Get Your Mind in the Game

Using Science and Critical Thinking to Guide Clinical Decision-making
Overview

• Are we practicing with evidence?

• Applying high-quality evidence in practice
  • Treatment Planning Under Uncertainty
  • Efficiency of Care
  • Advocacy

• Training Your Team

• Communicating Evidence With Your Patients
## NW PRECEDENT

Survey Results
Approaches for Dentinal Hypersensitivity

<table>
<thead>
<tr>
<th>Approach</th>
<th>% Use (N=158)</th>
<th>% Frequent Use*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advice on toothbrushing</td>
<td>77%</td>
<td>51%</td>
</tr>
<tr>
<td>PreviDent Gel</td>
<td>54%</td>
<td>16%</td>
</tr>
<tr>
<td>Advice on diet</td>
<td>52%</td>
<td>30%</td>
</tr>
<tr>
<td>Gluma Desensitizer</td>
<td>51%</td>
<td>12%</td>
</tr>
<tr>
<td>Resin/Composite</td>
<td>49%</td>
<td>5%</td>
</tr>
<tr>
<td>Glass ionomers</td>
<td>44%</td>
<td>8%</td>
</tr>
<tr>
<td>OTC potassium nitrate toothpaste</td>
<td>40%</td>
<td>18%</td>
</tr>
<tr>
<td>Duraflor</td>
<td>39%</td>
<td>13%</td>
</tr>
<tr>
<td>Watchful waiting</td>
<td>38%</td>
<td>6%</td>
</tr>
<tr>
<td>MI Paste</td>
<td><strong>32%</strong></td>
<td>6%</td>
</tr>
<tr>
<td>Year</td>
<td>n</td>
<td>Test/Control</td>
</tr>
<tr>
<td>------</td>
<td>----</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>2015</td>
<td>30</td>
<td>CPP-ACP vs FLV vs No Tx</td>
</tr>
<tr>
<td>2015</td>
<td>48</td>
<td>CPP-ACP vs KNO3</td>
</tr>
<tr>
<td>2012</td>
<td>60</td>
<td>CPP-ACP F vs NaF</td>
</tr>
<tr>
<td>2010</td>
<td>89</td>
<td>CPP-ACP vs NaF</td>
</tr>
<tr>
<td>2006</td>
<td>13</td>
<td>CPP-ACP</td>
</tr>
</tbody>
</table>
Over half of study participants said acceptance of sealants by their peers would have moderate to high influence.

“[m]ost of the information I rely on is through my study group, and I think [the group] has the greatest credibility as far as what I incorporate into my practice.”
Management of an abscessed mandibular 1st molar

- Extract tooth & STI: 74.75 utilities
- Extract tooth
  - CDB: 71.47 utilities
  - Devitalize
    - ENDO: 76.22 utilities
  - Vital: 76.22 utilities
- Save Tooth
  - ENDO: 63.87 utilities
    - Success: 0.900
    - Failure: 0.100
  - CC with P&C: 74.47 utilities
    - Survive: 0.953
    - Failure: 0.047
- RPD: 49.31 utilities
  - Survive: 0.761
  - Failure: 0.239
Does “Practice Make Perfect”?

- Studies in which length of time in practice or age was associated with lower performance for all outcomes.
- Studies in which length of time in practice or age was associated with lower performance for some outcomes; no effect was found for other outcomes.
- Studies in which there was a concave relationship between length of time in practice or age and performance.
- Studies in which no association was found between length of time in practice or age and performance.
- Studies in which length of time in practice or age was associated with higher performance for some outcomes; no effect was found for other outcomes.
- Studies in which length of time in practice or age was associated with higher performance for all outcomes.
Evaluation Skills Change Over Time

- Use non-analytical thinking
  - Rely on patterns of recognition to treat diseases
  - Tends to be efficient
  - Leads to pre-mature closer
  - Only works as long as the science does not change
    - Antibiotic prophylaxis for heart murmur

- In testing situations, providers perform better in areas in which the science does not change much
Self-Assessment

A SR of practitioner’s ability to self assess the level of their competency compared with external measures of their competency suggest clinicians:

- “…have limited ability to self assess”

- “Finally, perhaps of greatest concern are the findings that those who perform the least well by external assessment also self-assess less well.”
“The first principle is that you must not fool yourself and you are the easiest person to fool.”

Surely your Joking! Mr Feynman
Richard Feynman
Primary Studies

- Randomized Controlled Trial
- Cohort Studies
- Case Control Studies

Secondary Studies

- Systematic Reviews
- Meta-Analysis

Pre-appraised Evidence

Critical Summaries
Practice Guidelines
Evidence Finding

Ask your clinical question

Search non-pre-appraised evidence
Technique #2

Search pre-appraised evidence
Technique #1
Pre-Appraised Evidence Resources

Critical Summaries

Primary Studies
- The Journal of Evidence-based Dental Practice
- Evidence-based Dentistry

Systematic Reviews and Meta-analysis
- EBD.ADA.org
- DARE Abstracts
- Bandolier

Clinical Guidelines
- EBD.ADA.org
- NICE
Evidence Finding

Ask your clinical question

Search non-pre-appraised evidence

Appraise the evidence yourself

Technique #2

Technique #1
Answering Clinical Questions
Dr. Pham says “Use buffered lidocaine. It stings less!”
Buffering Local Anesthetics in Dentistry

by Stanley F. Malamend, D.D.S.

Local anesthetics (LAs) form the backbone of pain control techniques in dentistry. LAs are the safest and most effective drugs in medicine for the prevention and management of pain. LAs are the only drugs that prevent the nociceptive impulse from reaching the patient’s brain.

With the introduction of the first amide LA, lidocaine HCl, in 1948 providing profound anesthesia of long duration became almost a certainty. Other amides introduced since then have improved the efficacy, reduced toxicity, and made the anesthetics more predictable. Clinical success has changed little over the years, however, because the other factors that determine the success of anesthetic procedures are not as well understood as the anesthetics themselves.

- LAs do not work as reliably in the presence of infection and inflammation
- All of these drawbacks can be addressed by anesthetic buffering which:
  - Eliminates the sting
  - Reduces tissue injury
  - Reduces latency
  - Introduces the independent

Buffering Xylocaine

Tom Hedge

1,714 views
Adjusting the pH of lidocaine for reducing pain on injection

M Soledad Cepeda, Aikaterini Tzortzopoulou, Michael Thackrey, Jana Hudcova, Preeti Arora Gandhi, Roman Schumann

First published: 8 December 2010

Editorial Group: Cochrane Anaesthesia Group

DOI: 10.1002/14651858.CD006581.pub2

Cited by: 17 articles

Abstract

Background

Lidocaine administration produces pain due to its acidic pH.

Objectives

The objective of this review was to determine if adjusting the pH of lidocaine had any effect on pain resulting from non-intravascular injections in adults and children. We tested the hypothesis that adjusting the pH of lidocaine solution to a level closer to the physiologic pH reduces this pain.

Search methods

We searched the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library, to June 2010); Ovid MEDLINE (1966 to June 2010); EMBASE (1988 to June 2010);
Establishing Efficient Systems Through Clinical Care Guidelines
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.

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ADA. Center for Evidence-Based Dentistry™

* In cases where antibiotics are deemed necessary, it is most appropriate that the orthopedic surgeon recommend the appropriate antibiotic regimen and when reasonable write the prescription.
“Therefore, it is the clinical practice of Sprout Oral Health to in general not prescribe antibiotics prior to dental procedures for patients with prosthetic joint implants for the prevention of PJI.”

antibiotic prophylaxis including those with a history of drainage or infection after undergoing arthroplasty. As always providers should acquire a complete health history and review a patient’s medical status thoroughly when making final decisions regarding the need for antibiotic prophylaxis.

1 http://www.cdc.gov/nchs/fastats/inpatient-surgery.htm
Advocacy

The guideline panel suggests that clinicians take into account the likelihood of experiencing lack of retention when choosing the type of sealant material most appropriate for a specific patient and clinical scenario.

GRADE Quality of 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                             |
----------------------|---------------------------------------------------|
For Patients          | Most individuals in this situation would want the recommended course of action and only a small proportion would not. |
For Clinicians        | Most individuals should receive the intervention. |
For Policy Makers     | The recommendation can be adapted as policy in most situations. |

Conditional Recommendations

The majority of individuals in this situation would want the suggested course of action, but many would not.

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.

Policymaking will require substantial debate and involvement of various stakeholders.

1 Weyant RJ, Tracy SL, Anselmo T, Beltran-Aguilar ED, et al. Topical Fluoride for Caries Prevention: Executive Summary of the Updated Clinical Recommendations and Supporting Systematic Review. JADA 2013;144(11):1279-1291. © 2013 American Dental Association. All rights reserved. Any other use, copying, or distribution, whether in printed or electronic format, is strictly prohibited without the prior written consent of the ADA.
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False-positive psychology: undisclosed flexibility in data collection and analysis allows presenting anything as significant

Author: Simmons, Joseph P
Author: Nelson, Leif D
Author: Simonsohn, Uri

Abstract: In this article, we accomplish two things...
Training Your Dental Team

- Dental team EBD Study Club
- Compensation/reward system for EBD learning participation
- Can assist with EBD searches
Engaging and empowering staff

• Deepens interest in dentistry and commitment to practice
• Improves consistency of care and communication
• Distributes burden of “work”
Sharing Evidence with Your Patients
Meet Roger

• Roger has sensitive teeth!

• Roger also has a hip replacement
summary

No strong evidence supports the efficacy of potassium nitrate toothpaste for dentine hypersensitivity

You rate laminate countertops higher than granite for bathroom use but the reverse for kitchens. Why?

The kitchen environment is much tougher than the bathroom, generally speaking, which is why we test and rate countertops differently for each room. With kitchen countertops, for example, we look at how well surfaces resist damage caused by slicing and chopping. That isn’t relevant for bathrooms, obviously. We use different staining agents, too: hair color and lipstick in the bathroom tests, and beet juice, grape juice, hot vegetable oil, mustard, and tomato sauce in the kitchen tests. Both granite and laminate have performed excellently in our heat tests, however, resisting any damage.

Since my knee-replacement surgery, my dentist has insisted that I take an antibiotic before she does any work on me. What’s the risk if I don’t?

Taking an antibiotic before dental work is necessary to help prevent infections in only a few types of patients, such as those with artificial heart valves and those with a previous history of bacterial endocarditis, a type of heart infection. That’s because bacteria can enter the bloodstream through wounds in the mouth during a procedure and find their way to vulnerable organs or joints. In the past, there were broader recommendations that covered more people, including those with implanted knee and hip joints.

But now the American Dental Association doesn’t recommend antibiotics before dental procedures for people who have had a joint replacement because it has found no association between the procedures and prosthetic joint infections. And Consumer Reports has long reported on the importance of stopping the widespread overuse of antibiotics. Not only can they cause diarrhea, stomach pain, and serious allergic reactions, but overuse can also increase a patient’s risk of developing Clostridium difficile and breed antibiotic-resistant bacteria, a major public-health concern.

WRITE

We have more than 140 in-house experts who research, test, and compare—so you don’t have to! Send your questions to:

Consumer Reports

and watch this space for the answers.
Outcomes for single- vs. multiple-visit root canal treatments similar
Hope Saltmarsh RDH, BA, MEd; Ahmed Elkhadem BDS, MS

Overview

Systematic Review Author(s)
Figini L, Lodi G, Gorni F, Gagliani M

Summary Title
Root canal treatment done in single or multiple visits show comparable effectiveness

Summary

Body:
Background

Key terms

*Root canal treatment:* treatment for an infected tooth during which the pulp, which contains the tooth’s blood supply and nerves, is removed. The tooth is usually filled with a material and sealed, or is prepared and covered with an artificial tooth (a crown).

*Pulp:* the inner part of a tooth that contains the blood supply and nerves.

*Radiograph:* a picture of the hard tissues in the body, like bones or teeth. Commonly called an "X-ray."
Does a local anaesthetic injection in children and young people having dental treatment under general anaesthetic reduce pain after treatment?

Review question

Do injections of local anaesthetic given whilst children and young people (aged 17 years or younger) are having dental treatment under general anaesthetic reduce the amount of pain felt afterwards?

Background

It can be difficult when giving dental treatment to children and young people to do it simply using a local anaesthetic (LA) injection. The problem is often that they are too anxious or that they need a lot of treatment at once: For example, they may need many teeth taken out at the same time. In these circumstances, a dental practitioner commonly uses a general anaesthetic (GA) and administers the treatment in a hospital. In England, there are over 30,000 hospital admissions per year for children who need teeth taken out under a GA.

Problems often arise following this treatment and the most common is pain, the experience of which can cause an emotional as well as a physical response. The experience can make it more difficult for the dental practitioner to give the treatment needed, and it can also cause the child or young person to avoid dental treatment. It is thought that giving LA injections during dental treatment under GA will result in numbness and therefore pain not being felt for a couple of hours, after which time painkillers can control the pain. However, it is not clear what the benefits of using LA in this way are. Some undesired side-effects, such as discomfort; dribbling, and accidental lip biting, have been reported. Also, because painkillers are often used as well, the effect
“Captain, the most elementary and valuable statement in science, the beginning of wisdom, is 'I do not know.'”

- Lt. Commander Data