INBDE 2020: Are You Ready?

2018 ADEA Annual Meeting
March 17, 2018
Orlando, Florida

Mark L. Christensen, DDS, MBA
Chair, JCNDE Committee for an Integrated Examination

Andrew Spielman, DMD, PhD
Professor and Associate Dean for Academic Affairs, NYU; CIE member

David Waldschmidt, PhD
Director, Department of Testing Services and Secretary, Joint Commission on National Dental Examinations
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 Committee for an Integrated Examination (CIE) is an ad hoc Committee of the JCNDE.
<table>
<thead>
<tr>
<th>Appointing Organizations and Current Appointees</th>
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</thead>
<tbody>
<tr>
<td><strong>AADB (6)</strong></td>
</tr>
<tr>
<td>Dale R. Chamberlain, DDS</td>
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<tr>
<td>Roy L. Irons, DDS</td>
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<tr>
<td>Frank A. Maggio, DDS</td>
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<tr>
<td>William F. Robinson, DDS (JCNDE Vice-Chair)</td>
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<tr>
<td>Wesley Delaine Thomas, DMD</td>
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<td>Leonard P. Weiss, DDS</td>
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<td><strong>ADA (3)</strong></td>
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<tr>
<td>Cheryl Haley, DDS</td>
</tr>
<tr>
<td>Lisa Heinrich-Null, DDS (JCNDE Chair)</td>
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<tr>
<td>Kanthasamy K. Ragunathan, DDS, MS</td>
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<td><strong>ADEA (3)</strong></td>
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<td>Cataldo W. Leone, DMD, DMSc, FICD</td>
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<td>Nader Nadershahi, DDS, MBA, EdD</td>
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<tr>
<td>Joseph J. Zambon, DDS, PhD</td>
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<td><strong>ADHA (1)</strong></td>
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<td>Melissa Gail Efurd, RDH, Ed.D</td>
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<td><strong>ASDA (1)</strong></td>
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<tr>
<td>Aaron Henderson, BS</td>
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<td><strong>Public (1)</strong></td>
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<tr>
<td>Issie L. Shelton-Jenkins, Esq.</td>
</tr>
<tr>
<td><strong>Liaisons &amp; Observers</strong></td>
</tr>
<tr>
<td>Jeffrey Kerst, BS (ASDA Observer)</td>
</tr>
<tr>
<td>Chad P. Gehani, DDS (ADA Board Liaison)</td>
</tr>
</tbody>
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Liaisons and observers do not participate in voting.
Committee for an Integrated Examination (ad hoc)

The members of the ad hoc CIE are well acquainted with the Joint Commission’s mission and workings.

Mark Christensen, DDS (Chair)
(AADB 2006-2009)
Vice-Chair – JCNDE (2009)
Chair – Administration (2008)
Chair – Dental Hygiene (2006 & 2007)

Andrew Spielman, DMD, MS, Ph.D.
(ADEA 2008-2011)
Chair – JCNDE (2011)
Chair – Examination Development (2009)

Bruce D. Horn, DDS
(AADB 2007-2010)
Chair – JCNDE (2010)
Chair – Administration (2009)
Chair – Dental Hygiene (2008)

Ron J. Seeley, DDS
(ADA 2007-2010)
Chair – JCNDE (2009)
Chair – Examination Development (2008)

B. Ellen Byrne, DDS, Ph.D.
(ADEA 2009-2012)
Chair – Research & Development (2012)
Chair – Administration (2011)

Stephen T. Radack, III, DMD
(ADA 2008-2011)
Chair – Research & Development (2010 & 2011)
Vice-Chair – JCNDE (2010)
Committee for an Integrated Examination

2017-2018 Appointments

The Joint Commission Chair and NBDE Standing Committee Chairs serve as ex-officio members of the CIE.

Lisa Heinrich-Null, DDS
Chair – JCNDE (2018)
Chair – Research & Development (2017)
Chair – Administration (2016)

William F. Robinson, DDS
Vice Chair – JCNDE (2018)
Chair – Research & Development (2018)
Chair – Administration (2017)

Nader Nadershahi, DDS, MBA, EdD
Chair – Administration (2018)
Chair – Examination Development (2017)

Cataldo W. Leone, DMD, DMSc, FICD
Chair – Examination Development (2018)

The Joint Commission Chair has also made additional, one-year appointments.

Dale R. Chamberlain, DDS
JCNDE Commissioner

Steven D. Vincent, DDS, MS
JCNDE Test Construction Team member
How did the INBDE come about?

• A convergence of factors led to the INBDE. The INBDE is designed to better serve communities of interest by:
  – Improving test content to make it more appropriate and relevant to the practice of dentistry and contemporary dental education.
  – Improving processes and candidates' experiences in taking the examination.
  – Better assisting regulatory agencies.

• Examination content trends and the movement toward integrated content and clinical relevance also were considered.
INBDE Background Information

- In 2009, the JCNDE appointed a Committee for an Integrated Examination (CIE) to develop and validate a new examination instrument for dentistry that integrates the biomedical, behavioral, and clinical sciences to assess entry level competency in dental practice, to supplant NBDE Part I and Part II.

- The Integrated National Board Dental Examination (INBDE) retains the same fundamental purpose as the NBDE Part I and Part II – to assist state boards of dentistry in determining qualifications of dentists who seek licensure to practice in the U.S.
Clinical Relevance, Purpose, and Integration

• Clinical relevance and alignment with test purpose are the key considerations in establishing content and the items that appear on the INBDE.

• Integration is viewed as a means of implementing and promoting this perspective; as such, integration is secondary to clinical relevance and alignment with test purpose.

• In summary, examination purpose drives all considerations, clinical relevance is the best way to achieve the exam purpose, and integration provides a strong means of achieving clinical relevance.
### INBDE Content, by Clinical Component Section

<table>
<thead>
<tr>
<th>#</th>
<th>Clinical Component Section</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diagnosis and Treatment Planning</td>
<td>34.6%</td>
</tr>
<tr>
<td>2</td>
<td>Oral Health Management</td>
<td>42.0%</td>
</tr>
<tr>
<td>3</td>
<td>Practice and Profession</td>
<td>23.4%</td>
</tr>
</tbody>
</table>
## INBDE Content Specifications (2017)

### INBDE Content, by Foundation Knowledge Area*

<table>
<thead>
<tr>
<th>#</th>
<th>Foundation Knowledge Area</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Molecular, biochemical, cellular, and systems-level development, structure and function</td>
<td>12.2%</td>
</tr>
<tr>
<td>2</td>
<td>Physics and chemistry to explain normal biology and pathobiology</td>
<td>6.8%</td>
</tr>
<tr>
<td>3</td>
<td>Physics and chemistry to explain the characteristics and use of technologies and materials</td>
<td>8.0%</td>
</tr>
<tr>
<td>4</td>
<td>Principles of genetic, congenital and developmental diseases and conditions and their clinical features to understand patient risk</td>
<td>10.6%</td>
</tr>
<tr>
<td>5</td>
<td>Cellular and molecular bases of immune and non-immune host defense mechanisms</td>
<td>9.0%</td>
</tr>
<tr>
<td>6</td>
<td>General and disease-specific pathology to assess patient risk</td>
<td>11.8%</td>
</tr>
<tr>
<td>7</td>
<td>Biology of microorganisms in physiology and pathology</td>
<td>10.6%</td>
</tr>
<tr>
<td>8</td>
<td>Pharmacology</td>
<td>10.6%</td>
</tr>
<tr>
<td>9</td>
<td>Sociology, psychology, ethics and other behavioral sciences</td>
<td>10.6%</td>
</tr>
<tr>
<td>10</td>
<td>Research methodology and analysis, and informatics tools</td>
<td>9.8%</td>
</tr>
</tbody>
</table>

* FK 9 and 10 contain minor edits that are currently pending JCNDE approval.
Additional Information from the JCNDE

- Information concerning the INBDE is available via the Joint Commission’s website (www.ada.org/JCNDE/INBDE).
- The following information is currently available and is updated as changes occur:
  - INBDE background
  - INBDE FAQ’s
  - Domain of Dentistry and general validity evidence
  - Test specifications
  - Preliminary sample questions
  - INBDE retest policy and candidate eligibility
  - INBDE draft item development guide
  - INBDE practice test questions
- The following information will be posted as soon as it becomes available:
  - Technical report(s) providing detailed information concerning validity.
INBDE Implementation Plan

• To address concerns from stakeholders and communities of interest regarding the timing of INBDE implementation, the JCNDE indicated it would provide four years' notice before the INBDE is implemented and the NBDE discontinued.

• In response to these concerns and to provide reasonable notice, the Joint Commission previously approved an INBDE Implementation Plan for distribution to stakeholders and communities of interest

• The INBDE Implementation Plan provides information concerning how INBDE implementation will occur, the information that will be made available to help facilitate the transition, and recommended actions for stakeholders and communities of interest.

• The plan includes timeframes under a "best case scenario."
INBDE Implementation Plan *Best Case Scenario*

**INBDE Implementation Plan Announcement**
March 13, 2016

**Notice of INBDE Implementation and National Board Dental Examination (NBDE) Discontinuation**
August 1, 2018

**First Official INBDE Administration**
August 1, 2020

- **NBDE Part I**
  Discontinued
  July 31, 2020

- **NBDE Part II**
  Discontinued
  July 31, 2022

**Note:** This implementation plan communicates the best case scenario. Dates presented should be interpreted as “no sooner than.” Actual dates will be contingent upon field testing results. INBDE Practice Test Questions are anticipated for release in 2019.
INBDE Implementation Plan

• On August 1, 2018, the Joint Commission intends to provide communities of interest with notice of INBDE implementation and NBDE discontinuation. This notice will include the following:
  – The projected date when the INBDE will be available for administration, the official name of the new examination, and how results will be reported.*
  – The dates when NBDE Part I and NBDE Part II will be discontinued.
  – Any additional rules needed to facilitate the transition.

• Two years after notification has been provided, NBDE Part I will be discontinued (approx. July 31, 2020). No Part I administrations will occur after this date.

• The first official administration of the INBDE is expected to take place on August 1, 2020.

• Two years after NBDE Part I is discontinued, NBDE Part II will be discontinued (approx. July 31, 2022). No Part II administrations will occur after this date.

• Notification of INBDE implementation and NBDE discontinuation is contingent upon successful completion of the INBDE Field Testing Program.
INBDE Field Tests

• The JCNDE has conducted three separate INBDE Field Tests
  – INBDE Sample Item Survey (July 2015 – September 2015)
    • 170 NBDE Part II candidates
  – INBDE Short Form Field Test (October 2016 – January 2017)
    • 840 NBDE Part II candidates from accredited dental schools
    • Approximately 1,400 NBDE Part II candidates from accredited dental schools

• INBDE field testing efforts have been successful to date
• Results from INBDE field testing provide validity evidence in support of the intended use and interpretation of INBDE results
• Overall, the INBDE has been viewed by field test candidates as an improvement over the NBDE Part II in many ways
2016-2017 INBDE Short Form Field Test

• **Key Findings**
  – Psychometric analysis indicated the majority of the test items performed reasonably well.
  – Eighty-nine percent (89%) of participants indicated they were satisfied with their experience on the Field Test.
  – Eighty-nine percent (89%) of participants indicated that the questions on the test were clinically relevant (less than 3% disagreed).
  – Eighty-five percent (85%) of participants indicated that their educational training prepared them well to answer these types of questions.
  – Candidates who had taken the NBDE Part II prior to participating in the field test tended to have a more positive impression of INBDE content than those who had not.
2017-2018 INBDE Field Test

• **Study Overview**
  – Administer a 300-item, mid-length form of the INBDE to NBDE Part II candidates from accredited dental schools.
  – Ask participants to provide feedback on INBDE content via a post-test survey.
  – A performance based incentive was provided:
    • $500 to candidates who performed in the 4th quartile.
    • $400 to candidates who performed in the 3rd quartile.
    • $350 to candidates who performed in the 2nd quartile.
    • $300 to candidates who performed in the 1st quartile.

• **Participants**
  – Approximately 1,400 NBDE Part II candidates from accredited dental schools.
Feedback from INBDE Field Test Participants

What insights would you like to share with students who might be anxious to take this new examination?

“The INBDE is more clinically applicable than NBDE part I, while integrating some of the same required knowledge. There was a lot of tested information that new graduates simply should know in order to be good clinicians.”

“It’s not radically different than previous exams and not any harder.”

“If you have paid attention and have studied to the best of your abilities for all the exams throughout dental school, you will not have a problem with this exam. Dental school prepares you for it.”

“The exam is case-based so it is very similar to the cases that you currently see in clinic.”

“It is much more clinically focused than the previous format.”
Feedback from INBDE Field Test Participants

What insights would you like to share with dental programs and faculty members who are working to prepare their students to take the INBDE?

“Teach with a case-based model and help your students to learn the basics of how to take care of their patients and they'll be fine!”

“Focus more on clinical questions and how basic science is used in clinical dentistry.”

“They need to teach basic sciences while incorporating clinical scenarios in order to prepare the students.”

“Prepare the students for the majority of the exam to be case based, including many health conditions and their associated pharmacology.”

“Please try to relate the basic sciences to real-life clinical situations.”
Feedback from Dental Schools

- Dr. Ellen Byrne surveyed dental schools on their plans regarding the INBDE.
- Most of the 42 responding schools indicated they are currently encouraging the class of 2021 to take NBDE Parts I & II.

1. Which examination is your school currently encouraging each dental class to take? Please check one per class.

   - Class of 2020: 93% INBDE, 5% Student decides, 2% Don't know
   - Class of 2021: 64% INBDE, 16% Student decides, 10% Don't know
   - Class of 2022: 19% INBDE, 15% Student decides, 33% Don't know
   - Class of 2023: 0% INBDE, 5% Student decides, 21% Don't know

2. Given the timeline indicated above, which class at your school will be the first class in which the majority of students will take the INBDE? Please circle your answer below.

   - Class of 2020: 0%
   - Class of 2021: 14.5%
   - Class of 2022: 32%
   - Class of 2023: 39%
   - Don't Know: 14.5%
INBDE Item Development
INBDE Item Development

• Volunteers serve on Test Construction Teams (TCTs) consisting of 15 members
  – TCTs are comprised of educators, general practitioners,
• TCTs collaborate as work groups to create, review, and finalize items for the examination
• Items are reviewed in various ways among and between the teams to ensure high-quality, clinically relevant questions for candidates
INBDE Item Development – The Patient Box

• Patient information can include age, gender, relevant physical characteristics, vital signs, medical and dental histories, relevant social history, and the chief complaint.

• The Patient Box includes all relevant information a candidate needs to know in order to properly diagnose or treat a patient
  - **Patient**: basic demographic information (gender and age)
  - **Chief Complaint**: reason for the visit
  - **Background and/or Patient History**: dental and medical history, current medications, etc.
  - **Current Findings**: any additional information regarding pre-treatment or diagnosis obtained during the current visit

<table>
<thead>
<tr>
<th>Patient</th>
<th>Female, 20 years old</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Complaint</td>
<td>“My front teeth have been gradually crumbling and now are sensitive when I touch the edges or try to eat.”</td>
</tr>
<tr>
<td>Background and/or Patient History</td>
<td>A fixed orthodontic appliance was recently installed in the maxillary arch. Afterward the patient is referred to you for restoration of her maxillary anterior teeth. Medications: Ibuprofen (Advil) as needed</td>
</tr>
<tr>
<td>Current Findings</td>
<td>Concern but no acute distress Missing tooth structure for 7, 8, 9, and 10, especially of incisal edges, facial enamel and, to a lesser extent, of lingual enamel of 8 and 9</td>
</tr>
</tbody>
</table>
Developing Test Questions for INBDE

- Volunteering for a role in developing test questions might seem daunting, especially for a general dentist who is not accustomed to writing test questions
- However,
  - Questions for the INBDE must be clinically relevant
  - Practitioners are in a unique position to capture patient situations, clinical problems, and practice scenarios
  - These situations can easily be used to develop items for the new examination
How can a general dentist identify and capture clinically relevant situations to use for the development of test questions?

1. Document the situation, via image, radiograph, or another way if it makes more sense.

2. Load the images and relevant patient history and background into the standard patient box test item format.

3. Using the standard template, articulate the question or stem, the answer, and two or three plausible distractors.
   - Capture the essential aspect of the situation that a dentist must recognize in order to assess the situation and/or practice safely.
   - Consider all the ways a dentist might approach the situation. One situation might involve multiple facets that can generate several questions.
   - Situations can be routine, can involve treatment complications, or can present ethical issues.

4. Review the draft, determine if edits are needed to make the question clearer or more efficient.

5. Submit the question.
   - The draft does not have to be perfect; it will present a clinical situation that becomes stimulus material for Test Construction Teams.
### Developing Test Questions for the INBDE - Sample

<table>
<thead>
<tr>
<th>Patient</th>
<th></th>
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<tbody>
<tr>
<td>Female, 20 years old</td>
<td></td>
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| Chief Complaint | “My front teeth have been gradually crumbling and now are sensitive when I touch the edges or try to eat.” |

<table>
<thead>
<tr>
<th>Background and/or Patient History</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>A fixed orthodontic appliance was recently installed in the maxillary arch.</td>
<td></td>
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<tr>
<td>Afterward the patient is referred to you for restoration of her maxillary anterior teeth.</td>
<td></td>
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<tr>
<td>Medications: Ibuprofen (Advil) as needed</td>
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<table>
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<td>Missing tooth structure for 7, 8, 9, and 10, especially of incisal edges, facial enamel and, to a lesser extent, of lingual enamel of 8 and 9</td>
<td></td>
</tr>
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</table>

**The orthodontic brackets and arch wire are removed prior to provisionally restoring teeth 8 and 9. What is the most likely cause of the patient’s condition?**

- A. Habitual chewing on pencil erasers
- B. Grinding of her anterior teeth
- C. Sucking on lemons and limes
- D. Swishing soft drinks before swallowing
### Developing Test Questions for the INBDE - Sample

#### Patient
- Female, 20 years old

#### Chief Complaint
- “My front teeth have been gradually crumbling and now are sensitive when I touch the edges or try to eat.”

#### Background and/or Patient History
- A fixed orthodontic appliance was recently installed in the maxillary arch.
- Afterward the patient is referred to you for restoration of her maxillary anterior teeth.
- Medications: Ibuprofen (Advil) as needed

#### Current Findings
- Concern but no acute distress
- Missing tooth structure for 7, 8, 9, and 10, especially of incisal edges, facial enamel and, to a lesser extent, of lingual enamel of 8 and 9

What is the prognosis for definitive restoration of the patient’s maxillary anterior teeth following completion of orthodontic treatment?

- A. Good
- B. Fair
- C. Poor or Guarded
- D. Hopeless
Developing Test Questions for the INBDE - Sample

Patient

Male, 13 years old

Chief Complaint

“While helping his father a ladder fell and hit him in the face. After the bleeding stopped I took this picture with my phone. We live an hour from the office. Does he need to be seen? What should we do?” (mother)

Background and/or Patient History

No caries
Occlusal sealants
Undergoing orthodontic treatment

Current Findings

(as presented in the image)

What question would be most important in knowing how to advise the parent?

A. Did he lose consciousness and is this his only area of injury?
B. Do his teeth still seem to fit well together when he bites?
C. When is his next orthodontic appointment?
D. Are any orthodontic brackets loose or separated from his teeth?
Developing Test Questions for the INBDE - Sample

<table>
<thead>
<tr>
<th>Patient</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Female, 61 years old</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chief Complaint</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>“No complaint or discomfort”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Background and/or Patient History</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient presents for her routine preventive maintenance appointment.</td>
<td></td>
</tr>
<tr>
<td>Implant at site 8 was placed and restored approximately one year ago.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current Findings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient oral hygiene is good. No residual cement is detectable</td>
<td></td>
</tr>
</tbody>
</table>

Which of the following would likely benefit the patient most:

A. Thorough debridement and irrigation with chlorhexidine gluconate rinse
B. Removal of the failing implant and replacement with a 3-unit fixed bridge (7-9)
C. Facial gingivectomy followed by daily oral rinse with chlorhexidine gluconate
D. Excisional biopsy and appropriate follow up or referral depending on outcome
Submitting Case Materials for the INBDE

- Visit www.ada.org/JCNDE/examinations/test-construction and click Case Materials on the right hand menu
- OR
- Visit the Joint Commissions website at www.ada.org/JCNDE
- Scroll to the bottom and click on Test Construction, then click Case Materials on the right hand menu
Are You Ready?
How NYU is Preparing for INBDE
How NYU is Preparing for INBDE

• Unlikely to happen…
How NYU is Preparing for INBDE

Basic Sciences + Clinical Sciences = Integrated curriculum
Building Elements for an Integrated Curriculum

- Four-prong approach:
  - Curriculum level (CL)
    - Create content that is suitable for integration (in progress)
    - De-bulk curriculum of overwhelming details that are out of context (in progress)
    - Create courses/infrastructure for vertical integration of classes and students (done)
    - Train the curriculum committee about new reality (in progress)
  - Faculty level (FL)
    - Training how to teach and test integrated curriculum, with yearly retraining (in progress)
    - Test-writing workshops for integrated questions – standardization (done)
    - Compliance with agreed upon policies (planned)
    - Reality check – dental anatomy (done)
  - Administrative level (AL)
    - Policies to support the new examination – timing, penalty, clinic entry, graduation (planning)
    - The use of “patient box” in exams (in progress)
    - Modify Examsoft to accommodate patient box (planned)
    - Creation of a “concept map” (done)
    - Creation of a database for integrated questions – cumulative OSCE (in progress)
    - Exam question writing workshops (done)
  - Student level (SL)
    - Orientation (planned)
    - Yearly training and test practice (planned)
    - Remediation and student support systems (planning)
Building Elements for an Integrated Curriculum

• **DONE**
  – Clinical case presentations in every Basic Science course in D1 and D2 (26). CL
  – D1-D2-D3-D4 Integrated Basic Science – Clinical Case Presentation Seminars. CL
  – Biomedical Foundations through Clinical Cases (BFCC) – 55 online modules. CL
  – D2-D3-D4 Board Review course – built around a “concept map.” CL
  – Creation of a “Concept Map” – identify key disease associated concepts to teach/test. AL

• **IN PROGRESS**
  – D2-D3-D4 Board Review course – built around a “concept map.” CL
  – Introduce five integrated questions into every exam using a patient box – Sept. 2018. AL
  – Creation of Cerego modules based on the “Concept Map.” AL
  – Creation of a database for all integration questions to be used for a comprehensive exam in early D4 as part of a mock exam. AL
  – Training teaching faculty on how to write integrated questions (several retreats). FL
Questions?