Effective Faculty Calibration for Implementation of Evidence-Based Cariology Practice

Harnessing Implementation Science

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Learning Objectives

1) Describe the overall scope and major aims of **Dissemination and Implementation Science**, including defining common outcomes of oral health-related implementation research.

2) Identify and apply **strategies** for effectively introducing and implementing new Cariology protocols into clinical practice.

3) Develop **new approaches for faculty calibration** in the teaching and clinical practice of caries management.
Webinar Overview

- Background on Dissemination and Implementation Science
- Challenges with Faculty Calibration: Clinical Teaching Scenarios
  - Surgical intervention?
  - Selective caries removal?
- Identifying Barriers to Calibration and Applying Implementation Strategies to Facilitate Calibration
- Question and Answer
Featured Speaker

Cameron L. Randall, Ph.D.
University of Washington School of Dentistry
The Evidence-to-Practice Gap

Average 17 years!
Why slow implementation ... and what to do about it?

Dissemination and Implementation Science - field of research and practice in Psychology

Goal: Shrink the evidence-to-practice gap by facilitating more efficient adoption and routine clinical use of evidence-based practice
Dissemination

“an active approach of spreading evidence-based interventions to the target audience via determined channels using planned strategies”

(Rabin & Brownson, 2018)

Effective dissemination typically does not occur spontaneously...

Instead, should be intentional via:

- Multi-level messaging
- Stakeholder involvement
- Theories and frameworks
- Tailoring of dissemination processes

(Brownson et al., 2013; Randall, 2023)
Implementation

“the process of putting to use or integrating evidence-based interventions within a setting”

(Rabin & Brownson, 2018)

(Brownson et al., 2013; Randall, 2023)
Implementation Strategies

“methods or techniques used to enhance the adoption, implementation, and sustainability of an evidence-based practice”

(Rabin & Brownson, 2018)

(Mazza et al., 2013; Michie et al., 2013; Powell et al., 2015; Randall, 2023)
Application in Oral Health

Guideline to manage asymptomatic impacted third molars
  > Feedback
  > Reminders
  > Interactive meetings
  (van der Sanden et al., 2005)

Evidence-based antibiotic prescribing
  > Audit and feedback
  (Bahrami et al., 2004)

Assessment of and counseling/referral for tobacco cessation
  > Automated reminder in EHR
  (Rindal et al., 2015)
Case 1: Is it time for surgical intervention?

A 32-year-old female presents for recall appointment. No medical concerns. No dental complaints. Patient’s last recall exam and hygiene appointment was 12 months ago.

Bitewing radiograph reveals proximal lesions seen here. Similar lesions are seen in other quadrants of her mouth.

Is it time to cut?
Case 1: Is it time for surgical intervention?

Modern Management of Dental Caries: the Cutting Edge is not the Dental Bur

Maxwell Anderson, DDS, David Bales, DDS, Karl-Ake Omnell, DDS

JADA 2015:146(2):79-86
Research Article: System for Clinical Practice
What common objections do you hear?

A. “Interproximal lesions are often larger than they appear on radiograph.”

B. “Decay does not reverse and can progress rapidly. Should I just ‘watch it grow?’”

C. “Patients aren’t likely to return unless it hurts – and by then they’ll need a root canal!”

D. “A patient with multiple lesions is high risk and unlikely to change their behavior. The restorations are inevitable, so why not do it now?”

E. “Patients are hesitant about some non-invasive therapies, like fluoride.”
Appreciating the Big Picture

Outer Setting
- Values
- Policies, laws
- Financing

Inner Setting
- Culture
- Access to knowledge
- Incentive systems

Individuals
- Roles
- BARRIERS, FACILITATORS

(Modified from: Damschroder et al., 2022)
Identifying the Barriers

CAN the provider change?

Does the provider WANT to change?

Will the environment ALLOW the provider to change?

(Michie et al., 2011)
Identifying the Barriers: Case 1

A. “Interproximal lesions often appear smaller on radiograph.”
B. “Decay does not reverse and can progress rapidly. Should I just ‘watch it grow?’”
C. “Patients aren’t likely to return unless it hurts – and by then they’ll need a root canal!”
D. “A patient with multiple lesions is high risk and unlikely to change their behavior. The restorations are inevitable, so why not do it now?”
E. “Patients are hesitant about some non-invasive therapies, like fluoride and SDF.”

1. Provider Knowledge and Skills
2. Beliefs about Patients
3. Patient Preferences
4. Training/Clinical Environment
Identifying Implementation Strategies

A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project

Byron J. Powell¹, Thomas J. Waltz², Matthew J. Chinman³, Laura J. Damschroder⁴, Jeffrey J. Smith⁵, Maria M. Matheny⁶, Eniko L. Frotscher⁷ and John J. creek⁸

Abstract
Background: Identifying, developing, and testing implementation strategies are important goals of implementation science. However, these efforts have been complicated by the use of inconsistent language and inadequate descriptions of implementation strategies in the literature. The Expert Recommendations for Implementing Change (ERIC) study aimed to refine a published compilation of implementation strategies and definitions by synthetically gathering input from a wide range of stakeholders with expertise in implementation science and clinical practice.

Methods: Purposeful sampling was used to recruit a panel of experts in implementation and clinical practice who engaged in three rounds of a modified Delphi process to generate consensus on implementation strategies and definitions. A total of 18 strategies were refined in an initial round, and definitions were obtained for 15 of these strategies. The refined strategies were then verified by a second Delphi panel of experts. The refined strategies and definitions were then reviewed and refined by the entire panel in a final round.

Results: Participants identified substantial concerns with 3% of the terms and definitions and suggested five additional strategies. Seventy-five percent of definitions from the originally published compilation of strategies were retained after voting. Ultimately, the expert panel reached consensus on a final compilation of 39 implementation strategies.

Conclusions: This approach advances the field by improving the conceptual clarity, relevance, and comprehensiveness of implementation strategies that can be used in isolation or combinations in implementation research and practice. Future phases of ERIC will focus on developing conceptually distinct categories of strategies as well as strategies for each strategy’s impact and flexibility. Next, the expert panel will recommend new modified strategies for hypothetical yet real-world scenarios that were not included in the development of evidence-based programs and practices and the strength of contextual supports that sustain the efforts.

Keywords: Implementation research, Implementation strategies, Knowledge translation strategies, Mental health, US Department of Veterans Affairs

(Powell et al., 2015; Waltz et al., 2015)
Selecting and Using Strategies: Case 1

**BARRIER**
Provider Knowledge and Skills

**STRATEGY**

“Conduct Ongoing Training”
Plan for and conduct training in the clinical innovation in an ongoing way

“Make Training Dynamic”
Vary the information delivery methods to cater to different learning styles and work contexts, shape the training to be interactive
Selecting and Using Strategies: Case 1

**BARRIER**
Beliefs about Patients

**STRATEGY**
“Use Train-the-Trainer Strategies”
Train designated clinicians to train others in the clinical innovation
**Selecting and Using Strategies: Case 1**

**BARRIER**
Patient Preferences

**STRATEGY**
“Prepare Patients to be Active Participants”

Prepare patients to be active in their care, to ask questions, and specifically to inquire about care guidelines, the evidence behind clinical decisions, or about available evidence-supported treatments.
Case 2: Is selective caries removal acceptable?


Tooth prepared to clean margins 2 mm from DEJ. Bulk of carious dentin removed, but area over pulp horns still soft and wet.

Should remaining dentin be removed?
Case 2: Is selective caries removal acceptable?

Complete or ultraconservative removal of decayed tissue in unfilled teeth

David Ricketts, Edwina Kidd, Nicola P T Innes, Jan E Clarkson

Authors’ declarations of interest

Version published: 18 July 2006
Version history

https://doi.org/10.4012/jdr.2006.215

JADA 2023:154(7):551-566
Clinical Practice Guideline
Which sound familiar?

A. “I just feel more comfortable if all the decay is removed.”
B. “The caries will progress if you leave any behind.”
C. “What happens tonight or over the weekend if the patient is in pain? We can’t see patients in the teaching clinic outside clinic hours.”
D. “The next dentist will think you just left decay behind by mistake.”
Identifying the Barriers: Case 2

A. “I just feel more comfortable if all the decay is removed.”

B. “The caries will progress if you leave any behind.”

C. “What happens tonight or over the weekend if the patient is in pain? We can’t see patients in the teaching clinic outside clinic hours.”

D. “The next dentist will think you just left decay behind by mistake.”

1. Emotion

2. Provider Knowledge and Skills

3. Training/Clinical Environment

4. Professional Roles and Norms
Selecting and Using Strategies: Case 2

BARRIER
Provider Knowledge and Skills

STRATEGY
“Create a Learning Collaborative”

Facilitate the formation of groups of providers and foster a collaborative learning environment to improve implementation of the clinical innovation.
Selecting and Using Strategies: Case 2

**BARRIER**
Training/Clinical Environment

**STRATEGY**
“Develop Resource Sharing Agreements”
Develop partnerships with organizations that have resources needed to implement the innovation
Selecting and Using Strategies: Case 2

BARRIER
Professional Roles and Norms

STRATEGY
“Identify and Prepare Champions”
Identify and prepare individuals who dedicate themselves to supporting, marketing, and driving through an implementation, overcoming indifference or resistance

“Inform Local Opinion Leaders”
Inform providers identified by colleagues as opinion leaders or “educationally influential” about the innovation with the goal of them influencing colleagues to adopt it
Summary of Process: Implementation for Calibration

1. Identify Evidence-Based Practice
2. Identify Barriers to Calibration
3. Identify Relevant Implementation Strategies
4. Employ Strategies, Report Results

See Table 2 in Cane et al., 2012
See Table 3 in Powell et al., 2015
Important Considerations

- Use multiple strategies
- Consider *your* context, including culture and clinic operations
- Refer to and rely on resources from implementation science
Key References


Panel Discussion and Questions