Building an Evidence-based Practice

WHERE IS DENTISTRY HEADED?

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School of Dental Medicine
Forces for change

• Economics leading to practice consolidation (Vujicic)
• ACA leading to emphasis on “outcomes”
  • Accountable Care Organizations
  • Value based payment
• Diagnostic Codes
  • Is care appropriate?
Rationale: Why bother with EBD?
OVERVIEW OF EVIDENCE-BASED DENTISTRY
The **Problem**

Products that cause harm

- Thalidomide
- Rofecoxib
- Vitek (TMJ) Implant
The Problem

Products known to offer no benefit

**Quackery** – the selling of knowingly ineffective treatments for profit
The **Problem**

Uncertain products information

**Manufacturer Reps:** Goal is to sell product
The Problem

Lack of comparative effectiveness data

Which Treatment is "Best"?
The Problem

Doctors going “out of date”

Length of time in practice associated with reduced clinical performance:
• Overall knowledge
• Diagnosis and screening
• Types of therapy*

*Annal Intern Med. 2005:142

"...and, as you go out into the world, I predict that you will, gradually and imperceptibly, forget all you ever learned at this university."
The **Problem** *(Know – Do Gap)*

- There are large gaps between the care people should receive and the care they do receive.
  - **Overuse** (of procedures that have no benefit)
  - **Underuse** (of procedures that can help)
  - **Misuse** (errors of execution)

IOM, 2001
Question 1:

Is there a Know – Do gap in dentistry?
Comments include:

“Tell me what your insurance will cover and I will tell you what you need.”

"Do this and you will have no worries about your teeth for the next 30 years,"
The **Problem** (Know – Do Gap)

- We do not teach diagnosis and treatment planning well.
- Much treatment still based on **tradition** or **personal opinion**
  - ("in my hands")

Gordon Guyatt, MD  David Sackett, MD
The **Solution**

• What happens to patients should be based upon “evidence”
  
  • (David Eddy, 2005)

**Evidence Based Health Care:** The conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients (Sackett)
The **Solution**

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“Do Right Things”
The Solution

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*(David Eddy, 2005)*

**Evidence Based Health Care:** The conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients *(Sackett)*

EBHC should integrate clinical judgement and patient values
Individual Patient Care Model

**Clinical Skill**
required to determine relevance and appropriateness for this patient

**EBD Skill**
required to assess validity and quality

**Knowledge Question**
Clinical Skill
required to frame the question

**EBD Skill**
required to find best evidence

**Assess**

**Search**

**Current Best Evidence**

**Decide**

"Do Right Things"
Individual Patient Care Model

FEATURES
- Patient Centered
- Respect for patient
- Informed choices
- Shared decision making
- Builds trust and confidence
- Most likely to lead to desired outcomes

“Do Right Things”

One patient at a time....
Individual Patient Care Model

High Quality Evidence

Evidence Summary

PICO

EBP Skills:
- Curious (ask questions)
- Search efficiently
- Assess evidence quality
- Clinical skills (patient assessment)
- Self evaluation

Arrive at best treatment for individual patient

Rationale EBD Model

Do Right Things
Problems with IPCM:

- Requires training
- Requires initiative
- Dependent on access to information
- Ad hoc
- System barriers
Patients cannot benefit from interventions they do not receive... (Know - Do Gap)

“The use of effective interventions without implementation strategies is like serum without a syringe; the cure is available but the delivery system is not.”

—Fixsen, Blase, Duda, Naoom, & Van Dyke, 2010
Patients cannot benefit from interventions they do not receive…(Know - Do Gap)
“Do Things Right”

Clinical Practice Guidelines
Clinical Practice Guidelines (CPG)

Highly summarized set of suggestions representing what a reasoned, well-informed clinician would do in a given clinical situation

Systematic Review + Committee = Guideline
Guidelines help establish procedures that ensure that all patients receive the treatment that current evidence suggests will result in the best outcome.

**Patients with condition X**

- Older adults with exposed root surfaces (risk for root caries)
- Adolescents with high caries risk and non-cavitated p/f caries on molars

**Would benefit from and want treatment Y**

- SDF (2x / year) plus OHI
  - 66% arrested with SDF (compared to 32% with OHI alone)
- Application of occlusal sealants on all p/f surfaces
  - > 70% arrested with sealants (compared to no sealants)
2 approaches to EBM used in mature healthcare delivery systems

Guideline Model
- Guideline Development
- Systematic Review
- High Quality Evidence

Individual Patient Care Model
- PICO
- Clinical Expertise
- Research Evidence
- Patient Preferences

Implementation as routine care

“Do Things Right”

“Do Right Things”
Clinical Practice Guidelines:

• Fix: KNOW – DO gap
• Systematized care delivery
• Target Condition
  • High Risk
  • High Volume
  • Complicated Care

“Do Things Right”
Finding Guidelines

A GUIDELINE BASED PRACTICE
ADA Center for EBD (ebd.ada.org)

• PJI Management
• Topical Fluoride
• Fluoride Supplements
• Fluoride Toothpaste (Children)
• Non-Fluoride Caries Management
• Infant Formula
• P/F Sealants
• Oral Cancer
• Infective Endocardities
Evidence-based Guidelines

Antibiotics for the Prevention of Prosthetic Joint Infections

Caries Classification

No surgical Treatment of Periodontal Disease

Topical Fluoride

Fluoride Supplements

Fluoride Toothpaste in Young Children

Non-fluoride Agents for Preventing Dental Caries

Reconstitution of Infant Formula

Dental Sealants

Adjunct Screening Devices for Oral Cancer

Antibiotics for Endocarditis

Recall Interval for Periodic Dental Exams

Management of Acute Dental Problems

Management of Patients Taking Anticoagulants

Management of people on Bisphosphonates

Management of Caries in Children

Emergency Dental Care

Consensus Guidelines

Oral Health Care During Pregnancy

Endodontic Case Selection and Endodontic Parameters of Care

Pediatric Treatment Guidelines

ADA (ebd.ada.org)

GUIDELINES.gov

NICE (U.K.)

TRIP

Do Things Right
In general, for patients with prosthetic joint implants, prophylactic antibiotics are not recommended prior to dental procedures to prevent prosthetic joint infection.
Evidence-based clinical practice guideline for the use of pit-and-fissure sealants

Clinical practice guidelines for recall and maintenance of patients with tooth-borne and implant-borne dental restorations

Evidence-based clinical practice guideline on the nonsurgical treatment of chronic periodontitis by means of scaling and root planing with or without adjuncts
<table>
<thead>
<tr>
<th>QUESTION</th>
<th>RECOMMENDATION</th>
<th>QUALITY OF THE EVIDENCE</th>
<th>STRENGTH OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Should dental sealants, when compared with nonuse of sealants, be used in pits and fissures of occlusal surfaces of primary and permanent molars on teeth deemed to have clinically sound occlusal surfaces or noncavitated carious lesions?</td>
<td>The sealant guideline panel recommends the use of sealants compared with nonuse in permanent molars with both sound occlusal surfaces and noncavitated occlusal carious lesions in children and adolescents*</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Should dental sealants, when compared with fluoride varnishes, be used in pits and fissures of occlusal surfaces of primary and permanent molars on teeth deemed to have clinically sound occlusal surfaces or noncavitated carious lesions?</td>
<td>The sealant guideline panel suggests the use of sealants compared with fluoride varnishes in permanent molars with both sound occlusal surfaces and noncavitated occlusal carious lesions in children and adolescents*</td>
<td>Low</td>
<td>Conditional</td>
</tr>
<tr>
<td>Which type of sealant material should be used in pits and fissures of occlusal surfaces of primary and permanent molars on teeth deemed to have clinically sound occlusal surfaces or noncavitated carious lesions?</td>
<td>The panel was unable to determine superiority of 1 type of sealant over another owing to the very low quality of evidence for comparative studies; the panel recommends that any of the materials evaluated (for example, resin-based sealants, resin-modified glass ionomer sealants, glass ionomer cements, and polyacid-modified resin sealants, in no particular order) can be used for application in permanent molars with both sound occlusal surfaces and noncavitated occlusal carious lesions in children and adolescents (conditional recommendation, very low-quality evidence)*†</td>
<td>Very low</td>
<td>Conditional</td>
</tr>
</tbody>
</table>
### Definition of quality of the evidence and strength of recommendations.

#### EVIDENCE QUALITY AND CERTAINTY DEFINITIONS*

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>We are very confident that the true effect lies close to that of the estimate of the effect</td>
</tr>
<tr>
<td>Moderate</td>
<td>We are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different</td>
</tr>
<tr>
<td>Low</td>
<td>Our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect</td>
</tr>
<tr>
<td>Very Low</td>
<td>We have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect</td>
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</table>

#### DEFINITION OF STRONG AND CONDITIONAL RECOMMENDATIONS AND IMPLICATIONS FOR STAKEHOLDERS†

<table>
<thead>
<tr>
<th>Implications</th>
<th>Strong Recommendations</th>
<th>Conditional Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Patients</td>
<td>Most people in this situation would want the recommended course of action, and only a small proportion would not; formal decision aids are not likely to be needed to help people make decisions consistent with their values and preferences</td>
<td>Most people in this situation would want the suggested course of action, but many would not</td>
</tr>
<tr>
<td>For Clinicians</td>
<td>Most people should receive the intervention; adherence to this recommendation according to the guideline could be used as a quality criterion or performance indicator</td>
<td>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; decision aids may be useful in helping people to make decisions consistent with their values and preferences</td>
</tr>
<tr>
<td>For Policy Makers</td>
<td>The recommendation can be adapted as policy in most situations</td>
<td>Policy making will require substantial debate and involvement of various stakeholders</td>
</tr>
</tbody>
</table>
Setting up the office

A GUIDELINE BASED PRACTICE
Question 8:

What barriers would you anticipate when implementing a CPG (at the school or private office)?
Clinical Protocols and Treatment Guidelines (in practice)

- Multiple providers?
- Set up master document (with domains)
  - Routine procedures (exam recall, radiographs)
  - Prevention
  - Disease specific management (based on local need)
- Update annually
- Encourage staff to contribute
- Support with training/infrastructure
- Measure performance
- Allow “Opt Out”
Setting up the office

- Create an EBD learning environment
- Dental Team EBD study club
- Compensation for EBD learning participation
- Identify/Train EBD Champion
- Form EBD Workgroup

- Rate level of evidence:
  - Top volume procedure codes
- Translate findings into practice
  - Set Standard Operating Procedures (SOP)
  - Quality assurance (i.e. chart reviews)
  - Think population health
Undiffusion

- The flip side of implementation
- Reasons it is difficult
  - Preference for the familiar
  - Shame at having used a discredited or obsolete practice
  - Regret at the sunk cost of training and equipment
  - Potential loss of revenue
  - Simple inertia
Evidence based Implementation

OF EVIDENCE BASED GUIDELINES
Implementation of Evidence Based Practice
Implementation of Evidence Based Practice

But it IS Science

Use Implementation Science to Create Successful Change

- Teams
  - Build an implementation team
- Drivers
  - Training alone is never enough
  - Detailed implementation plan
- Improvement Cycles
  - PDSA cycles
- Stages
  - Implementing new practices takes months to years
  - Recognize the change process
Implementation Steps (one guideline)

1. Explore need for change

2. Assess capacity for change
   a) Organizational Commitment
   b) Financial support
   c) IT support
   d) Staff/Faculty buy-in

3. Develop policy
Implementation Steps (one guideline)

4. Construct the model
   a) Ground up

5. Engage in training

6. Initial implementation

7. Full implementation
   a) Regular compliance reports
   b) Feedback to staff
   c) Coaching

8. Sustainability
   a) Funding changes
   b) Staff changes
   c) Leadership changes
Questions and issues

**QUESTIONS**

- What are the expected outcomes?
- How will we handle new hires?
- How will patient flow be affected (deviations)?
- Is the IT infrastructure adequate?
- Has cost been considered?

**ISSUES**

- You will need a steering committee
- You will need a sustainability plan
Sustaining the Program

A GUIDELINE BASED PRACTICE
A change in “culture” needed to sustain a behavior change

Goal:
• Change Practice Culture
• Demonstrate leadership from “the top”
• Emphasize patient outcomes
• Emphasize willingness to change
Quality Assurance and Improvement:

• Audit practice
• Provide feedback
• Reward high-quality performance
• Identify and remove barriers (recurring problems)
Quality Assurance and Improvement

**BARRIERS**
- Cost (time)
- Insurance
- Inertia
- Turnover

**FACILITATORS**
- EHR and Diagnostic Codes
- Value based payments
- Improved patient outcomes
- Increased referrals
ND-PBRN (National Dental Practice Based Network)

- For those who want a “research” flavor to their practice

Network goals

- Partner with practitioners to minimize impact on clinic operations and patient flow.
- Strengthen knowledge base for clinical decision-making.
- Improve integration of dental and medical care.
- Enhance translation of findings into clinical practice.
Talking with patients

A GUIDELINE BASED PRACTICE
Differentiation of practice as unique

• Make the reliance on high quality evidence a central feature of your practice
• Make the evidence - evident to the patient (show them the literature)
• Let them know that your recommendations are based on solid science and is being done for their best interest.
Add the strength of evidence into discussions about recommended treatment plans

• Education of patients around what is and is not high quality evidence is refreshing, enlightening, and valuable to patients.

“THE GOOD THING ABOUT SCIENCE IS THAT IT’S TRUE WHETHER OR NOT YOU BELIEVE IN IT”

- Neil deGrasse Tyson
Talking to Patients

• A “skill” that requires some practice.

• Patient friendly versions of many evidence summaries (plain language summary) available.
Real evidence based practice:

• Makes the ethical care of the patient its top priority
• Demands individualized evidence that clinicians and patients can understand
• Is characterized by expert judgment NOT mechanical rule following
• Shares decisions with patients through meaningful conversations
• Builds on a strong clinician-patient relationship and the human aspects of care

Greenhalgh, *BMJ* 2014
What does successful implementation look like?

- Changes in professional behavior
- Changes in organizational structures and cultures
- Changes in relationships to patients
- Change in patient health outcomes
Question 9:

How do you know that the patient population in your care is consistently getting the best treatment possible?
Good luck.

We're all counting on you.