

# The Dental Licensure Objective Structured Clinical Examination (DLOSCE)

A Webinar for State Dental Associations

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# Presenters



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# Overview

- The Joint Commission on National Dental Examinations (JCNDE)
- Background and History of DLOSCE Development
- OSCEs and the DLOSCE Approach
- DLOSCE Content Areas, Question Format, and 3D Models
- Common Questions about the DLOSCE
  - The DLOSCE and the Issue of Psychomotor/Hand Skill Evaluation
  - The DLOSCE and the Integrated National Board Dental Examination (INBDE)
- Findings from 2020 DLOSCE Administrations
- Additional DLOSCE Information and Resources
- Q & A

# The JCNDE is a Commission of the ADA

- **Commissions are agencies of the ADA that have been granted independent authority to carry out their program and duties.**
- Philosophical foundation of Commissions:
  - Commissions must be:
    - Consistent
    - Free from bias and conflict of interest
    - Objective
  - No single community of interest can have undue influence in the decision-making process, including the ADA.
  - Quality assurance is necessary to protect the public and assure long-term viability of the profession.
  - Integrity, confidentiality, due process.
- Subject to the *ADA Constitution & Bylaws* and *ADA Governance and Organizational Manual*, and governed by the *Rules of the JCNDE* and the *Operational and Policy Manual* of the JCNDE.

# Duties of the JCNDE

The *Constitution and Bylaws* of the American Dental Association indicate that the duties of the JCNDE shall be to:

- Provide and conduct examinations for all purposes, including assisting state boards of dental examiners in determining qualifications of dentists and other oral health care professionals seeking certification and/or licensure to practice in any state or other jurisdiction of the United States.
- Make rules and regulations for the conduct of examinations and the certification of successful candidates.
- Serve as a resource for dentists and other oral health care professionals concerning the development of examinations.
- Provide a means for a candidate to appeal an adverse decision of the Commission.
- Submit an annual report to the ADA House of Delegates and interim reports, on request.
- Submit an annual budget to the ADA Board of Trustees.

# JCNDE Governance

In fulfillment of its *Bylaws* duties, the JCNDE oversees the following licensure examination programs:\*

- National Board Dental Examination Part I
- National Board Dental Examination Part II
- Integrated National Board Dental Examination (INBDE)
- National Board Dental Hygiene Examination (NBDHE)
- Dental Licensure Objective Structured Clinical Examination (DLOSCE)

\* NBDE Parts I and II are scheduled to be sunset on December 31, 2020 and July 31, 2022, respectively. The INBDE is designed to replace these examinations.

# JCNDE Mission and Vision

## Mission

Protecting public health through valid, reliable and fair assessments of knowledge, skills, and abilities to inform licensure and certification decisions that help ensure safe and effective patient care by qualified oral healthcare team members.

## Vision

The JCNDE is the nation's leading resource for supporting standards of oral healthcare professionals through valid, reliable and fair assessments for licensure and certification.

# DLOSCE Background

- In February 2017, the American Dental Association's (ADA's) Board of Trustees (BOT) approved development of the DLOSCE, and authorized formation of a DLOSCE Steering Committee charged with the task of developing and validating this examination.
- Since its first meeting in July 2017, members of the DLOSCE Steering Committee worked diligently to lay the foundation for this examination program (test content domain, test specifications, test construction team structure, test format, etc.), with the assistance of the DLOSCE Working Committee and staff from the Department of Testing Services.
- Development and implementation of the DLOSCE has required several years of intense focus and concerted effort by highly qualified dental subject matter experts
- Based on the recommendation of the DLOSCE Steering Committee—and with the full support of the JCNDE—the ADA BOT transferred DLOSCE governance to the JCNDE in January of 2020.

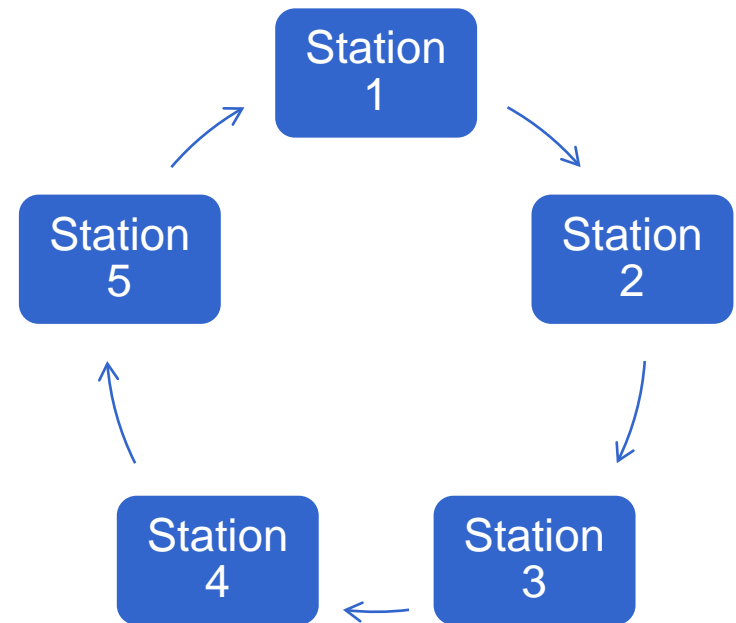


# Why develop the DLOSCE?

- Gives dental boards the ability to identify those who lack the skills necessary for safe practice, using a professionally developed examination backed by strong validity evidence.
- Eliminates undesirable situations and complications that can arise from the use of patients in the examination process (e.g., patient's more pressing needs not treated in lieu of pursuing the "perfect lesion").
- Allows for more objective and comprehensive measurement of candidate skills.
- **Helps dental boards in their mission to protect the public.**

# What is an Objective Structured Clinical Examination (OSCE)?

- A method of measurement
- Candidates rotate through short, standardized stations
- Assesses clinical competence, patient communication skills, knowledge of clinical procedures, prescription writing, etc.
- Widely used in the health sciences
- Success requires critical thinking
- OSCEs are evolving



# Why conduct an OSCE?

- Benefits include:
  - Assesses broad range of skills, including clinical and theoretical knowledge
  - Standardized (stations, competencies, tasks)
  - Strong validity evidence
  - Reliable
  - Fair

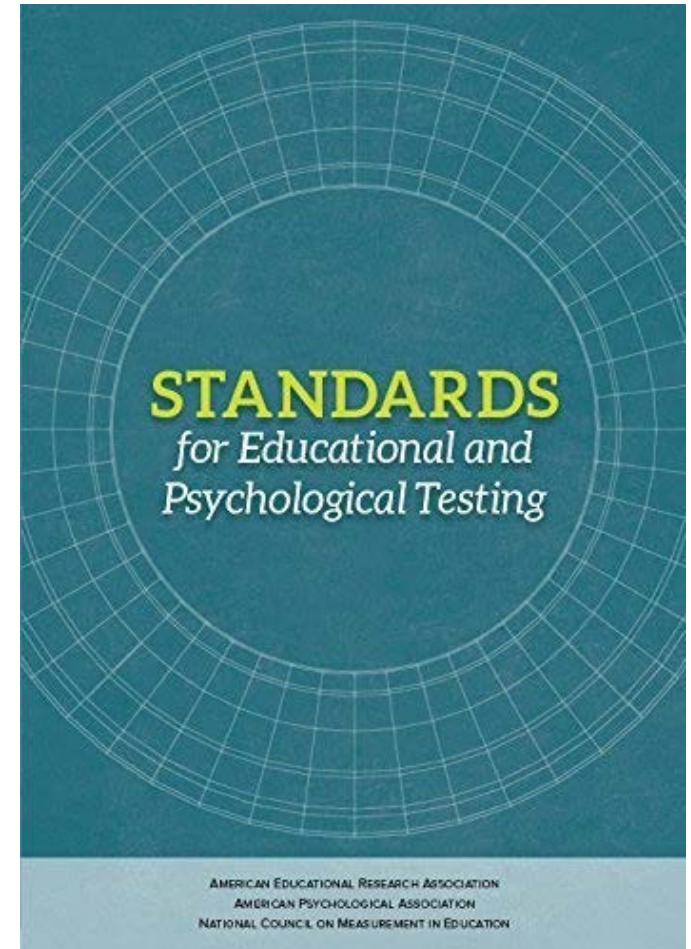
# Can OSCEs currently be found in dental licensure?

- The OSCE developed by the National Dental Examining Board (NDEB) of Canada provides an example of one possible approach.
  - Development is a recurring, critical activity undertaken by experts, with questions selected by general practitioners to ensure clinical relevance.
  - The OSCE is administered three (3) times per year (March, May, and November) in fixed testing windows.
  - Administrations include 50 physical stations with two questions each, plus rest stations. Stations are focused and short (5-minutes).
  - NDEB Canada anticipates transitioning to a “Virtual OSCE” in March 2022.
- In a study involving 2,317 students at nine Canadian dental schools, Gerrow et al. (2003) found positive correlations between students’ examination scores and final year results.
  - Written examination and final year results: ( $r=0.43$ ,  $p<.001$ )
  - OSCE and final year results: ( $r=0.46$ ,  $p<.001$ )

Source: Gerrow, J.D., Murphy, H.J., Boyd, M.A., and Scott, D.A. (2003). Concurrent validity of written and OSCE components of the Canadian Dental Certification Examinations. *Journal of Dental Education*, 67 (8), 896-901.

# The Standards for Educational and Psychological Testing

- In building the DLOSCE, the primary focus has been on validity, the evidence that supports the interpretation and use of examination results.
- The *Standards* were developed by the American Educational Research Association (AERA), American Psychological Association (APA), and the National Council on Measurement in Education (NCME).
- The *Standards* provide considerations for developing and implementing valid examinations.
- The *Standards* and industry best practices have guided DLOSCE design, construction, and implementation.



# Validity Evidence

- Release of the DLOSCE in 2020 was based on content validity evidence; National Board Examinations are ALL supported by content validity evidence.
  - Establishment of content domain through practice analysis; reliance on subject matter experts and their judgment to determine item allocations, structure test development activities, build and review content, establish standards, etc.
- Data was collected at the time of administration, followed by scoring, standard setting, reporting, and then follow-up documentation (technical report) to provide information on obtained psychometric properties, etc.
- The practice of employing window testing and delayed reporting of scores is an accepted and valid means of test development, and was in fact pursued by the Joint Commission for decades, prior to the Joint Commission's transition to computer based test administration.
- The JCNDE follows established psychometric and test development procedures, proceeding with appropriate deference shown to the guidelines provided in the *Standards for Educational and Psychological Testing*.
- The JCNDE's approach in releasing the DLOSCE is psychometrically defensible while also being sensitive to the great need currently present at a difficult time.

# The DLOSCE Approach

- Assesses understanding of clinical tasks performed in direct chair-side treatment
- Assesses quality, depth, and breadth of clinical judgment
- Assesses higher order processes
- Provides a professionally developed, psychometrically valid tool
  - *Content built by teams of highly qualified and highly dedicated subject-matter experts (150+ test constructors), who are practicing and/or academic dentists*
  - *Questions selected primarily by general practitioners to ensure clinical relevance*
- Builds upon well-established understanding of OSCEs and corresponding research

# What Does the DLOSCE Cover?

- Focal topic areas:
  - Restorative Dentistry (24%)
  - Prosthodontics (19%)
  - Oral Pathology, Pain Management, and TMD (13%)
  - Periodontics (10%)
  - Oral Surgery (9%)
  - Endodontics (8%)
  - Orthodontics (6%)
  - Medical Emergencies (6%)
  - Prescriptions (5%)
- Diagnosis and Treatment Planning—as well as Occlusion—are covered across the topics listed above.
- The DLOSCE includes questions involving patients of various types and backgrounds, including pediatric, geriatric, special needs, and medically complex patients.
- DLOSCE questions are modeled on dental clinical situations.

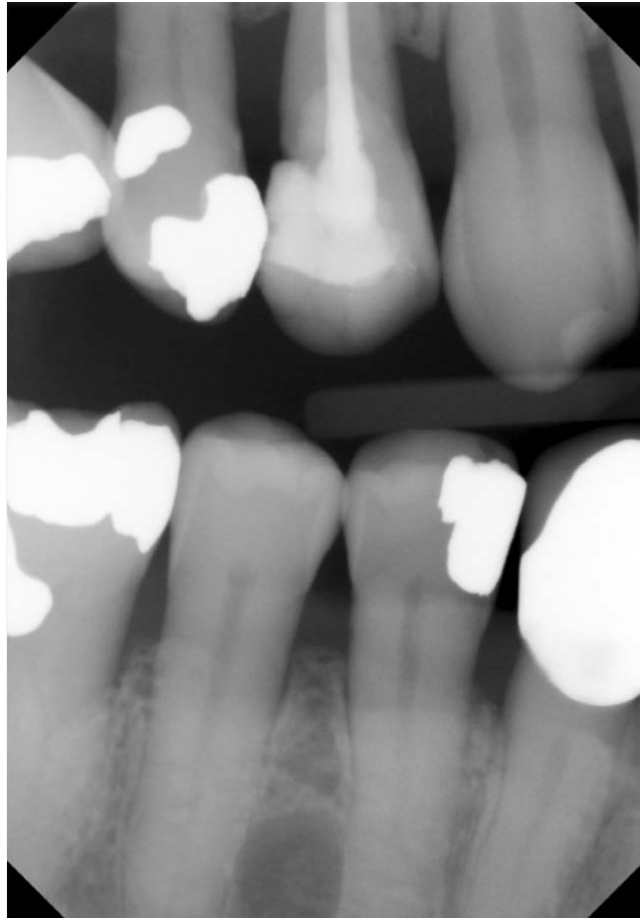


# Evaluation of candidate responses

- Depending on the Question Type, each possible candidate response to DLOSCE questions is evaluated as follows:
  - **Correct.** This represents a correct clinical judgment based on the available information. Depending on the question, candidates can receive either full credit (1 point) or partial credit for a given correct response, as long as they avoided choosing any incorrect responses for the question.
  - **Clinical Judgment Error/Incorrect:** This represents a clinical judgment error. Choosing this response causes the candidate to receive no credit (0 points) for this question, even if a correct response was also selected.
  - **Unscored/Neutral:** This represents an indeterminate situation. These are situations—identified by dental subject matter experts—where given the available information a candidate’s choice of this response is considered neither correct nor incorrect.

# Example of Multiple-Choice, Multiple-Response Question

<b>Patient</b>
Female, 56 years old
<b>Chief Complaint</b>
"I have a bump on my gums"
<b>Background and/or Patient History</b>
<b>Current Findings</b>
Swelling in the lower right premolar area



**See next slide.**

# Example of Multiple-Choice, Multiple-Response Question

Select **ONE OR MORE** correct answers. Any **INCORRECT** selections will result in your earning **NO CREDIT** for this question.

Which should be included in a differential diagnosis?

- A. Normal anatomical variant
- B. Radiographic artifact
- C. Cyst or benign tumor
- D. Malignant tumor
- E. Odontogenic inflammatory condition
- F. Non-odontogenic inflammatory condition
- G. Reactive lesion (simple bone cyst, giant cell lesions)
- H. Fibro-osseous lesion
- I. Traumatic lesion/fracture
- J. Developmental condition
- K. Manifestation of systemic disease

**Correct:** C (partial credit, 0.5 points) and E (partial credit, 0.5 points)

**Unscored/Neutral:** G, H, and K

**Clinical Judgment Error/Incorrect:** Selecting any response other than a “Correct” or “Unscored/Neutral” response causes the candidate to receive no credit (0 points) for this question, even if a Correct response was also selected.

**Content Classification:** Oral Pathology, Pain Management, and Temporomandibular Dysfunction

# DLOSCE 3-Dimensional Models



# DLOSCE 3-Dimensional models



# DLOSCE 3-Dimensional models



# DLOSCE Key Facts

- Contains 150 questions and is administered in 6 hours and 45 minutes.
- Administered in testing windows at select US Prometric test centers:
  - June 15 – July 17, 2020 (completed)
  - November 9 – 27, 2020 (currently underway)
  - April 1 – May 4, 2021
  - July 6 – August 8, 2021
  - December 15, 2021 – January 10, 2022
- Results will be reported within 4 weeks of the closing of each window.
- Offered for a lower fee (\$800) in 2020 and 2021, to help students in light of COVID-19.

Examination Schedule	
Section	Minutes
Tutorial (optional)	25
<b>Section 1 (37 Questions)</b>	75
Break (optional)	10
<b>Section 2 (37 Questions)</b>	75
<b>Section 3 (2 Prescription Questions)</b>	10
Break (optional)	30
<b>Section 4 (37 Questions)</b>	75
Break (optional)	10
<b>Section 5 (37 Questions)</b>	75
Survey	20
<b>Total Time</b>	<b>6 hrs, 45 min</b>

# Acceptance by Dental Boards

- The states below have adopted regulations which permit the acceptance of the DLOSCE. In some states, passage of the DLOSCE only partially fulfills the clinical examination requirement for licensure.
  - Alaska
  - Colorado
  - Indiana
  - Iowa
  - Oregon
  - Washington
- Dental boards in a number of additional states have expressed interest in learning more about the examination.
- See the Coalition for Modernizing Dental Licensure’s map highlighting initial licensure requirements, for additional information:

<https://www.ada.org/en/education-careers/licensure/dental-licensure-by-state-map>



# The Issue of Psychomotor/Hand Skill Evaluation

- The DLOSCE is a “virtual OSCE” that assesses clinical judgment.
- The DLOSCE Steering Committee recognized the importance of hand skills in dentistry, and thoroughly considered the question as to whether to include a measure of hand skills with the DLOSCE (e.g., via a traditional manikin)
- The Steering Committee ultimately chose **not** to include a measure of hand skills with the DLOSCE.

# Why Doesn't the DLOSCE Measure Hand Skills?

**“There is no peer-reviewed scientific evidence that correlates [clinical licensure examination] outcomes with other validated assessments of clinical competence ... the process yields no verifiable value in its ultimate objective of providing for the protection of the public.”<sup>1</sup>**

*This is despite decades of use of these examinations by dental boards.*

*All of these examinations currently include a manikin component.*

<sup>1</sup> Friedrichsen, S.W. (2016). Moving toward 21<sup>st</sup>-century clinical licensure examinations in dentistry. *Journal of Dental Education*, 80(6), 639-640.

# Why Doesn't the DLOSCE Measure Hand Skills?

**“Validity refers to the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests. Validity is, therefore, the most fundamental consideration in developing tests and evaluating tests.**

...

**Evidence of the validity of a given interpretation of test scores for a specified use is a necessary condition for the justifiable use of the test.”<sup>1</sup> (p11)**

American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (2014). Standards for Educational and Psychological Testing. Washington, DC: Author.

# Additional Considerations

- Questionable ethics of performing irreversible procedures on a live patient as part of the licensure process (often not a “patient of record”)
- Potential for patient extortion when live patients are involved.
- Narrow focus (not comprehensive) of clinical licensure examinations, with extremely limited performance sample obtained.
- Clinical grading criteria may not reflect current recommended practice.
- Exams are costly, the logistics of their implementation interfere with the ability of qualified dentists to practice in different states, and nearly everyone ultimately passes (many with no remediation between testing attempts if a failure occurs).
- Dental board disciplinary actions can predominantly be attributed to failures in clinical judgment, ethical issues, substance abuse, etc. (not psychomotor skill deficiency).
- Rigorous accreditation standards and dental education training involving psychomotor skills, currently in place in dental education.
- Published, peer-reviewed research findings from NDEB Canada supporting utilization of an OSCE for licensure purposes, with implementation for two decades without apparent issue.

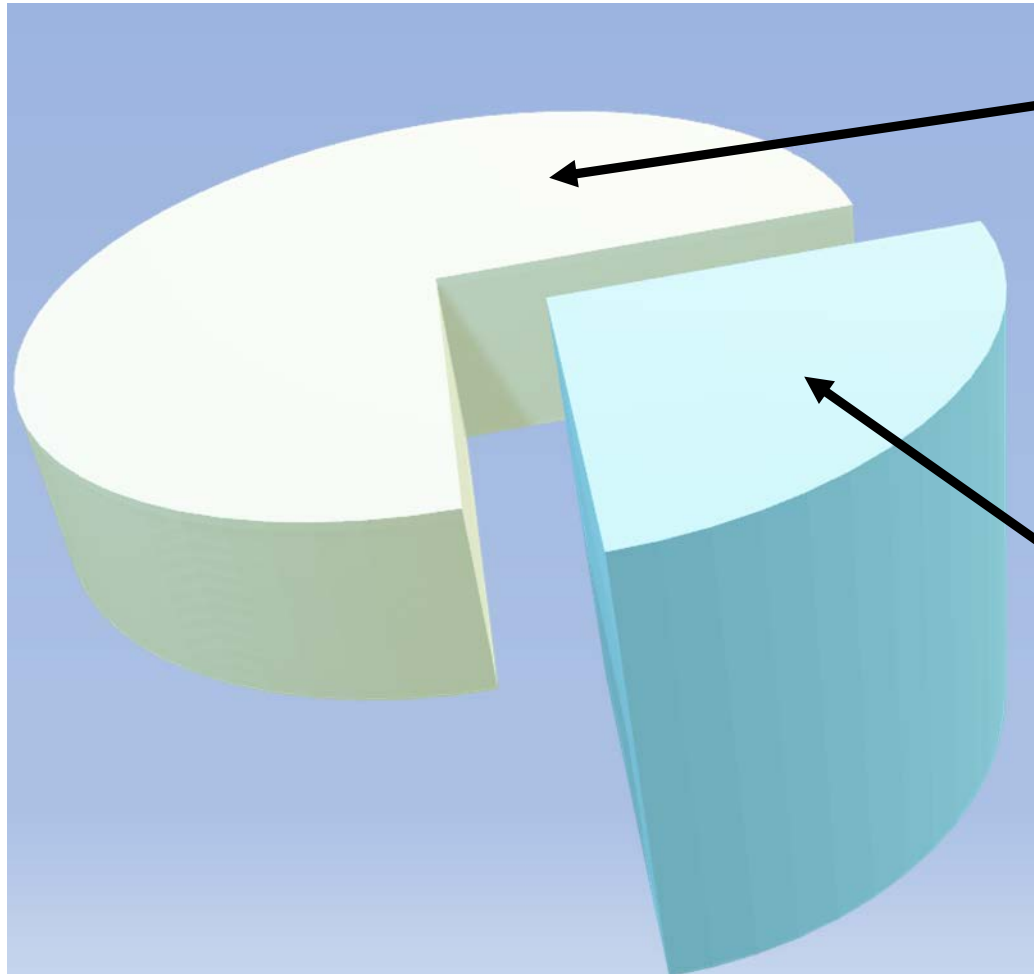
*See the DLOSCE Technical Report for a comprehensive discussion.*

# The Preeminent Role of Clinical Judgment

- In light of the preceding arguments, the DLOSCE Steering Committee determined that the public would be far better served and protected by a comprehensive examination focused upon clinical judgment.
- Clinical judgments have a causal effect on patient outcomes **and** the associated psychomotor behaviors.

Understanding of procedure → Performance of procedure

# How do the DLOSCE and INBDE Differ?



“Domain of  
Dentistry” (INBDE)

**DLOSCE Content  
Domain.** Clinical  
content directly  
applicable to chairside  
treatment. **Also**  
**represents overlap**  
**between INBDE and**  
**DLOSCE.**

# How do the DLOSCE and INBDE Differ?

- The INBDE and DLOSCE **both assess clinical competence** (e.g., *diagnosis and treatment planning, oral health management*). However, key differences exist:
  - The **DLOSCE** is focused exclusively on the **clinical tasks** a dentist performs while providing direct, chair-side treatment to **patients** (*a narrower focus*).
    - Micro-judgments, errors, and knowledge of success criteria
  - The **INBDE** focuses on **cognitive skills** (*a broader focus*).
    - Biomedical and behavioral underpinnings of clinical decisions, knowledge that includes the “why”
    - Practice and profession considerations, evidence based dentistry, being good consumers of research, patient oral health care education, etc.

# How do the DLOSCE and INBDE Differ?

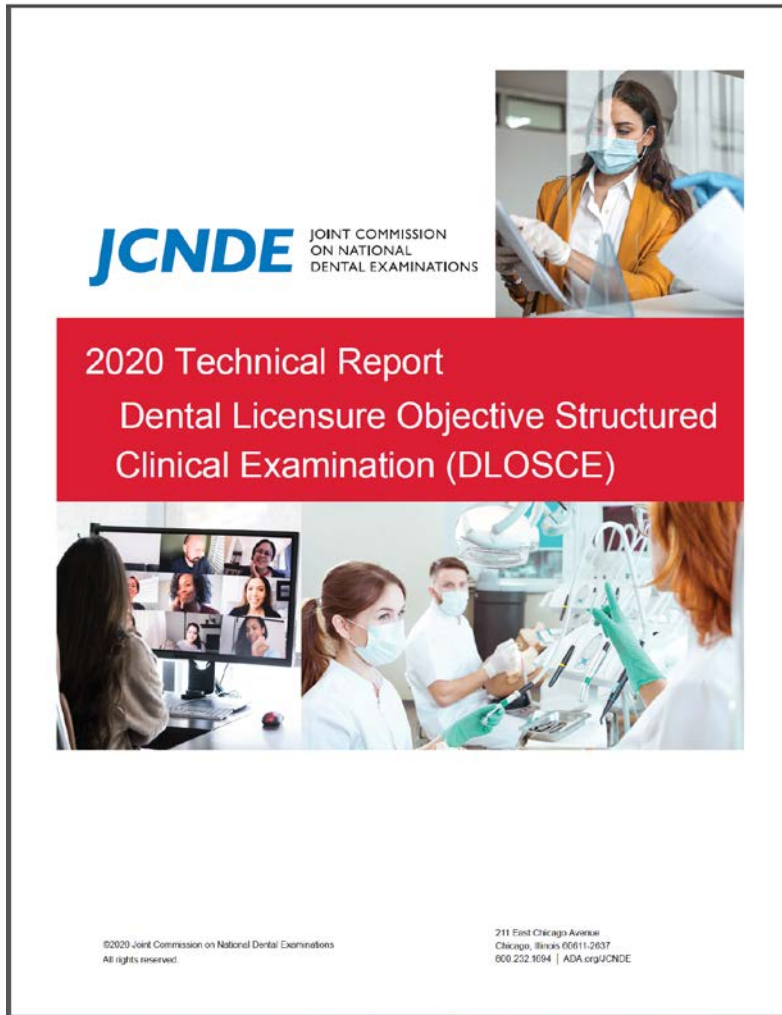
DLOSCE Example	Corresponding INBDE Example
Review patient information and write an appropriate prescription.	Understand basic principles of pharmacokinetics and pharmacodynamics for major classes of drugs and over-the-counter products to guide safe and effective treatment.
Identify the final needle position (point of insertion, angulation, and depth) immediately prior to injection that will best accomplish complete local anesthesia for a given procedure.	Understand local and central mechanisms of pain modulation.
Identify one or more flaws present in a metal-ceramic restoration.	Understand dental material properties, biocompatibility, and performance, and the interaction among these in working with oral structures in health and disease.
Epidemiology and statistics are <u>not</u> covered on the DLOSCE.	Understand the principles and logic of epidemiology and the analysis of statistical data in the evaluation of oral disease risk, etiology, and prognosis.



# Summer 2020 DLOSCE Administrations

- The DLOSCE was released one year ahead of schedule due to COVID-19 considerations
- 120 candidates tested in June and July of 2020
  - 116 were educated by CODA accredited dental programs
  - 4 were educated by non-CODA accredited dental programs
- The vast majority were recent graduates (94% graduated in 2020)
- Each candidate tested at one of 15 available Prometric test centers
  - *Note: In November 2020 the number of available test centers is 170+*
- The majority of candidates (75%) were graduates from dental schools operating in states that accept the DLOSCE
- Candidates voiced positive feedback on the 3-D models, and also helped identify certain improvements
- Results were reported on August 21, 2020
- As noted previously, the DLOSCE's second testing window is currently underway.

# DLOSCE Technical Report



- DLOSCE Technical Report now available on DLOSCE website ([ada.org/dlosce](https://ada.org/dlosce)).
- Documents DLOSCE psychometric properties and validity evidence.
- Includes expanded discussion of DLOSCE content and the question of psychomotor skill evaluation.

# Correlations with Important Outcomes

## Observed Correlations among the DLOSCE and NBDEs (N=120)

Score	DLOSCE	NBDE Part I	NBDE Part II
DLOSCE	1.00		
NBDE Part I	.46	1.00	
NBDE Part II	.60	.65	1.00

# Failure Rates

## DLOSCE Failure Rates by Candidate Group: Summer 2020\*

	Accredited <sup>†</sup>		Non-Accredited <sup>‡</sup>		Total	
	Number	% Failing	Number	% Failing	Number	% Failing
Summer 2020	116	8.6%	4	25.0%	120	9.2%

<sup>†</sup> Indicates candidates educated by dental schools accredited by the Commission on Dental Accreditation.

<sup>‡</sup> Indicates candidates educated by dental schools not accredited by the Commission on Dental Accreditation.

Note: The non-accredited group failure rate is presented for the sake of completeness, but must be interpreted with caution due to the small sample size.

# Candidate Feedback

## *Feedback from candidates completing the DLOSCE:*

“I think this was very well done and the future of dental licensure. It is a much more accurate assessment of clinical preparedness than a single encounter patient experience.”

“Thank you for making this test available for the Class of 2020 - truly I appreciate the efforts to make this test happen despite the uncertain changes the COVID pandemic brought to the healthcare profession. This was a fun exam and I believe the members involved in making this test happen have made a milestone for dentistry to move toward a more ethically sound path to licensure. Thank you and stay safe!”

“I really appreciated that this exam was clinically relevant and I found it to be much more thorough at assessing a clinician's skills and judgment than a one-day experience in the clinic (i.e. live patient exams such as WREB)”

## *General comments (paraphrased):*

Would like to remove teeth in 3-D models to see better; with regard to interproximal contacts, would be nice to be able to use floss; exam was very difficult (if you choose an incorrect response option, the whole question is marked wrong)

# Why Should the Dental Board in your State use the DLOSCE?

- **The DLOSCE helps dental boards in their mission to protect the public.**
- The DLOSCE measures clinical judgment
  - Disciplinary actions by dental boards largely focus on errors in clinical judgment.
- The DLOSCE is supported by strong validity evidence.
  - Extensive reliance on 150+ highly qualified subject matter experts who build examination content
  - Clinically relevant content that mirrors the dental practice
  - Supported by a team of measurement professionals with advanced degrees (psychometrics, etc.)
- The DLOSCE gives dental boards the ability to identify those who lack the skills necessary for safe practice, using a professionally developed examination backed by strong validity evidence.
- The DLOSCE provides objective and comprehensive measurement of candidate skills.
- The DLOSCE is not subject to any further shutdown of dental school clinics due to the pandemic.
- The Joint Commission on National Dental Examinations (JCNDE) has a long and successful track record of delivering high quality, high stakes licensure examinations that are used by boards to help protect the public.

# How Can You Help Promote the DLOSCE?

***Development of the DLOSCE has been an historic undertaking. Many have voiced an interest in being a part of this effort to modernize dental licensure.***

- Help build a consensus within your state association, in support of the DLOSCE.
- Help build a consensus within local dental schools, in support of the DLOSCE.
- Together with your state dental association and local dental school(s), advocate for the DLOSCE with your state's dental board.
- Request that your state dental board accept successful completion of the DLOSCE as complete fulfillment of boards' clinical licensure examination requirement.
- Consider joining the Coalition for Modernizing Dental Licensure
  - Web: [www.dentallicensure.org](http://www.dentallicensure.org)      Email: [info@dentallicensure.org](mailto:info@dentallicensure.org)

# Additional Information and Resources

- Practice Questions
- 3D Model Tutorial
- DLOSCE Candidate Guide
- DLOSCE Quick Facts
- DLOSCE Technical Report
- Summary of Content Validity Evidence
- Recorded Webinars
  - Dental Boards
  - Dental Students
  - Dental Educators
- Key JCNDE links for additional information ([ada.org/dlosce](https://www.ada.org/dlosce))
  - <https://www.ada.org/en/jcnde/dental-licensure-objective-structured-clinical-examination/news-and-resources>
  - <https://www.ada.org/en/jcnde/dental-licensure-objective-structured-clinical-examination/test-preparation>



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# Q & A



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# Thank you!

The JCNDE appreciates your interest in the DLOSCE.