

Department of Testing Services (DTS)

and the

Dental Licensure Objective Structured
Clinical Examination (DLOSCE)

63rd Southern Conference of Dental Deans and Examiners
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Conflict of Interest Declaration Form

We, the undersigned, declare that neither we nor any member of our family has a financial arrangement or affiliation with any corporate organization offering financial support or grant monies for this continuing dental education program, nor do we have a financial interest in any commercial product(s) we will discuss in the presentation.

- Dr. Richard Black
- Dr. Kathy Hinshaw
- Dr. Matt Grady

Topics

DLOSCE – Dr. Black

- Background
- ADA Policy and OSCE Acceptance
- Steering Committee
 - ✓ Composition/ Appointees
 - ✓ Activities
- Website, Communications, and Resources

Introduction to DTS– Dr. Hinshaw

- Who are we?
- Units
- Activities
- What do we do?
- Governing bodies
- Testing programs

DLOSCE Development – Dr. Grady

DLOSCE Background

- At the request of the Council on Dental Education and Licensure (CDEL), a business plan was developed by the ADA Department of Testing Services (DTS) under the direction and guidance of CDEL.
- Both CDEL and the ADA/ADEA Joint Licensure Task Force strongly endorsed the business plan.
- As recommended by the ADA Board of Trustees Budget and Finance Committee, in February 2017 the Board of Trustees approved the requested funds to begin examination development in 2017.
- BOT authorized formation of a DLOSCE Steering Committee, charged with the task of developing and validating the DLOSCE.
- **Pilot exam will be available in late 2019, with deployment in 2020.**

ADA Policy and OSCE Acceptance

- DLOSCE development supports ADA policy calling for the elimination of patients from the dental licensure examination process.
- DLOSCE will serve as another tool that state boards can use to help determine candidate qualifications for licensure.
- Each dental board will make its own choice on whether or not to use the DLOSCE.
- Currently Colorado and Washington accept an OSCE for initial licensure, with no restrictions.
- Currently Minnesota accepts the Canadian OSCE for initial licensure. Canadian OSCE is administered annually at the University of Minnesota, for UM graduates only.
- Other states currently considering an OSCE for initial licensure, with no restrictions.

DLOSCE Steering Committee Composition

Per the directive of the ADA Board of Trustees, the composition of the DLOSCE Steering Committee includes:

Number of Members	Representing Stakeholders
2	ADA Board of Trustee members
2	Council on Dental Education and Licensure (CDEL) -- general practitioners
2	Dental educators -- experience in teaching comprehensive clinical dentistry
2	Current state dental board members -- practicing dentists

DLOSCE Steering Committee

- Dr. Gary L. Roberts, former ADA president, has appointed the following individuals to the DLOSCE Steering Committee:

BOT Directive	Appointee
ADA Board of Trustees members	Dr. Richard Black- Chair (TX) Dr. Roy Thompson (TN)
CDEL members who are general dentists	Dr. Edward J. Hebert (LA) Dr. Prabu Raman (MO)
Educators with experience teaching comprehensive clinical dentistry	Dr. Michael Kanellis (IA) Dr. Frank Licari (UT)
Current state dental board members	Dr. David Carsten (WA) Dr. Mark R. Stetzel (IN)

DLOSCE Steering Committee Activities

- Identify governance structure for DLOSCE administration
 - Governance structure must avoid conflicts of interest; potential means of accomplishing this could be through a Commission.
- Identify and establish examination content areas and test specifications (using results from a practice analysis).
- Establish general structure for examination and permissible item formats (multiple choice, manikin, haptic feedback device, etc.).
 - Contract key vendors (e.g., technology, testing vendors) to support examination administration.
- Establish test construction team (TCT) structure.
 - Call for Test Constructor applications (subsequent to CDEL approvals).
- Identify state(s)/region(s) for the DLOSCE field test(s).
- Develop the examination guide.

DLOSCE Website and Resources

<https://www.ada.org/en/education-careers/dental-licensure-objective-structured-clinical-examination/dental-licensure-objective-structured-clinical-examination-faq>

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Test (ADAT)

Dental Admission Test (DAT)

*Dental Licensure Objective
Structured Clinical
Examination (DLOSCE)* >

Home > Education and Careers > Objective Structured Clinical Examination

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Dental Licensure Objective Structured Clinical Examination (DLOSCE) FAQ

Answers to frequently asked questions about the Dental Licensure Objective Structured Clinical Examination (DLOSCE) are provided below. To view the answer, click the question and the answer will appear. For additional information, read the [March 10, 2017](#) and [April 24, 2017](#) articles in ADA News.

What is an objective structured clinical examination (OSCE)? >

Why were OSCEs developed and where are they used? >

Are there any states that currently accept an OSCE for initial licensure? >

Do any of the regional clinical examination agencies administer an OSCE for initial dental licensure? >

What is the purpose of the ADA DLOSCE? >

ADA News

ADA Board of Trustees votes to create national dental licensure exam

Competency test averts potential ethical issues involved in the use of patients

March 10, 2017

By Kimber Solana

The ADA took a giant step forward in February to create a national exam to assess a licensure candidate's entry-level clinical knowledge, skills and competency — while averting the potential ethical issues involved in the use of patients for dental licensure examinations.

The ADA Board of Trustees voted last month to approve the development of an objective structured clinical examination (OSCE), a type of high-stakes exam that evaluates clinical and critical thinking skills, widely used in health sciences, including optometry, medicine, nursing and physical therapy.

The Board directed that a pilot of the Dental Licensure Objective Structured Clinical Examination (DLOSCE) be available in 2019; and an exam deployment in 2020.



Dr. Roberts

ADA News

Committee members overseeing the development of national dental licensure exam appointed

April 24, 2017

By Kimber Solana

The Association announced April 7 the eight members of a new steering committee tasked with overseeing the development and implementation of an Objective Structured Clinical Examination for dental licensure purposes.

The DLOSCE is intended to be a national exam that may be used by state boards of dentistry to assess a dental licensure candidate's entry-level knowledge, skills and competency, while averting the potential ethical issues involved in the use of patients for dental licensure examinations. It will become another clinical examination option for state dental boards to choose for their state.



Per the directive of the ADA Board of Trustees, which approved the creation of the exam in February, the DLOSCE Steering Committee includes two members of the Board; two general practitioner members of the Council on Dental Education and Licensure, both of whom are general practitioners; two dentist educators with experience teaching comprehensive clinical dentistry; and two current state dental board

DTS - Who Are We?

- ❑ The Department of Testing Services (DTS) is a shared service of the American Dental Association (ADA) that provides professional examination services in all areas of high stakes testing (e.g., content development, administration, analysis, and reporting).
- ❑ DTS is one of five departments in the Division of Education/Professional Affairs (approximately 75 division staff).
- ❑ DTS is the largest department at the ADA (approximately 41 department staff).

DTS Units

Examination Content, Scoring, Analysis, New Development

Test Development

Conducts Test Construction Team (TCT) meetings for seven examination programs (80+ meetings annually)

Research & Development - Psychometrics

Oversees analysis and scoring of examinations (45,000+), professional investigations, and technical publications in support of examination programs

New Psychometric Development & Innovations

Provides psychometric support in the development of new testing programs.

DTS Operations

Test Administration

Oversees application processing and test vendor administrations (40,000+ examinations)

Responds to phone calls, live chats, emails, faxes (nearly 70,000 annually)

Resolves testing day problems

Test Security and Fraud Prevention

Test security policies, procedures, and candidate appeals; risk assessment

Communications

Provides communications for stakeholders and communities of interest

Client Services/Special Projects

Project management and services to outside clients

Volunteer and Meeting Coordination

Oversees volunteer activities and meeting logistics for TCT and governance meetings.

DTS Activities

Multiple, simultaneous, complex projects managed by a management team of 10 with the support of an additional 31 department staff.

Professionally trained staff who have a broad range of educational foundations (bachelor to doctorate) with experience from a broad range of fields and disciplines.

	A	B	C	D	E	F	G	H	
3			and select a random sample representative of dental school population. Repeat of participation proves to be low. Write a step-by-step process, need content for Dental Dean letter.						
4	Project INBDE		INBDE invitations - going out every 2 weeks, starting Sept. 5, Sept. 19, Oct. 3, Oct. 17, Nov. 1	A	A	Nick	9/5/2017	Wait for Dental Dean letter to go out.	
5	Ongoing Activity / External Clients		Score ACID exam - due 8/18 (goal 8/11) and Sept. 8 (goal 8/31)	A	B	Chien-Lin	9/8/2017	Also Ellen	
6	JCNDE		Mandatory JCNDE Conference Call	A	A	Dave	9/13/2017	Determine next steps regarding Bylaws changes proposed for Dental Therapy June 2017. Material is posted on ADA Connect.	
7	Ongoing Activity / Project	x	ADAT Sept. 14 - Publish percentile scores	B	B	Chien Lin	9/14/2017	Target date 9/14 (not 12/31) - ojr 8/9/2017	
8	Project INBDE		JCNDE Strategic Planning Retreat: 1) secure facility; Betsey; 2) survey for commissioners Ellen (ON HOLD as of 8/17); 3) contract for consultant-Kathy; 4) agenda-Kathy	A	B	Kathy	9/15/2017	May 14 to 16, 2018 retreat: begin 5/14/18, continue afternoon 5/15/18 (after standing committee meetings), conclude afternoon 5/16/18; Betsey working on contract with the Ritz	
9	Project INBDE		OptomCAS transition information	B	B	Nick	9/15/2017	Provide information that Paige can distribute to the optometry schools to alleviate some confusion about scores in OptomCAS vs scores in the DTS Hub	
10	Ongoing Activity / Test Publication	8/15/2017	OAT Practice Test (2016-2017) DAT Practice Test (2016-2017)		C	B	Ellen	9/15/2017	Content due to Prometric on 9/15. Pending with Prometric - schedule TPD review session. Set GO LIVE date for Nov. 20th.
11	Project DLOSCE		Minutes from July 24 DLOSCE Steering Committee meeting	A	A	Alix	9/30/2017	Dave's review	
12	Ongoing Activity	x	Test Publication Multi Year Schedule - review	A	B	Ellen	9/30/2017	Finalize 2018 schedule. DONE 8/17. 8/30 - Dave has comments on the notes from the meeting.	
13	Ongoing Activity / JCNDE		JCNDE Orientation November 2017	B	B	Kathy-Sara-Betsey-Bryan	9/30/2017	Kathy=agenda; Bryan=update irregularities/appeals PPT; Sara=update member roster and resource materials; Betsey=logistics	

DTS Activities

- Administer 45,000+ examinations
- 75,000+ phone calls, live chat, email and fax correspondence
- DENTPIN requests/updates
- Publication of examination guides, website updates, etc.
- Examination/test applications including fee waiver requests and testing accommodations
- Score reporting and fulfill additional score report requests (30,000+)
- Fulfill orders for NBDHE released item sets and National Board certificates.
- Resolve issues/problems with testing (emergencies, ID problems, testing conditions)
- Conduct 80+ test construction committee meetings
- Examination services for contracted clients
- R&D staff research publications and presentations
- Activities conducted by professionally trained staff

DTS – What do we do?

- ❑ DTS develops and conducts highly reliable, state of the art examinations that assist stakeholders and communities of interest in making valid decisions regarding admission and licensure decisions of future oral health care professionals.
- ❑ Under the direction of the agencies it supports, DTS advises on industry standards and best practices with professional experience, and implements policy for the secure and fair administration of its examination programs.

DTS - Governing Bodies - Testing Program

DTS, a shared service of the ADA, implements high-stakes admission/licensure testing programs for the following governing bodies:

Joint Commission on National Dental Examinations (JCNDE)	Council on Dental Education and Licensure (CDEL)
<ul style="list-style-type: none"> • National Board Dental Examinations (NBDE) <ul style="list-style-type: none"> <input type="checkbox"/> Part I <input type="checkbox"/> Part II <input type="checkbox"/> INBDE (Under development; will replace NBDE Part I in 2020 and NBDE Part II in 2022) <input type="checkbox"/> NBDHE 	<ul style="list-style-type: none"> • Dental Admission Test (DAT) • Advanced Dental Admission Test (ADAT)
Outside Clients	ADA Board of Trustees - DLOSCE Steering Committee
<ul style="list-style-type: none"> • Optometry Admission Test (OAT) • Canadian Dental Admission Test (CDAT) • Additional clients 	<ul style="list-style-type: none"> • Dental Licensure Objective Structured Clinical Examination (DLOSCE)

DTS Testing Programs

JCNDE JOINT COMMISSION
ON NATIONAL
DENTAL EXAMINATIONS

NBDE Part I
NBDE Part II
NBDHE
INBDE (in development)

ADA American Dental Association®
America's leading advocate for oral health

DAT
ADAT

DLOSCE
(Board of Trustees
directive)

Outside Clients

ASCO ASSOCIATION OF SCHOOLS AND COLLEGES OF OPTOMETRY
Advancing and Promoting Optometric Education

OAT Optometry
Admission Test



CANADIAN
DENTAL
ASSOCIATION

Special Care
DENTISTRY
ASSOCIATION



Academy
of General Dentistry®

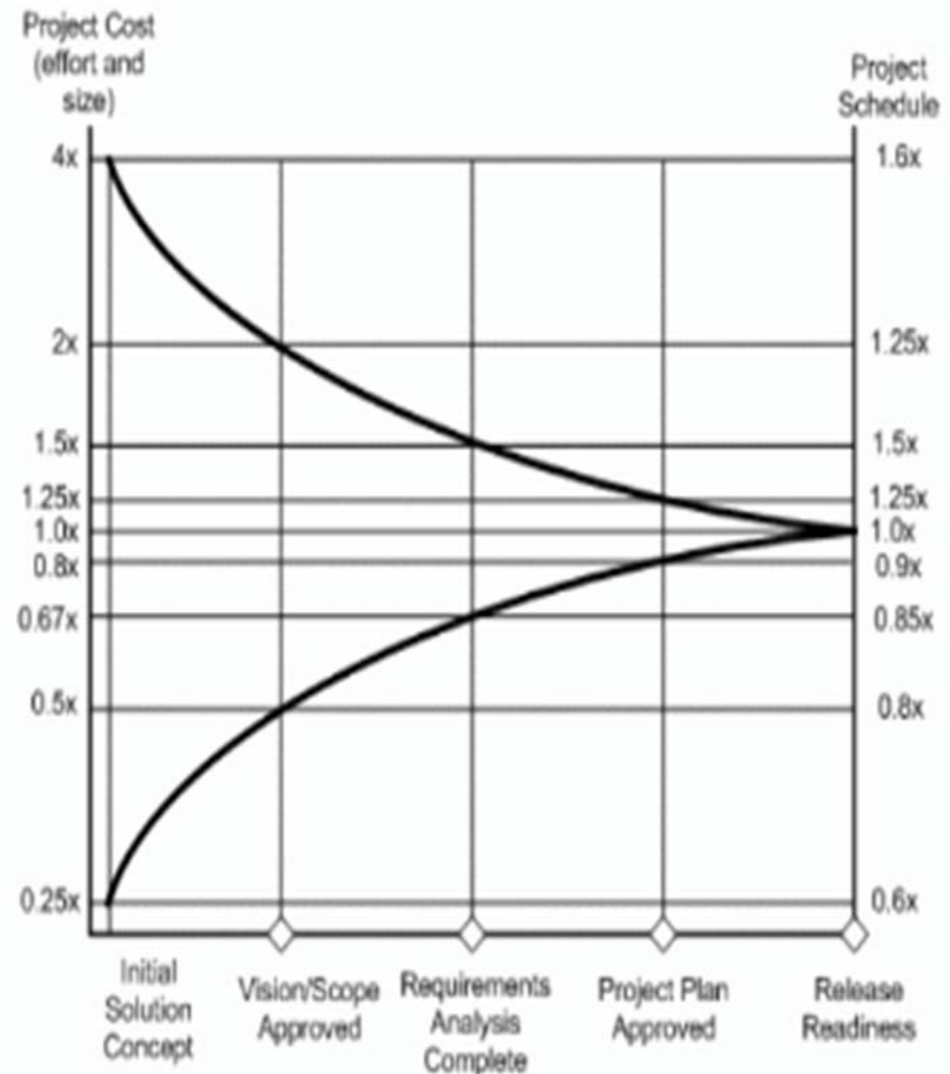
DLOSCE Development: Considerations and Steps

Overview

- Where are we now?
- Objective Structured Clinical Examinations (OSCEs)
- The *Standards for Educational and Psychological Testing*
- Steps in the test development process

DLOSCE Development

- We are in the beginning phases of a complex undertaking.
- Development of a DLOSCE represents an innovative research endeavor.
 - Research findings can sometimes perplex.
 - Planning has to be flexible to address project needs and stay as close as possible to schedule.



Objective Structured Clinical Examinations (OSCEs)

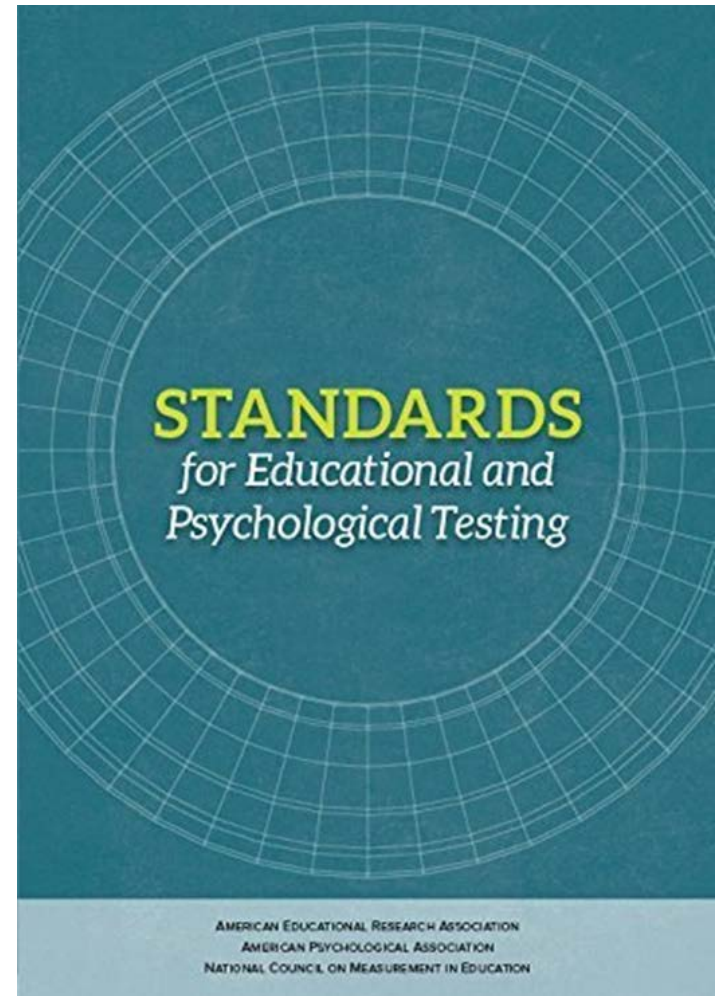
- Objective Structured Clinical Examinations (OSCEs) were developed to assess clinical competence in the medical field
- OSCEs are now widely used in the health sciences
 - Part of the US Medical Licensing Examination for all US medical graduates
 - The NDEB Canada uses an OSCE for dental licensure in Canada
- OSCEs can measure clinical skills such as communication, clinical examination, knowledge of procedures, prescriptions, etc.
- Typically, examinees rotate through a circuit of short standardized stations (e.g., 5 to 10 minutes each)
- Stations can focus on different elements of clinical competence

OSCE Benefits

- OSCEs offer many potential benefits (Harden, Lilley, and Patricio, 2016):
 - Can assess a broad range of clinical skills
 - All examinees are assessed using the same stations, on the same competencies and the same tasks
 - Allows for more reliable skill assessment
 - Can assess candidate skills without endangering patient health
 - Capable of assessing clinical and theoretical knowledge
 - Improved candidate perceptions of fairness

Standards for Educational and Psychological Testing (2014)

- DLOSCE development efforts will be informed by the *Standards for Educational and Psychological Testing*
- The *Standards* provide considerations for developing, implementing, and evaluating tests
- The *Standards* were developed by the American Educational Research Association (AERA), American Psychological Association (APA), and the National Council on Measurement in Education (NCME)



Validity

- The concept of *validity* is the most important fundamental consideration in developing and evaluating tests (AERA et al., 2014, p. 11)
- Validity refers to the degree to which evidence and theory support a specific interpretation of a test score for a proposed use (AERA et al., 2014, p. 11)
- A *validity argument* lays out the evidence in support of a specific interpretation of a test score
- **Standard 1.0.** Clear articulation of each intended test score interpretation for a specified use should be set forth, and appropriate validity evidence in support of each intended interpretation should be provided (AERA et al., 2014, p. 23)

Validity: An Example

- An example...
- **Intended test use:** A testing organization might propose that its examination can be *used* by dental boards to identify candidates who do NOT possess the clinical skills required for safe practice
- **Proposed score interpretation:** The organization might propose that scores from the examination can be *interpreted* as representing “competence” with respect to the clinical skills required for safe practice
- Validity is the degree to which evidence and theory support that specific score interpretation

The Validation Process

- *Validation* is the process of developing a validity argument and collecting evidence to support that argument
- Kane (2013) has indicated that validation involves evaluating the coherence and completeness of arguments supporting the interpretation of test scores for a given purpose
- When acquired validity evidence reveals weaknesses or deficiencies, the testing organization is expected to take steps to address the deficiencies to strengthen the validity argument
- The validation process is an ongoing one – validity should not be thought of as being dichotomous (yes/no)

Content-related Validity Evidence

Content-related Validity Evidence

- According to the *Standards*, “Validation of credentialing tests depends mainly on content-related evidence, often in the form of judgments that the test adequately represents the content domain associated with the occupation or specialty being considered” (AERA et al., 2014, p. 175)
- “Construct underrepresentation” – a threat to validity – occurs when test content does not fully represent the relevant content domain (AERA et al., 2014, p. 175)

Content-related Validity Evidence: Practice Analysis

- Typically, some form of *practice analysis* provides a basis for defining the content domain covered by a licensure test (AERA et al., 2014, p. 182)
- A practice analysis is a systematic study of the tasks performed by members of a given occupation or profession (e.g., general dentistry)
- Often, a practice analysis involves surveying members of the profession regarding the frequency with which they perform certain tasks, and the criticality of those tasks in practice
- The results of a practice analysis help test developers establish “a close link between test content and the job or professional/occupational requirements” (AERA et al., 2014, p. 178)

Content-related Validity Evidence: Expert Judgment

- Typically, decisions about examination content are informed by judgments from *subject matter experts* who are familiar with the requirements of the profession/occupation (AERA et al., 2014, p. 175)
- Subject matter experts often provide judgments regarding the appropriateness or representativeness of the content appearing on a licensure examination (AERA et al., 2014, p. 25)
- Expert judgment can provide a rationale and evidence in support of the inclusion or exclusion of certain content from an examination

Reliability

- In testing, *reliability* refers to the consistency of scores across replications of a testing procedure (AERA et al., 2014, p. 33)
- **Standard 2.0.** Appropriate evidence of reliability/precision should be provided for the interpretation for each intended score use (AERA et al., 2014, p. 42)
- Reliability is reduced by random error, which can be caused by such things as fluctuations in candidate attention or memory, momentary distractions present in the testing environment, and inconsistencies in examiner ratings
- Evidence of high score reliability strengthens a validity argument

Standard Setting

- *Standard setting* is the process of determining a cut score for an examination
- **Standard 5.21.** When proposed score interpretations involve one or more cut scores, the rationale and procedures used for establishing cut scores should be documented clearly (AERA et al., 2014, p. 107).
- **Standard 5.22.** When cut scores defining pass-fail or proficiency levels are based on direct judgments about the adequacy of item or test performances, the judgmental process should be designed so that the participants providing the judgments can bring their knowledge and experience to bear in a reasonable way (AERA et al., 2014, p. 108).

Documentation of Validity Evidence

- “Supporting documents for tests are the primary means by which test developers, publishers, and other providers of tests communicate with test users” (AERA et al., 2014, p. 123)
- “The objective of the documentation is to provide test users with the information needed to help them assess the nature and quality of the test, the resulting scores, and the interpretations based on the test scores” (AERA et al., 2014, p. 123)
- **Standard 7.4.** Test documentation should summarize test development procedures, including descriptions of the results of the statistical analyses that were used in the development of the test, evidence of the reliability/precision of scores and the validity of their recommended interpretations, and the methods for establishing performance cut scores (AERA et al., 2014, p. 126)

Twelve Steps for Test Development (Downing, 2006)

1. Planning	7. Test Administration
2. Content Definition	8. Test Scoring
3. Test Specifications	9. Standard Setting
4. Item Development	10. Reporting Test Results
5. Test Design and Assembly	11. Item Banking
6. Test Production	12. Technical Reports / Validation

Step 1: Planning

- Identify the test purpose
 - How will the test be used?
 - How should the test scores be interpreted?
- What validity evidence is needed to support the proposed score interpretation?
 - What specific studies must be conducted?
- How will the test be administered?
 - Paper and pencil? Computer-based?
- How will the test be scored?
- What is the timeline and schedule for exam development?

Step 2: Content Definition

- What content will the examination cover?
 - What knowledge, skills and abilities comprise the content domain?
- Practice analysis
 - A systematic study of the tasks performed by members of the profession
 - How will the practice analysis be conducted?
 - How will the practice analysis results inform content decisions?
- Subject matter expert judgment
 - Which subject matter experts to include?
 - Desired qualifications and characteristics?

Step 3: Test Specifications

- How many stations? How many items per station?
- What visual and physical stimuli to use?
 - Radiographs, photographs, models?
- How much time per station?
- What item formats to include?
 - Selected response? Constructed response?
- How will items be scored?
 - Partial credit?

Step 4: Item and/or Station Development

- Which subject matter experts will develop the items and stations?
 - Desired qualifications and backgrounds?
- Specifying test construction process and structure (e.g., teams)
- How will item/station developers be recruited and selected?
- How will item/station developers be trained?
 - What training materials must be created?
- How will developed items/stations be reviewed and quality controlled?

Step 5: Test Design and Assembly

- How will items and stations be formatted and presented?
- Are multiple versions of the test needed?
 - How will the versions be assembled?
- How will new items and stations be pretested?

Step 6: Test Production

- Which vendor(s) will administer the examination?
- How must the test be package for delivery?
- Who will review and quality control the administered test?
 - Do visual and/or physical materials appear properly?
- How will test content be protected during the production phase?

Step 7: Test Administration

- Must ensure standardized testing conditions
 - Enforce time limits, permissible materials
- How will test fraud be prevented?
 - Protecting test security and content during the administration phase
- Will the test be administered during fixed testing windows? Or continuously throughout the year?
- What type of accommodations will be provided to candidates?
- Development of Candidate Guides that outline rules and procedures.

Step 8: Test Scoring

- What scoring model will be used?
 - Compensatory vs. non-compensatory scoring
- How will item / station quality be evaluated?
 - What psychometric analyses will be conducted?
- If multiple version of the test are needed, how will we account for potential differences in difficulty?
 - Which equating procedure to use?
- How will score reliability be evaluated?

Step 9: Standard Setting

- How will the cut score for the test be determined?
 - Which standard setting method to use?
- What subject matter experts will serve on the standard setting panel?
 - Desired qualifications and backgrounds?
- What materials and training will be provided during the standard setting process?
- How will candidate performance data be incorporated into the standard setting process?

Step 10: Reporting Test Results

- How will test scores be reported?
 - Will a numeric score be provided? Will candidates receive a score of “Pass” or “Fail”?
- Will diagnostic information be reported to candidates who fail?
 - How will the information be presented?
- What measure are taken to ensure the accuracy of score reports?
- What measure are taken to prevent misinterpretation of results?

Step 11: Item Banking

- How will test items and stations be stored?
 - Electronic and physical storage, if needed
- How will test content be inventoried? Secured?
- Store psychometric information on item and station performance
- Store information concerning item classifications
 - Content areas, cognitive levels, etc.
- Store information about item social order
 - Which items or stations should NOT appear on the same examination?

Step 12: Technical Reports/Validation

- How will validity evidence be documented?
 - Technical report, published papers
- How will validity evidence be distributed? To who?
 - Online?
- Test content specifications
 - Outline the test content for candidates and stakeholders
- Outlining specific studies conducted and samples utilized

Summary

- We are in the early stages of DLOSCE development
- OSCEs are now widely used in the health sciences
- DLOSCE development will proceed according to the *Standards for Educational and Psychological Testing*
- The test development process is a multistep effort that requires input from a variety practitioners, educators and specialists.

Thank you!