Evidence-Based Dentistry (EBD) at Baylor College of Dentistry: Opportunities & Challenges

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BCD: a Snapshot

• Strong clinical program with traditional curriculum

• Member of TAMHSC, but basic science faculty are in-house and interact frequently with clinical faculty

• Existing ‘critical thinking’ experiences and biostat, but they are not integrated and latter is in D3 year

• Recent surge in research profile, especially in translational research (K12→CTSA, P30)
Oral Health Research Education Grant (R25)

Renewable 4-year award ~ $150,000/year

- Transfer, translate, and integrate basic & clinical research findings into curriculum
- Involve and integrate oral health researchers in design of curriculum
- Provide interested students with focus track for research
- Develop seminars/workshops for faculty & students to provide updates
Oral Health Research Education Grant (R25): First Premises

- a culture-changing experience
- emphasis on DDS curriculum throughout its 4 years
- must be a partnership between clinicians & oral health researchers to work!
Oral Health Research Education Grant (R25): First Premises

3 co-Principal Investigators:

C Berry  R Hinton  D Jones
Clinical research involves the intersection of scientific knowledge, clinical practice, and critical thinking.

Vehicle = Clinical Research
Vehicle = Clinical Research

- Clinical research is the most likely type of research our graduates will utilize after they graduate

- Clinical research training opportunities at BCD

- Clinical research is a substrate for evidence-based dentistry (EBD)
CUSPID*: A Curriculum To Create Science-Oriented Dentists and Future Academicians

*Clinicians Using Science Produce Inspired Dentists
Devise EBD content for 4-year DDS curriculum.
Create an enrichment track for interested students.
Provide opportunities for faculty to learn about EBD.
CUSPID: Collateral Benefits

K12 Clinical Scholars program, BCD Clinical Research grants

Specific Aim 3: Faculty Development

Specific Aim 1: Curriculum Enrichment

Specific Aim 2: Dental Scholars Track

MS in Clinical Research T32 training

K12

Research @ BCD, UTSW, IBT
Evidence-Based Dentistry at BCD

Curriculum

Faculty Development

Dental Scholars Track
<table>
<thead>
<tr>
<th>Content</th>
<th>Format</th>
<th>Sm Grp Focus</th>
<th>Faculty</th>
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</thead>
<tbody>
<tr>
<td><strong>D1</strong></td>
<td>Fundamentals of EBD &amp; Clinical Research</td>
<td>Lecture &amp; small groups</td>
<td>Assigned articles</td>
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<tr>
<td><strong>D2</strong></td>
<td>Lecture &amp; small groups</td>
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# D1 Year: Fundamentals of EBD & Clinical Research

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>Basic epidemiology</td>
<td>How to read a paper</td>
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<td>How to assess variation</td>
<td>How to ask a focused clinical question</td>
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<td>Research design</td>
<td>Searching methods</td>
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<tr>
<td>Sampling</td>
<td>Critically-Appraised Topics (CATS)</td>
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<td>Confounders &amp; bias</td>
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**Small Group Sessions**

- “lab” in which to practice the skills they are learning in the didactic portion of the course
- Around 9 students per group
- Discuss a paper on a clinically-relevant topic using a standardized format
- Topics: breast-feeding & caries; fluoride & hip fractures; tobacco use & tooth loss
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<tr>
<td><strong>D2</strong> Application of EBD I</td>
<td>Small group</td>
<td>Articles &amp; clinical scenarios</td>
<td>Core EBD + Restorative Sciences</td>
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D2 Year: Application of EBD I

Goals:
• to maintain student skills at critiquing articles by reading articles that directly relate to preclinical courses in restorative, endo, pedo
• to practice writing Critically Assessed Topics (CATs) based on scenarios written by D2 clinical faculty

Small Group Sessions
• Article topics: survival of amalgam vs composites in posterior teeth; effect of taper on crown stability; healing following 1 vs 2-visit endo
• Each student presents his/her CAT via PowerPoint presentation to the group
• All sessions include both core EBD faculty & a clinical faculty member from D2 year
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<tr>
<td><strong>D3</strong></td>
<td>Application of EBD II</td>
<td>Case conference??</td>
<td>Actual clinical cases &amp; Tx plans??</td>
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<td>D3 group leaders + EBD core</td>
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Assessment: How Did It Go?

After 1 year of coursework, D1 students (n=104) were compared with D2 students who had not received the EBD training (n=90) using a survey that assessed their EBD practices, experiences, attitudes, and knowledge (PEAK).

- Trained students
  - reported reading JDR 4 times more than the non-trained
  - reported reading JAMA 2 times more than the non-trained

- Trained students
  - reported more confidence in evaluating research reports (p< 0.001)
  - scored higher on the knowledge questions (p< 0.001)
Assessment: How Did It Go?

- Trained students
  - were more supportive of EBD principles ($p < .01$)
  - believed EBD had changed the way they read clinical articles ($p < .001$)

- Trained students were more interested in:
  - learning about research careers ($p < 0.05$)
  - participating in basic science research ($p < 0.05$)
  - participating in teaching ($p < .001$)
Faculty Development

Using an almost identical survey, BCD faculty (n=62/142) were polled as a baseline for future assessments.

• Faculty reported
  ✓ being “very comfortable” with reading articles containing research (60%)
  ✓ using clinical research in their practice or teaching (47%)
  ✓ using evidence from the literature “a lot” to form conclusions (63%)
  ✓ being “definitely interested” in incorporating research evidence into their courses (71%)

• Faculty agreed that EBD was integral to the curriculum (89%)
• Faculty performed similarly (p> 0.50) to the trained (D1) students on the knowledge portion of the survey
Faculty Development

Clinical Colloquium

- 8-10 AM update talk of general interest to clinical dentists
- clinical ‘experts’ presenting evidence-based content

- Dr Jim Summitt: “When, How & Why of Operative Dentistry” (May 13, 2009) [91 faculty & residents]
- Dr Tom Hilton: “Pulpal Considerations/ Material Choices in Restorative Dentistry” (Dec 4, 2009) [61 faculty & D4]
- Coming in Spring 2010: Dr. Chuck Wakefield, more.....

- lecture followed by Q&A (another form of calibration workshop?)
Faculty Development

EBD Training for Clinical Faculty

- 8-9 week ‘course’ in summer 2009
- met 2X per week prior to clinic
- lecture, discussion, participant projects
- participants learned:
  - how to construct a focused clinical question
  - how to conduct a PubMed search to find what evidence exists regarding your question
  - how to evaluate the strength of the evidence you find
  - how to read a paper & determine the applicability of the evidence therein for your needs
  - what a CAT (Critically Assessed Topic) is and how/why the students are using them
Dental Scholars Track

- enrichment track for 2-3 DDS students who express interest in a career in dental research or academics

- 25% tuition defrayal beginning in D2 year

- participation in research rotations, clinical research workshops, teaching courses & practicum over the four years of dental school

- three D1 students chosen for 2009-2010; will pick another three for 2010-2011

- Rationale: best way to turn students on to teaching/research is to get them involved in DOING it!
Dental Scholars Track

YEAR 1
- Clinical Research Workshop (UTSW)
- Program entry point.

YEAR 2
- Present at AADR/IADR
- Clinical Research rotations
- Program entry point.

YEAR 3
- Clinical Research Workshop (UTSW)
- Present at AADR/IADR
- Ethics selective

YEAR 4
- Academia selective
- Teaching Skills course Workshop
- Present at ADEA or IADR
- Teaching project
- Teaching Internship

Clinical Research Project

Figure 5
‘Revamped’ Research Day

- Traditionally a showcase for basic science-oriented research performed by DDS students, clinical residents & graduate students.
- Intent is to transform this event to display a much wider range of scholarship taking place at BCD and attract more clinical faculty and D3-D4 students.

![Diagram showing the flow of different research presentations and awards](image)
‘Revamped’ Research Day

- **Spring 2009 Research Day**: included clinical case presentations by D3 & D4 students

- **Spring 2010 Research Day**: add Critically-Assessed Topics (CATs) by D2 students with prizes for the best
Thank You!