2012 Update on National Board Dental Hygiene Examinations

Dr. David M. Waldschmidt
Dr. Tsung-Hsun Tsai

American Dental Education Association
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Orlando, FL

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This is an informational session intended to provide an update on the National Board Dental Hygiene Examination.

**Section One Topics – Dr. David M. Waldschmidt**
- Joint Commission updates
- Examination administration updates

**Section Two Topics – Dr. Tsung-Hsun (Edward) Tsai**
- Reporting model for schools
- Performance trends and failure rates
Section One Agenda

- Introduction
- The Joint Commission on National Dental Examinations (JCNDE)
- JCNDE policy updates
- JCNDE software infrastructure upgrade
- Irregularities and appeal process
- Examination administration trends and survey feedback
- Additional information and resources
Introduction: Background and Qualifications

- Ph.D. in Industrial/Organizational Psychology
  - Psychology of individual behavior in organizational settings
  - Personnel selection, training, motivation, performance management
  - Measurement through testing, surveys, interviews
  - Job analysis (practice analysis)

- Director of Research & Development for Wonderlic, Inc.
  - Wonderlic’s senior content resource/expert
  - Oversaw psychometric quality of Wonderlic assessments

- Chairman of the Industrial division of the Association of Test Publishers
  - Worked closely with other divisions (Licensure/Certification, Education, Clinical) and initial efforts pertaining to ATP Europe
  - Served two consecutive terms
Introduction: Experience

- Experience with all phases of building and deploying tests
- Experience building and supporting tests approved by the US Department of Education
- Examinations with widespread usage (millions of administrations annually)
- Experience with different types of tests
  - Cognitive, basic skills (English/math), personality, integrity, organizational-fit, translations
- Experience analyzing position requirements for a variety of occupations
- Experience working closely and coordinating efforts with multiple stakeholder groups (e.g., Information Technology (IT) department, clients, sales)
Mission Statement of the JCNDE

“The JCNDE develops and conducts highly reliable, state of the art cognitive examinations that assist regulatory agencies in making valid decisions regarding licensure of oral health care professionals, develops and implements policy for the orderly, secure, and fair administration of its examinations, and is a leader and resource in assessment for the oral health care profession.”
The mission statement reveals three focal areas of concern for the JCNDE:

1) provide and conduct examinations to assist state boards in determining qualifications of dentists and dental hygienists who seek licensure.

2) make rules and regulations for the conduct of National Board examinations and certificates.

3) serve as a resource for the dental profession in the development of examinations.
# Composition of the JCNDE

## Appointing Organizations and Current Appointees

<table>
<thead>
<tr>
<th>Organization</th>
<th>Appointees</th>
<th>Appointees</th>
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<tbody>
<tr>
<td><strong>AADB (6)</strong></td>
<td>J. Stephen Sill, DMD, Vice-Chair</td>
<td>Guy Shampaine, DDS</td>
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<tr>
<td></td>
<td>Jerri Ann Donahue, DDS</td>
<td>Samuel A. Trinca, DDS</td>
</tr>
<tr>
<td></td>
<td>LeeAnn Podruch, DDS, JD</td>
<td>Michael Reggie VanderVeen, DDS</td>
</tr>
<tr>
<td><strong>ADEA (3)</strong></td>
<td>B. Ellen Byrne DDS, Ph.D.</td>
<td>Birgit J. Glass DDS, MS</td>
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<td></td>
<td>Connie Drisko, DDS</td>
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<tr>
<td><strong>ADA (3)</strong></td>
<td>Peter S. Trager, DDS, Chair</td>
<td>Lorin D. Peterson, DDS</td>
</tr>
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<td></td>
<td>Robert A. Hersh, DDS</td>
<td></td>
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<tr>
<td><strong>ADHA (1)</strong></td>
<td>Mary Lou Gerosky, RDH, MEd</td>
<td></td>
</tr>
<tr>
<td><strong>ASDA (1)</strong></td>
<td>Adam Shisler, BS</td>
<td></td>
</tr>
<tr>
<td><strong>Public (1)</strong></td>
<td>Ms. Kelley Shannon</td>
<td></td>
</tr>
<tr>
<td><strong>Liaisons &amp; Observers</strong></td>
<td>Patricia L. Blanton, DDS, MS, Ph.D. (ADA Board Liaison)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ian R. Murray, BS (ASDA Observer)</td>
<td></td>
</tr>
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</table>

Liaisons and observers do not participate in voting.
JCNDE Committees

• Committees of the JCNDE
  - Committee on Administration
  - Committee on Dental Hygiene
  - Committee on Examination Development
  - Committee on Research and Development
  - Committee for an Integrated Examination (CIE) (ad Hoc)

• Test Construction Committees (TCCs)
  - NBDE Part I (8)
  - NBDE Part II (14)
  - National Board Dental Hygiene Examination (9)
  - More than half of the individuals on TCCs are dental educators
  - Criteria for TCC membership are published in the JCNDE Standing Rules
JCNDE Policy Updates

- Examination results now reported as pass/fail.
  - Reflects JCNDE resolution passed in 2008 for implementation in 2010.
  - Implementation was delayed until 2012.

- Application eligibility period reduced from 1 year to 6 months.
  - The original 12-month eligibility period was set in relation to print-format examinations administered two or three times per year.

- Score reports will now include a history of scores for all examination attempts.
JCNDE Policy Updates

- Candidates will be limited to successful completion of an examination within five years of testing or five examination attempts, whichever comes first.

- Incorporation of the following policy into JCNDE Examination Regulations:
  - A candidate is prohibited from taking the examination to practice or to obtain an advance review of the content.

- Changes to test administration survey questions.
If it is determined that a candidate engaged in irregular behavior, information regarding this determination becomes a part of the candidate’s National Board record. In its sole discretion, the JCNDE may elect to send a summary report documenting the incident, with a brief statement provided by the candidate immediately following the decision by the JCNDE to report, to legitimately interested parties, including all persons or agencies to which the candidate has instructed that scores be sent, both presently and in the future.
JCNDE Software Infrastructure Upgrade

- **Background**
  - Five testing programs, each operating completely independently.

- **Project Purpose**
  - Unify those programs into a single system.

- **Goal**
  - Serve communities of interest more effectively, reduce costs, improve efficiency.

- **Context**
  - No off-the-shelf solution existed, need to customize an existing product to meet JCNDE needs.
Our priorities

- Accuracy of information and decisions was of paramount importance.
- Minimize negative impact on communities of interest.

Our experience

- Our existing system is incredibly complex to program.
- We experienced an extremely high volume of calls and email requests.
- We apologize for the delays you experienced.
- Staff were doing everything they could to mitigate those delays.
Irregularities and Appeals

Definition of irregularity:

- A situation where there is a question as to whether examination results accurately represent the ability of a candidate, or where the candidate’s conduct violates Examination Rules or Regulations.

Examples of typical violations:

- Unscheduled break taken during testing session (e.g., left test center, reviewed study materials, talked with friend, accessed phone).
- Prohibited items (pen, pencil, cell phone, candy/gum, religious objects, good luck charms, or medicinal items).
- Breach of confidentiality (shared remembered questions/answers or had unauthorized access to confidential exam content).
Irregularities and Appeals

- Irregularity information can come from a variety of sources:
  - Irregularity reports transmitted weekly from testing vendors
  - Anonymous tips
  - Findings from routine audit procedures.
  - Screening and investigation by staff (e.g., identification of statistical anomalies)

- When irregularities are identified, the Joint Commission acts to enforce rules and regulations.
  - Invalidate/withhold/void score
  - Impose waiting period before retest is possible
Irregularities and Appeals

➢ Standard Procedure

- Candidate notified of irregularity and given option to appeal (30 days).
- Appeal received and forwarded to JCNDE Chair for screening;
- Chair grants appeal, denies appeal, or forwards appeal to entire JCNDE for vote.
- JCNDE members review the appeal and vote on action.
- Candidate notified of JCNDE decision.
- JCNDE has 60 days to respond to candidate with final decision, once an appeal has been received.
### Irregularities and Appeals

<table>
<thead>
<tr>
<th>Nature of Irregularity or Appeal</th>
<th>NBDHE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unscheduled break violation (accessed personal belongings, left test center, etc.).</td>
<td>1</td>
</tr>
<tr>
<td>Appeal of examination rule; request to retest prior to 12 month waiting period.</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>

In 2011, the Joint Commission denied 4 NBDHE appeals.
Exam Administration Trends

Total Testing Volume (2008-2011)

NBDHE

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>8000</td>
</tr>
<tr>
<td>2009</td>
<td>7500</td>
</tr>
<tr>
<td>2010</td>
<td>7800</td>
</tr>
<tr>
<td>2011</td>
<td>8000</td>
</tr>
</tbody>
</table>
Exam Administration Trends

- This chart shows computer administrations of the NBDHE.
- In 2009 there were 4,862 paper administrations. In 2010 all administrations occurred via computer.
Exam Administration Trends

Rescheduling and Cancellations Volume

<table>
<thead>
<tr>
<th>NBDHE</th>
<th>Reschedule</th>
<th>Cancellations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,272</td>
<td>71</td>
</tr>
</tbody>
</table>

- A high percentage of candidates are rescheduling their examination dates.
- This trend is occurring for all National Board examinations.
Exam Administration Trends

Testing Accommodations

<table>
<thead>
<tr>
<th>Examination</th>
<th>Number of Accommodations Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBDHE</td>
<td>58</td>
</tr>
</tbody>
</table>

- Accommodations have been provided for documented learning disabilities, medical conditions, sensory impairments, etc.
- Examples of accommodations include additional testing time, separate testing room, lighting and seating adjustments, etc.
- The JCNDE has seen a dramatic increase in the number of accommodations requested over the last few years.
At the end of the testing session candidates are asked questions concerning their satisfaction with the testing experience.

The following slides present the findings associated with those survey items.
Success of tutorial in preparation for NBDHE

![Bar chart showing the success rates for NBDHE. The chart indicates that 96.5% of participants were successful, 3% were undecided, and 0.5% were unsuccessful.](image)
Comfort with computer technology

- Satisfied: 93
- Undecided: 3.6
- Dissatisfied: 3.4

NBDHE
Time allotted to take the NBDHE

- Satisfied: 94.2%
- Undecided: 3.1%
- Dissatisfied: 2.6%
Visual presentation of test items

- Satisfied: 51.8
- Undecided: 18.2
- Dissatisfied: 30

NBDHE
Quality of radiographs

- Satisfied: 24.6%
- Undecided: 18.6%
- Dissatisfied: 56.8%

NBDHE
Quality of clinical photographs

- Satisfied: 67.5%
- Undecided: 14.8%
- Dissatisfied: 17.8%

NBDHE
Labels/arrows on radiographs/clinical photographs

- Satisfied: 78.9%
- Undecided: 11.5%
- Dissatisfied: 9.6%

NBDHE
Computer response time

<table>
<thead>
<tr>
<th>Satisfied</th>
<th>Undecided</th>
<th>Dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>95.4</td>
<td>2.7</td>
<td>1.9</td>
</tr>
</tbody>
</table>
Survey Feedback

- Changes to survey for next year:
  - Rating Scale (5 pt): Strongly Agree to Strongly Disagree
  - Revised survey questions

1. The tutorial at the beginning of the exam helped me learn how to navigate through the exam.
2. I knew how to use the computer to take the exam.
3. The quality of the radiographs was sufficient to answer the questions.
4. The quality of the clinical photographs was sufficient to answer the questions.
5. The quality of labels and arrows appearing with images was sufficient to answer the questions.
6. I had sufficient time to complete the exam.
7. Please list any comments or suggestions you may have regarding your testing experience.
Additional Information and Resources

National Boards (Examination Guides, FAQ’s, DENTPIN® Information, Score Report Requests)
Dental Hygiene:  http://www.ada.org/2662.aspx
  Part I:  http://www.ada.org/2667.aspx
  Part II:  http://www.ada.org/2665.aspx

Joint Commission on National Dental Examinations
http://www.ada.org/JCNDE.aspx

Test Construction Committee Information
http://www.ada.org/2291.aspx

Technical Reports, ADEA Presentations, Item Development Guides
http://www.ada.org/2287.aspx
Contact Information

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http://www.ada.org/JCNDE.aspx
THANK YOU.
Don’t shoot…
New Reporting Model
Validation

Pass/Fail Policy

Reporting Dental Hygiene Program Performance

Selection of Model

Cross-Validation (5 Programs)

JCNDE (2011 meeting)

Approval

$ d $ model

Modified Cohen Model (1988)

Consultants

JCNDE

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Exam results were from enrolled dental hygiene program students taking the NBDHE for the first time in 2009 and 2010.
A $d$ value is a value representing the distance between the dental hygiene program average and the national average in standard deviation units.

A positive $d$ value of 1.0 indicates that the dental hygiene program average is one standard deviation above the national average.

A negative $d$ value of -1.0 indicates that the dental hygiene program average is one standard deviation below the national average.

The height of the bars in the next slide represents a dental hygiene program’s $d$ values for each of the major disciplines and the dental hygiene program’s average standard score.
School code-School name d values for NBDHE
Populations are first attempt examinations for recent grads for that year

### 2009 (Sample Size 34)

- Scale Score: -0.21
- Anat Sci: 0.19
- Phy-Bio-Nutr: 0.47
- Micro Immun: 0.37
- Path: 0.29
- Pharm: 0.28
- Pat Assess: 0.39
- Radio: 0.14
- DH Care: 0.04
- Perio: 0.15
- Prev Agts: 0.41
- Sup Trtm: -0.22
- Prof Resp: 0.08
- Comm Hlth: -0.22
- Case-Based: 0.01

### 2010 (Sample Size 49)

- Scale Score: -0.20
- Anat Sci: 0.19
- Phy-Bio-Nutr: 0.59
- Micro Immun: 0.37
- Path: 0.28
- Pharm: 0.29
- Pat Assess: 0.39
- Radio: 0.14
- DH Care: 0.04
- Perio: 0.15
- Prev Agts: 0.41
- Sup Trtm: -0.20
- Prof Resp: 0.08
- Comm Hlth: -0.20
- Case-Based: 0.01

### % Failing

- 2009: Nation: 4.9%, School: 0.0%
- 2010: Nation: 3.7%, School: 5.9%

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Joint Commission on National Dental Examinations
Trends in Candidate Performance
Figures 1 through 2 present trends in candidate performance and failure rates for NBDHE.

This data represents all candidates enrolled in accredited dental hygiene programs in the U.S and Canada who took the examination for the first time.

The overall performance of this group serves as an important reference point for understanding candidate performance on the examination.
Figure 1. NBDHE Average Scores

- 2002: 83.0
- 2003: 83.1
- 2004: 83.8
- 2005: 83.2
- 2006: 82.9
- 2007: 84.1
- 2008: 83.2
- 2009: 83.5
- 2010: 82.5
- 2011: 82.4

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Figure 2. NBDHE Failure Rates

* A new standard was introduced this year, based on updated standard setting activities.
Questions

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