)	124 (37)	0.4 (0.3–0.7)	<.001	
31–39	113 (33)	138 (41)	0.5 (0.3–0.7)	<.001	
≥40	61 (18)	26 (8)	1.4 (0.7–2.5)	.32	
Diabetes mellitus	69 (20)	42 (12)	1.8 (1.2–2.8)	.006	
Prior operation on the index joint	130 (38)	86 (25)	1.9 (1.3–2.6)	<.001	
Prior arthroplasty on the index joint	107 (32)	55 (16)	2.4 (1.6–3.5)	<.001	
Immunocompromise[b]	208 (61)	149 (44)	2.2 (1.6–3)	<.001	
Operative factors					
ASA score					<.001
ASA 1	15 (4)	24 (7)	1.0 (Reference)		
ASA 2	140 (41)	199 (59)	0.9 (0.4–1.8)	.78	
ASA 3	138 (41)	94 (28)	1.7 (0.8–3.6)	.14	
ASA 4	10 (3)	4 (2)	4.9 (0.9–26.2)	.06	
Missing data	36 (11)	20 (6)			
Antibiotic surgical prophylaxis	259 (76)	277 (82)	0.5 (0.3–0.8)	.003	
Procedure time					
<2 h	151 (45)	137 (40)	1.0 (Reference)		<.001
≥2 but <3 h	92 (27)	129 (38)	0.6 (0.4–0.9)	.01	
≥3 but <4 h	40 (12)	43 (13)	0.9 (0.6–1.5)	.73	
≥4 h	46 (14)	17 (5)	2.7 (1.5–5)	.002	
Postoperative factors					
Postarthroplasty wound drainage	89 (26)	5 (1)	18.7 (7.4–47.2)	<.001	
Postarthroplasty wound dehiscence	13 (4)	4 (1)	2.5 (0.8–7.7)	.12	
Postarthroplasty wound hematoma	21 (6)	5 (1)	3.5 (1.3–9.5)	.01	
Postarthroplasty surgical site infection[d]	54 (16)	0 (0)	…	…	
Postoperative urinary tract infection	17 (5)	6 (2)	2.7 (1.04–7.1)	.04	
Distant organ infection [c]	89 (26)	52 (15)	2.2 (1.5–3.25)	<.001	

Risk factors for PJI

- Post-arthroplasty wound dehiscence
- Post-arthroplasty wound hematoma
- Post-arthroplasty wound infection

Bacteremia

- Do dental procedures produce bacteremia?
- Does oral bacteremia cause pji?
- Effect of ab on bacteremia unknown
- Chewing & tooth brushing cause bacteremia

PJI

- about 1%-2% of joint replacements
- significant cost and morbidity
- usually occur within 1-2 years post surgery
- staph (not strep) is most common pathogen
- if strep, may be spontaneous from poor dentition???

What about harm from antibiotics?

- Resistant strains of bacteria
- Drug allergy
- C. diff infections
- Cost

C. diff infections in US

- 250,000 hospitalized
- 14,000 deaths/year
- $1,000,000,000/year

Management of patients with prosthetic joints undergoing dental procedures

Clinical Recommendation:

In general, for patients with prosthetic joint implants, prophylactic antibiotics are *not* recommended prior to dental procedures to prevent prosthetic joint infection.

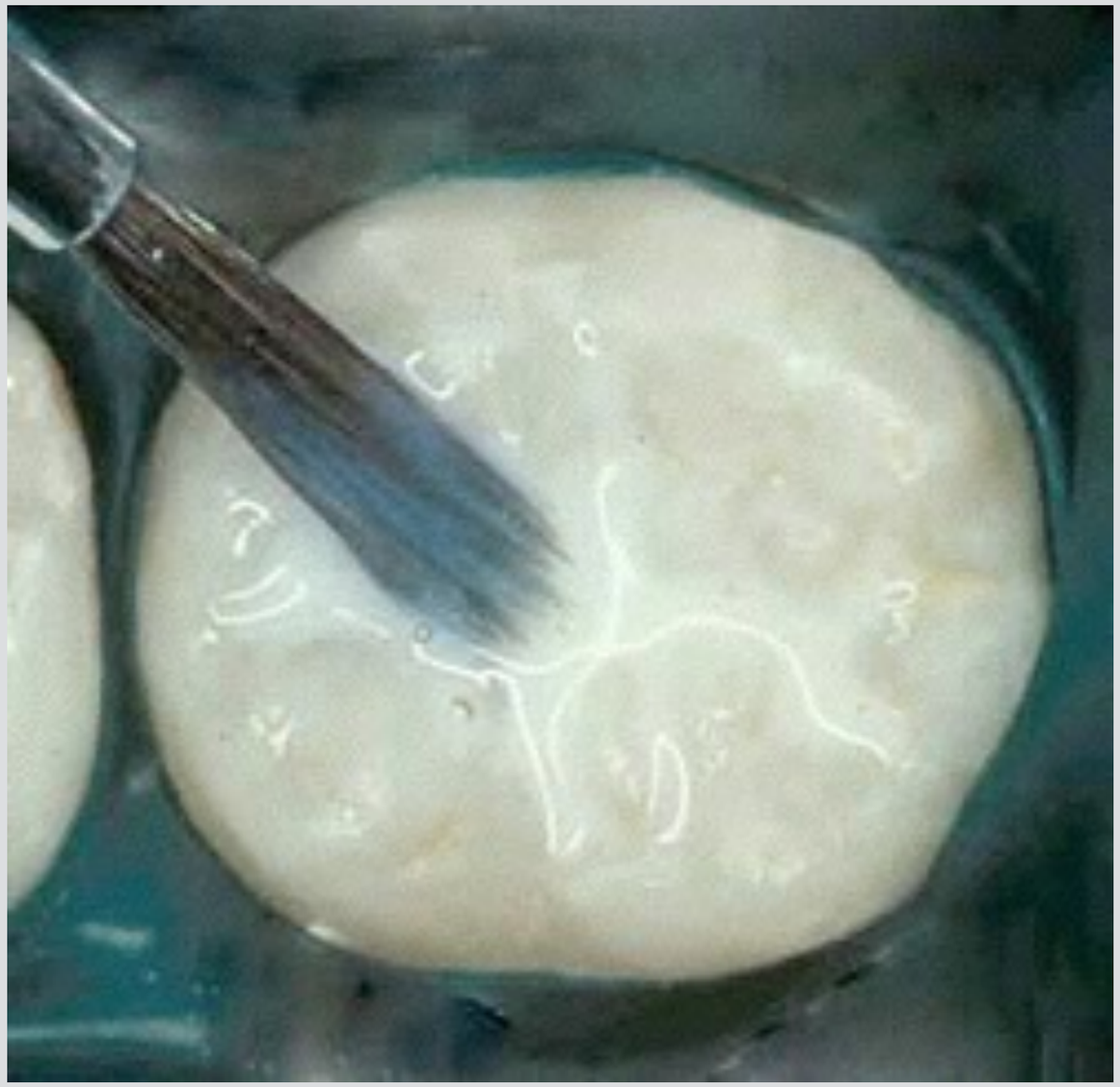
For patients with a history of complications associated with their joint replacement surgery who are undergoing dental procedures that include gingival manipulation or mucosal incision, prophylactic antibiotics should only be considered after consultation with the patient and orthopedic surgeon.* To assess a patient's medical status, a complete health history is always recommended when making final decisions regarding the need for antibiotic prophylaxis.

Clinical Reasoning for the Recommendation:

- There is evidence that dental procedures are not associated with prosthetic joint implant infections.
- There is evidence that antibiotics provided before oral care do not prevent prosthetic joint implant infections.
- There are potential harms of antibiotics including risk for anaphylaxis, antibiotic resistance, and opportunistic infections like *Clostridium difficile*.
- The benefits of antibiotic prophylaxis may not exceed the harms for most patients.
- The individual patient's circumstances and preferences should be considered when deciding whether to prescribe prophylactic antibiotics prior to dental procedures.

Research → **Clinical Practice**

CPG Not Being Implemented into Practice



Evidence

- Cochrane: OR sealants = 0.12;
  RR fluoride = 0.76
- Only 40% of dentists using sealants (Tellez, JADA, 2011)
- Qualitative study on sealants: clinical doubts, reimbursement, mistrust of guidelines (O'Donnell, JADA, 2013)

How are we doing with implementing this CPG?

Implementing PJI CPG

- What harm could it do to give Ab?
- Pt. on Ab pre-med get PJI
- If no benefit, we have to look at other side of ledger which is harm!!

AAOS/ADA AUC

- when to implement
- when evidence is not detailed enough to apply to full range of patients in everyday practice

GUEST EDITORIAL

American Dental Association guidance for utilizing appropriate use criteria in the management of the care of patients with orthopedic implants undergoing dental procedures

American Dental Association–Appointed Members of the Expert Writing and Voting Panels Contributing to the Development of American Academy of Orthopedic Surgeons Appropriate Use Criteria

Approximately 332,000 primary total hip arthroplasties and 719,000 primary total knee arthroplasties were performed in the United States in 2010; 96% of hip replacement and 98% of knee replacement surgeries were performed on patients 45 years and older.[1] Reported infection rates for such operations range from 0.8% to 2.2%.[2-4] Infections can be caused by introduction of microorganisms at the time of surgery, hematogenous seeding, or contiguous spread of infection from an adjacent site.[2,3]

Appropriate Use Criteria

For the Management of Patients with Orthopaedic Implants Undergoing Dental Procedures

Adopted by the American Academy of Orthopaedic Surgeons Board of Directors

9/23/2016

Approved by the American Dental Association Council on Scientific Affairs

10/24/2016

AAOS.org go to Quality then AUC

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ASSUMPTIONS LIST

Before these AUC are consulted, it is assumed that:

Planned Dental Procedures

- The chance of oral bacteremia being related to joint infections is extremely low, with no evidence for an association.
- Oral bacteremia frequently occurs secondary to activities of daily living such as tooth brushing and eating.
- Virtually all dental office procedures have the potential to create bacteremia.

Table 1 Interpreting the 9-Point Appropriateness Scale

Rating	Explanation
7-9	**Appropriate**: Appropriate for the indication provided, meaning treatment **is** generally acceptable and **is** a reasonable approach for the indication and **is** likely to improve the patient's health outcomes or survival.
4-6	**May Be Appropriate**: Uncertain for the indication provided, meaning treatment **may** be acceptable and **may** be a reasonable approach for the indication, but with uncertainty implying that more research and/or patient information is needed to further classify the indication.
1-3	**Rarely Appropriate**: Procedure is not generally acceptable and is not generally reasonable for the indication. Exceptions should have documentation of the clinical reasons for proceeding with this care option. **Rarely** an appropriate option for management of patients in this population due to the lack of a clear benefit/risk advantage; **rarely** an effective option for individual care plans.

Immunocompromised Status

1. Severely immunocompromised patients include:
    a. Patient with Stage 3 HIV (i.e. AIDS) as defined by the Centers for Disease Control and Prevention (CDC) Guidelines when the immune system becomes severely compromised due to reduced CD4 T lymphocyte counts (<200) or opportunistic infection as defined by CDC[8] see list of diseases below.
    b. Cancer patient undergoing immunosuppressive chemotherapy with febrile (Celsius 39) neutropenia (ANC <2000) OR severe neutropenia irrespective of fever (ANC <500)
    c. Rheumatoid arthritis with use of biologic disease modifying agents including tumor necrosis factor alpha or prednisone >10 mg per day. Methotrexate, Plaquenil not considered immunocompromising agents.
    d. Solid organ transplant on immunosuppressants
    e. Inherited diseases of immunodeficiency (e.g., congenital agammaglobulinemia, congenital IgA deficiency)

    f. Bone marrow transplant recipient in one of the following phases of treatment:
        i. Pretransplantation period
        ii. Preengraftment period (approximately 0-30 d posttransplantation)
        iii. Postengraftment period (approximately 30-100 d posttransplantation)
        iv. Late posttransplantation period (≥100 d posttransplantation) while still on immunosuppressive medications to prevent GVHD (typically 36 months post transplantation) (see Table reference below)

III. PATIENT INDICATIONS AND PROCEDURE RECOMMENDATIONS

INDICATION PROFILE

Table 4 Patient Indications and Classifications

Indication	Classification(s)
Planned Dental Procedure	a. Dental procedures that do not result in the manipulation of gingival or periapical tissues, or perforation of the oral mucosa b. Dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa

Immunocompromised Status	a. Not severely immunocompromised b. Severely Immunocompromised
Diabetic Glycemic Control	a. No current or active diabetes diagnosis b. Active known diabetic, Hemoglobin A1C < 8 or Blood Glucose < 200 c. Active known diabetic, Hemoglobin A1C ≥ 8 or Blood Glucose ≥ 200 d. Active known diabetic, Hemoglobin A1C Unknown, Glucose Unknown
History of periprosthetic or deep prosthetic joint infection of the hip or knee that required an operation:	a. No b. Yes
Timing since hip or knee joint replacement procedure:	a. < 1 year b. ≥ 1 year

Indication Profile

Planned Dental Procedure

- (•) Dental procedures that do not result in the manipulation of gingival or periapical tissues, or perforation of the oral mucosa
- ( ) Dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa

Immunocompromised Status

- (•) Not severely immunocompromised
- ( ) Severely Immunocompromised

Diabetic Glycemic Control

- (•) No current or active diabetes diagnosis
- ( ) Active known diabetic, Hemoglobin A1C < 8 or Blood Glucose < 200
- ( ) Active known diabetic, Hemoglobin A1C ≥ 8 or Blood Glucose = 200
- ( ) Active known diabetic, Hemoglobin A1C Unknown, Glucose Unknown

History of periprosthetic or deep prosthetic joint infection that required an operation

- (•) No history of periprosthetic or deep prosthetic joint infection that required an operation
- ( ) History of periprosthetic or deep prosthetic joint infection that required an operation

Timing since joint replacement procedure

- (•) < 1 years
- ( ) ≥ 1 years

Procedure Recommendations

Rarely appropriate to prescribe prophylactic antibiotics +1

E-mail Results Print

Figure 1. Breakdown of Appropriateness Ratings for Prophylactic Antibiotics

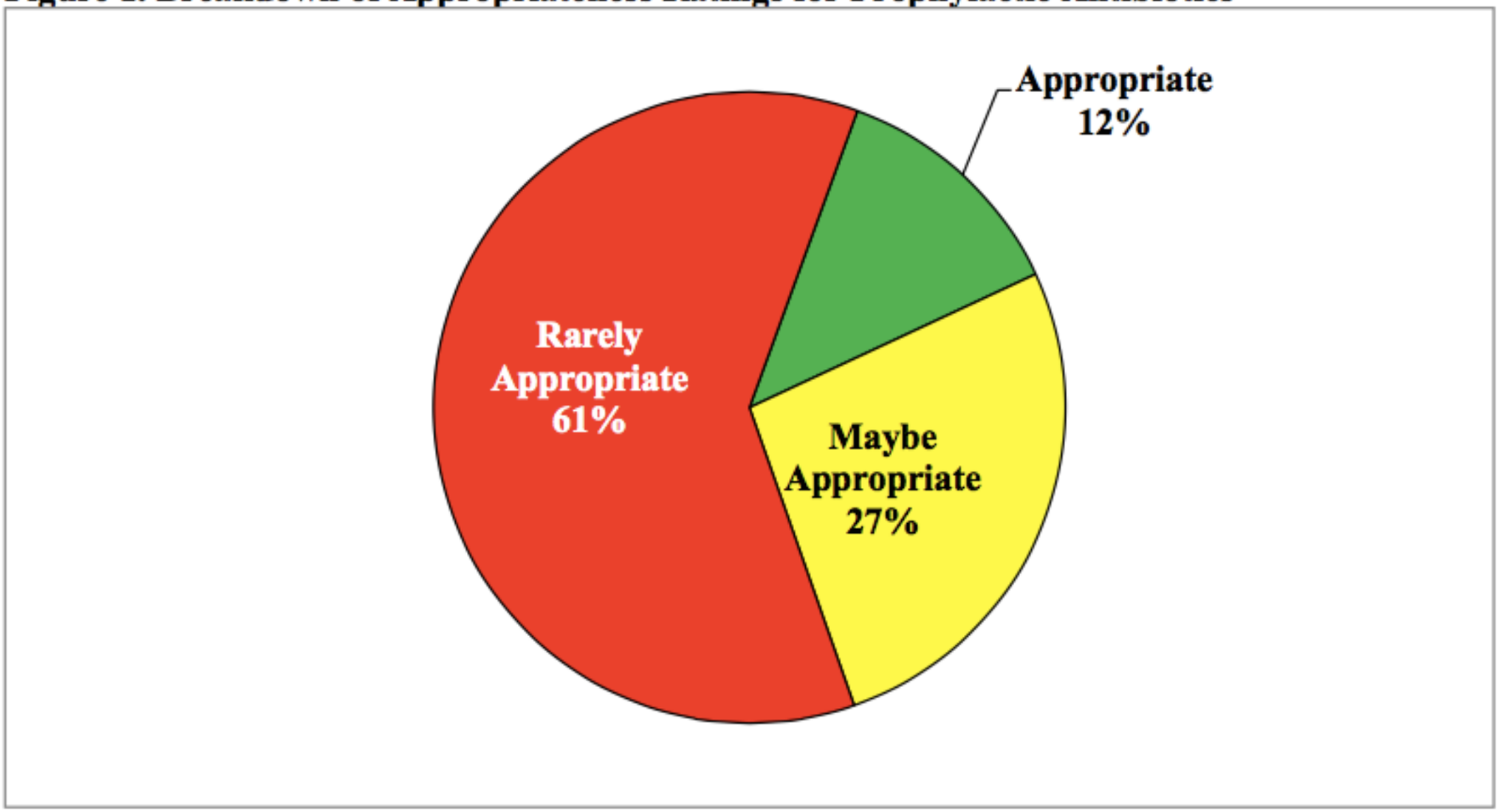
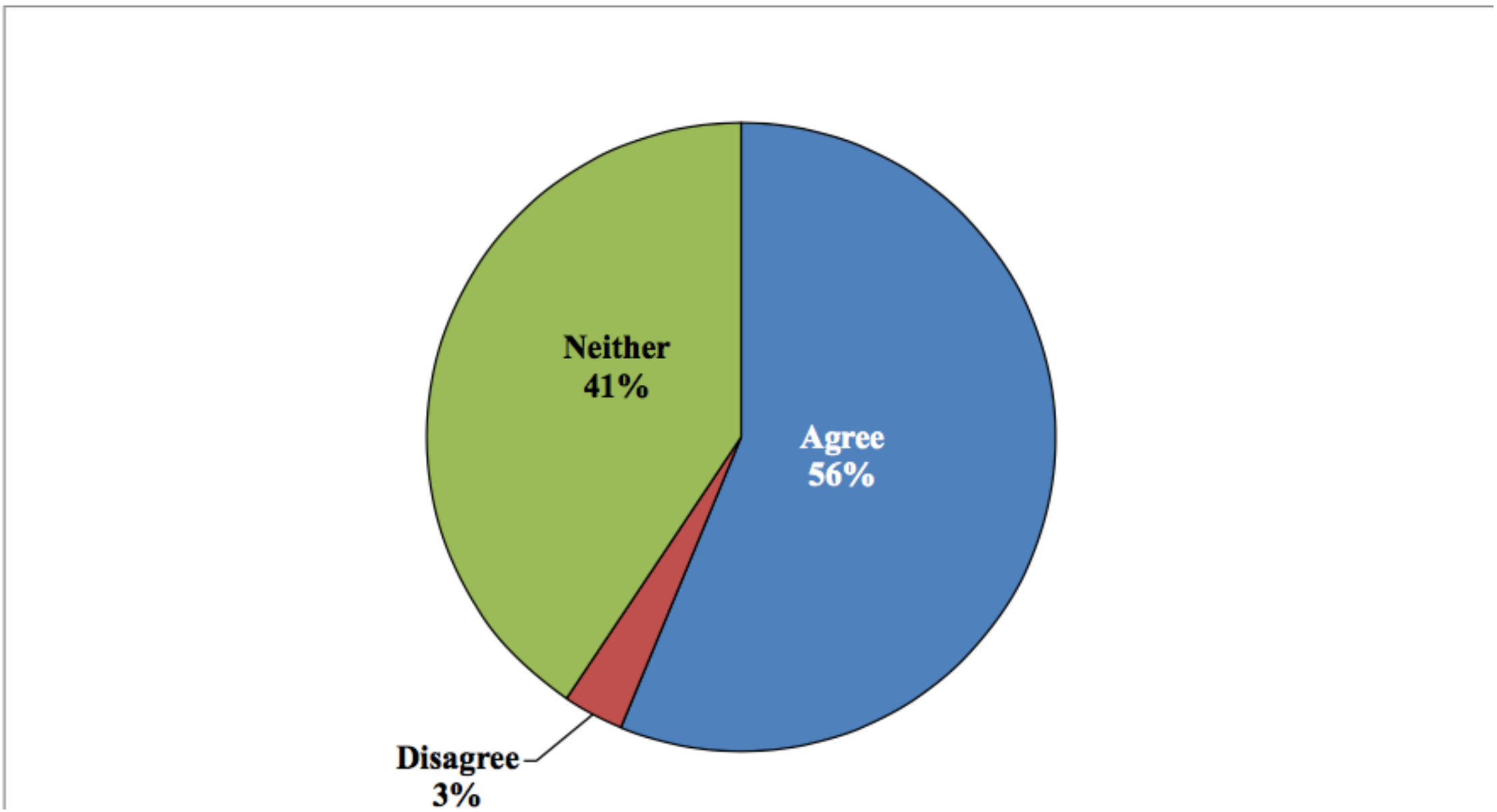


Figure 2. Breakdown of Agreement amongst Voting Panel



Dental Pain

What meds do we give for this???


PENICILLIN V
POTASSIUM
TABLETS, USP
500 mg


PVK 500
GG 950

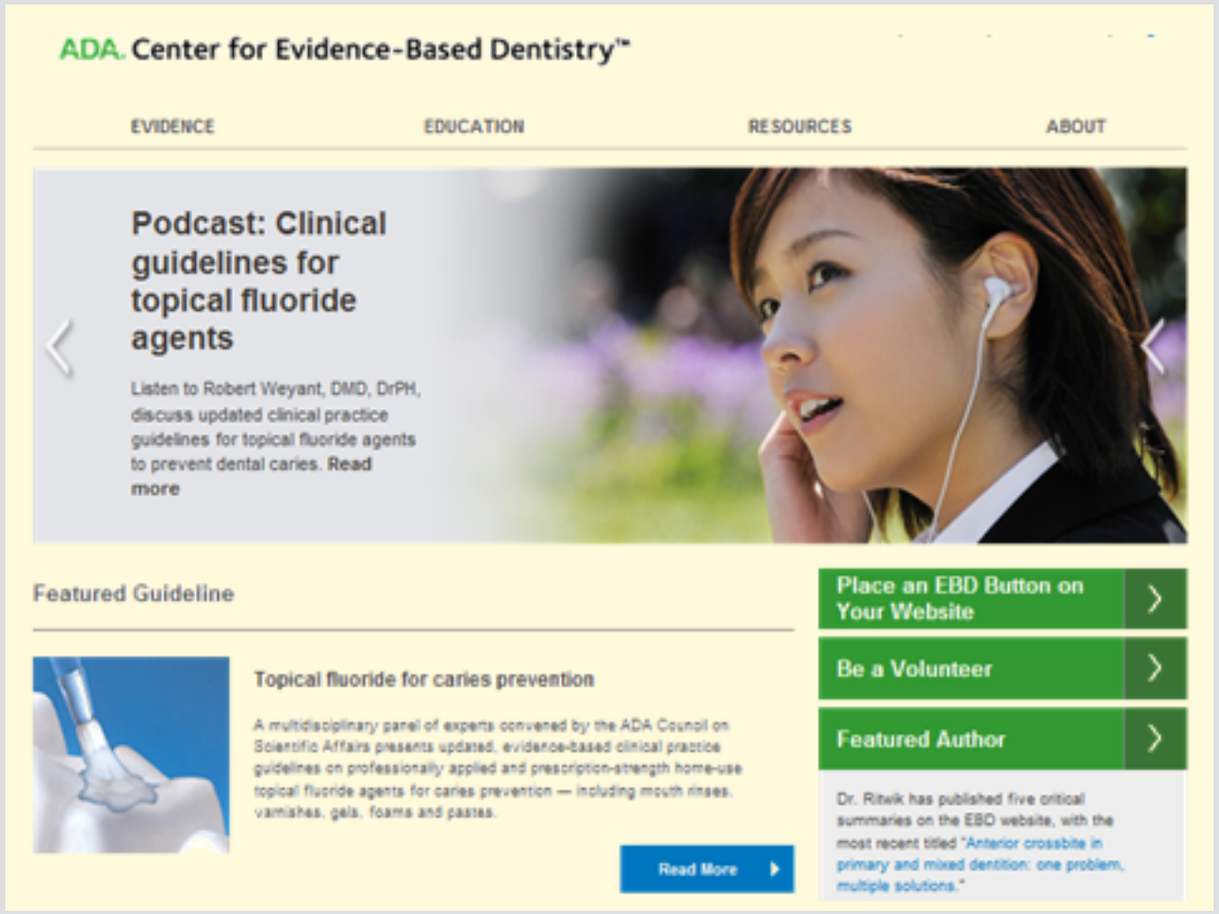
OPIOIDS

- Codeine
- Oxycodone
- Morphine
- Fentanyl
- Hydromorphone
- Methadone


READ THE LABEL
NDC 50580-449-07
DO NOT USE WITH OTHER MEDICINES CONTAINING ACETAMINOPHEN
TYLENOL
Pain Reliever Fever Reducer
EXTRA STRENGTH
Acetaminophen
50 CAPLETS - 500 mg each
Advil
Ibuprofen Tablets, 200 mg
Pain Reliever/Fever Reducer (NSAID)
50 Tablets
Tablets
READ AND KEEP CARTON FOR COMPLETE WARNINGS AND INFORMATION

NNT=1.6

ebd.ada.org


ADA. Center for Evidence-Based Dentistry™
EVIDENCE
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ABOUT
Podcast: Clinical guidelines for topical fluoride agents
Listen to Robert Weyant, DMD, DrPH, discuss updated clinical practice guidelines for topical fluoride agents to prevent dental caries. Read more
Featured Guideline
Topical fluoride for caries prevention
A multidisciplinary panel of experts convened by the ADA Council on Scientific Affairs presents updated, evidence-based clinical practice guidelines on professionally applied and prescription-strength home-use topical fluoride agents for caries prevention — including mouth rinses, varnishes, gels, foams and pastes.
Read More
Place an EBD Button on Your Website
Be a Volunteer
Featured Author
Dr. Ritwik has published five critical summaries on the EBD website, with the most recent titled "Anterior crossbite in primary and mixed dentition: one problem, multiple solutions."

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Evidence

Scientific evidence is just one tool an informed dentist uses to arrive at the best treatment decision. But with such a large volume of published studies, how do you easily find the latest evidence? This website is a great place to start your search for systematic reviews, critical summaries, and clinical practice guidelines.

Browse Evidence Database

Evidence

Guidelines

Critical Summaries

Plain Language Summaries

Systematic Reviews

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Home > Evidence > **Clinical Practice Guidelines**

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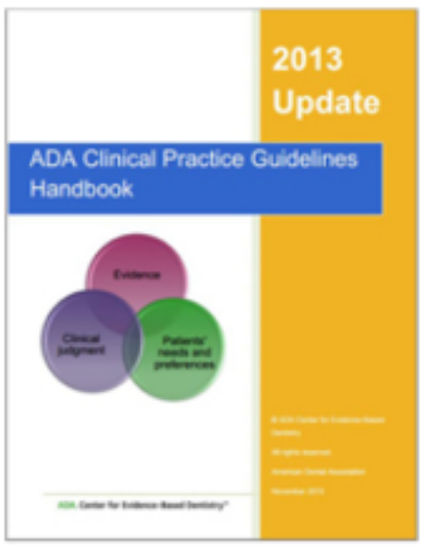
Clinical Practice Guidelines



Clinical practice guidelines include recommendation statements intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options. These are the strongest resources to aid dental professionals in clinical decision making and help incorporate evidence gained through scientific investigation into patient care.

The process for developing clinical practice guidelines is described in the ADA Clinical Guidelines Handbook.

Dietary Fluoride Supplement Recommendations remain unchanged in light of the New Recommendations for Community Water Fluoridation in the United States.

On April 27th the Department of Health and Human Services released the U.S. Public Health Service (USPHS) recommendation for fluoride levels in the drinking water for the prevention of dental caries (community water fluoridation). The new recommendation is 0.7 parts per million (mg F/L) and does not vary by ambient temperature.

In 2010, the American Dental Association Council on Scientific Affairs (CSA) released a systematic review and clinical recommendation for the use of dietary fluoride supplements (Rozier RG, et al., Journal of the American Dental Association, 2010; 142(12):1481-9, available here. These recommendations considered the risks and benefits of fluoride intake. Dietary supplements are prescribed by the dentist or physician based on an individual risk assessment, which includes caries status, child age, and overall fluoride

Screening for Oral Squamous Cell Carcinomas[1]

In patients reporting for routine dental care, screening for oral cancer provided by dentists, is one component of the patient evaluation to detect any oral abnormality.

Recommendations	Classification
Remain alert for signs of potentially malignant lesions or early-stage cancers in all patients†, particularly for patients who use tobacco or who are heavy‡ consumers of alcohol.	D
Follow-up in 7–14 days f	
Communicate the potenti removal of a possible caus • that even suspicio • that clinical confirm • that a malignancy • that a decision to	

† Use of Screening Adjuncts:
- There is insufficient eviden malignant lesions beyond
- Although transepithelial cy

‡ Heavy alcohol consumption is
Sources: Pelucchi and colleagu

Classification levels of of evidence available to su for patient treatment.

A

Recommendation based on hig levels of evidence

Reconstituted Infant Formula and Enamel Fluorosis: Evidence-based Clinical Recommendations[1]

Levels of evidence and strength of recommendations: Each recommendation is based on the best *available* evidence. The level of evidence available to support each recommendation may differ. Lower levels of evidence *do not* mean the recommendation should not be applied for patient treatment.

A

Recommendation based on higher levels of evidence

The American Acade
6 months and co

Recommendations for in
- Continue use of liquid or powd for enamel fluorosis. (D)
- Use ready-to-feed formula or of fluoride when the potential

Note: The majority of bottled wa that are marketed as "purified," " unless they specifically list fluori

Professionally Applied Topical Fluoride: Evidence-based Clinical Recommendations[1]

Assess	Advise			Decide
Caries Risk (see back for risk factors) • Low • Moderate • High **& Patient Age**	**Risk Group/Age**	**< 6 years**	**6–18 years**	**18+ years**	• **whether** to apply fluoride • **type** of fluoride
	Low	Patient may not receive any additional benefit*	Patient may not receive any additional benefit*	Patient may not receive any additional benefit*	

Dietary Fluoride Supplements: Evidence-based Clinical Recommendations[1]

Levels of evidence and strength of recommendations: Each recommendation is based on the best available evidence. Lower levels of evidence do not mean the recommendation should not be applied for patient treatment.

Correlate these colors with the text and table below.

A | B | C | D

Recommendation based on higher levels of evidence

Recommendations based on lower levels of evidence or expert opinion

Practitioners are encouraged to evaluate fluoride supplements.

For children at **low caries risk**, dietary fluoride supp intervention. (D)
For children at **high caries risk**, dietary fluoride sup When fluoride supplements are prescribed, they sh

Based substantially on clinical evidence

Levels of evidence an Each recommendation is differ. Lower levels of ev

ADA dietary f	
Age (Years)	
Birth to 6 months	
6 months to 3 years	
3 to 6 years	
6 to 16 years	

*1.0 ppm = 1 mg/liter

Nonfluoride Caries Preventive Agents: Evidence-Based Clinical Recommendations[1]

Strength of recommendations: Each recommendation is based on the best available evidence. The level of evidence available to support each recommendation may differ.

Strong	In favor	Weak	Against	Expert Opinion
Evidence strongly supports providing this intervention	Evidence favors providing this intervention	Evidence suggests implementing this intervention **only after alternatives have been considered**	Evidence suggests not implementing this intervention	Evidence is lacking. Any recommendation for or against is based on expert opinion.

Recommendations for patients at higher risk for caries: Adjuncts to a regular caries preventive program		
Polyol (Coronal Caries)	Advise parents and caregivers of children 5 years or older that use of sucrose-free polyol (xylitol only or polyol combinations) chewing gum for 10 to 20 minutes after meals may reduce incidence of coronal caries	
	Advise adults that use of sucrose-free polyol (xylitol only or polyol combinations) chewing gum for 10 to 20 minutes after meals may reduce incidence of coronal caries.	
	Advise parents and caregivers of children 5 years or older that the daily use of xylitol-containing lozenges or hard candy that are dissolved slowly in the mouth after meals may reduce incidence of coronal caries. (5–8 grams/day divided into two to three doses)	
Chlorhexidine (Root Caries)	Apply 1:1 mixture of chlorhexidine/thymol varnish every three months to reduce the incidence of root caries.	
	Applying 0.5 to 1.0 percent chlorhexidine gel alone or in combination with fluoride for caries prevention of root caries is not recommended.	
	Using 0.12 percent chlorhexidine rinse alone or in combination with fluoride for prevention of root caries is not recommended.	
Chlorhexidine (Coronal Caries)	Applying 1:1 mixture of chlorhexidine/thymol varnish alone or in combination with fluoride for prevention of coronal caries is not recommended.	
	Applying 10 to 40 percent chlorhexidine varnish alone or in combination with fluoride for prevention of coronal caries is not recommended.	
	Applying 0.5 to 1.0 percent chlorhexidine gel alone or in combination with fluoride for prevention of coronal caries is not recommended.	
	Using 0.12 percent chlorhexidine rinse alone or in combination with fluoride for prevention of coronal caries is not recommended.	

ADA American Dental Association®

Thank You!