Overview

• ADAT Purpose
• Impetus for Development
• Program Oversight
• Test Content, Design, and Construction
• Test Administration Schedule
• Administration, Eligibility, and Retest Policy
• Scoring, Reporting, Results Interpretation, and Norms
• Resources and Communication
• ADAT and NBDE: A Key Comparison
Purpose

• The Advanced Dental Admission Test (ADAT) is a computer based examination designed to provide advanced dental education programs with insight into applicants’ potential for success in their program.

• The ADAT is a professionally developed, content valid examination containing questions written by dental subject matter experts.

• The ADAT enables programs to quantitatively compare applicants using a nationally standardized and objective test.

• The ADAT can be used in conjunction with other assessment tools to help inform program admission decisions.
Why Develop an Advanced Dental Admission Test?

- The Joint Commission on National Dental Examinations no longer reports candidate scores for those who pass NBDE Part I and NBDE Part II (January 2012).
- Advanced dental education programs had been using NBDE results to inform admission decisions.
- A number of dental schools have moved away from GPA and are reporting grades as pass/fail.
- Advanced dental education programs are seeking other ways to compare program applicants.
- Both program directors and students have expressed concern about how qualifications will be assessed in the admission process.
Fagin, Howell, Da Silva, and Park (2014) conducted a survey of US dental students.

“Eighty percent of our respondents wanted some form of a scored exam regardless of their school’s grading practices, whether that is a scored NBDE Part I, an additional entrance exam common to all specialties, or additional specialty-specific entrance exams.

The students clearly perceived that entering their application into an extremely competitive and growing applicant pool without a standardized measure could potentially hurt their chances of getting an interview.” (p820)
Fagin, Howell, and Park (2015) conducted a survey of directors of postgraduate programs participating in ADEA PASS. Results indicated that applicants from dental schools that do not report GPA or class rank are particularly at a disadvantage.

“These applicants are now missing all three of the most important aspects of their pre-interview application (class rank, GPA, and NBDE Part I score). According to the results of our study, the most important part of these students’ applications has now become letters of recommendation.”

The ADA’s Response

• ADA’s Council on Dental Education and Licensure (CDEL) endorsed creation of a business plan to develop the ADAT (May 2014).

• CDEL distributed a survey to 739 directors of advanced dental education programs to assess demand for the ADAT (October 2014).
  • Survey response rate: 63% (464/739)
  • 294 program directors (63% of respondents) indicated they were likely or extremely likely to require program applicants to take the ADAT.
The ADA’s Response

• 150 program directors (32% of respondents) voiced interest in participating in ADAT administrations beginning in 2016, and would require all applicants take the exam.

• CDEL reviewed survey results and the ADAT business plan, and recommended that the ADA pursue development of the ADAT (November 2014).

• ADA Board of Trustees approved development of the examination (December 2014).
ADAT Program Oversight

- The ADA’s Council on Dental Education and Licensure (CDEL) oversees ADAT policies.
- CDEL’s Committee on Dental Admission Testing (CDAT) monitors the program and makes recommendations to CDEL concerning policies.
- The ADA’s Department of Testing Services (DTS) implements the ADAT program under the direction of CDEL and its CDAT.
Candidates

The ADAT is designed for administration to individuals seeking admission to advanced dental education programs:

- 3rd and 4th year dental students
- U.S. dentists interested in post-graduate training or degrees
- International dental students/graduates applying to advanced dental education programs or advanced standing in pre-doctoral programs.
ADAT content is currently structured as follows:

- **ADAT**
  - **Critical Thinking**
  - **Principles of Ethics & Patient Management**
  - **Biomedical Sciences**
  - **Clinical Sciences**
  - **Data, Research Interpretation, & Evidence Based Dentistry**
Test Specifications

• ADAT content areas were identified through analysis of findings of an ADA Advanced Dental Admission Test Task Force Report and ADEA/FADEA project.
• ADAT test specifications for the biomedical and clinical sciences mirror NBDE Part I and NBDE Part II test specifications, respectively.
• The ADAT has far fewer items than the NBDE, so item development requirements have been proportionally reduced.
• ADAT item development and NBDE item development occurs independently.
# Test Specifications Overview

<table>
<thead>
<tr>
<th>Subject</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking</td>
<td></td>
</tr>
<tr>
<td>Biomedical Sciences</td>
<td>80</td>
</tr>
<tr>
<td>Clinical Sciences</td>
<td>60</td>
</tr>
<tr>
<td>Data, Research Interpretation, and Evidence Based Dentistry</td>
<td>30</td>
</tr>
<tr>
<td>Principles of Ethics and Patient Management</td>
<td>30</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>200</strong></td>
</tr>
</tbody>
</table>
## Test Specifications

### Biomedical Sciences (80)

- Anatomic Sciences
- Biochemistry-Physiology
- Microbiology-Pathology
- Dental Anatomy-Occlusion

### Clinical Sciences (60)

- Endodontics
- Operative Dentistry
- Oral and Maxillofacial Surgery / Pain Control
- Oral Diagnosis
- Orthodontics / Pediatric Dentistry
- Periodontics
- Pharmacology
- Prosthodontics
- Case-based items

### Data, Research Interpretation, and Evidence Based Dentistry (30)

- Study Design
- Data Analysis
- Result Interpretation
- Inference and Implication

### Principles of Ethics and Patient Management (30)

- Professional Ethics
- Communication & Interpersonal Skills
- Anxiety & Pain Control
- Health Behavior Change
- Disabled & Medically Compromised
- Epidemiology
- Prevention of Oral Diseases
- Infection Control
- Materials & Equipment Safety
- Professional Responsibility/Liability
Test Construction Committees

• Test Construction Committee (TCC) meetings were convened for each section of the ADAT.

• TCCs relied on existing DTS Item Writing Guidelines, and also incorporated a new method of presenting patient information identified by the Joint Commission (the Patient Box).

• The call for TCC members is made on an annual basis by the ADA’s Department of Testing Services.

• Test specification changes will occur over time, and will be made based on recommendations from the TCCs, with final approval by CDEL.

• A 100-item practice test was also created to help familiarize examinees with the ADAT.
4. What inflammatory cell would predominate in chronic sialadenitis if a biopsy is performed?

A. Eosinophils
B. Lymphocytes
C. Macrophages
D. Neutrophils
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A. Eosinophils  
B. Lymphocytes  
C. Macrophages  
D. Neutrophils
## Practice Test Sample Items

<table>
<thead>
<tr>
<th>Patient</th>
<th>Male, 20 years old</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Complaint</td>
<td>“My gums bleed every time I brush my teeth.”</td>
</tr>
</tbody>
</table>
| Background and/or Patient History | Uncontrolled type 1 diabetes  
Recent hospitalization after automobile accident |
| Current Findings | Aggressive periodontitis  
Elevated HbA1c  
Radiographic evidence of alveolar bone loss |

9. How might the stress of the automobile accident have impacted glucose control?

A. Decreased glucose control due to cortisol release  
B. Decreased glucose control due to glucagon release  
C. Increased glucose control due to epinephrine release  
D. Increased glucose control due to norepinephrine release
### Practice Test Sample Items

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C. Increased glucose control due to epinephrine release  
D. Increased glucose control due to norepinephrine release
### Patient

Female, 85 years old

### Chief Complaint

“I don't like the way my dentures look.”

### Background and/or Patient History

- Osteoarthritis
- Right hip replacement 10 years ago
- Moderate hypertension controlled with a calcium channel blocker
- Patient reports well-fitting dentures

### Current Findings

- Lesion as shown in associated image
- Patient unaware lesion bleeds when manipulated, denies pain
- Lesion is attached to the palatal tissue through a 10mm pedunculated base

---

45. What is the first step in management of this patient?

A. Perform an excisional biopsy  
B. Perform an incisional biopsy  
C. Perform a soft acrylic reline of the existing denture  
D. Request the patient remove the denture for two weeks and re-evaluate
### Practice Test Sample Items

<table>
<thead>
<tr>
<th>Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female, 85 years old</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chief Complaint</th>
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A. **Perform an excisional biopsy**
B. Perform an incisional biopsy
C. Perform a soft acrylic reline of the existing denture
D. Request the patient remove the denture for two weeks and re-evaluate
Administration

- Administration dates
  - May 16 through August 31 of 2016 (first year)
  - April 3 through August 31 of 2017 (anticipated)
  - Testing windows lessen the possibility and implications of test content security breaches, thereby protecting the validity of the examination.

- Retesting policy
  - Candidates may test two times per calendar year, and are limited to two testing attempts separated by a minimum of 45 days.
  - After two testing attempts, candidates must provide DTS with proof they are actively applying to advanced dental education programs.

- Program Participation
  - A list of participating advanced dental education programs is posted on the ADAT website.
ADAT eligibility criteria closely resemble criteria for the National Board Dental Examinations. Eligibility is based on the candidate’s current status.

<table>
<thead>
<tr>
<th>Training</th>
<th>Status</th>
<th>Action Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODA Accredited Dental School</td>
<td>Student</td>
<td>School is responsible for approving the candidate’s eligibility.</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>Candidate must send proof of graduation to DTS. Eligibility approved after receipt of reasonable proof.</td>
</tr>
<tr>
<td>Non-Accredited Dental School</td>
<td>Student</td>
<td>Candidate requests an Educational Credential Evaluators (ECE) electronic report to certify status as a current dental student.</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
<td>Candidate request an ECE electronic report to confirm dental degree.</td>
</tr>
</tbody>
</table>
Fees

• 2016 ADAT fees:
  • Examination fee*: $250
  • Additional ADAT score reports**: $35
  • Non-accredited candidate processing fee: $125

* Rate for first year, reduced from $350.
** This Score Report fee covers score report requests made after the time of application. Score report requested at the time of application are processed at no additional charge.
## Test Administration Schedule

<table>
<thead>
<tr>
<th>Content</th>
<th>Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tutorial</strong></td>
<td>15</td>
</tr>
<tr>
<td>Biomedical Sciences</td>
<td>90</td>
</tr>
<tr>
<td><strong>Break</strong></td>
<td>10</td>
</tr>
<tr>
<td>Data, Research Interpretation, and Evidence Based Dentistry</td>
<td>30</td>
</tr>
<tr>
<td><strong>Break</strong></td>
<td>10</td>
</tr>
<tr>
<td>Clinical Sciences</td>
<td>70</td>
</tr>
<tr>
<td><strong>Break</strong></td>
<td>10</td>
</tr>
<tr>
<td>Principles of Ethics and Patient Management</td>
<td>30</td>
</tr>
<tr>
<td><strong>Post-exam Survey</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4 hours 30 minutes</td>
</tr>
</tbody>
</table>
Scoring

- ADAT official scores are reported as scale scores ranging from 200 to 800, with a target mean of 500 and a target standard deviation of 100. Scores are reported in increments of 10.

- Scores are reported for the following six scales:
  1. ADAT Score: an overall score that is computed based on performance on all ADAT items
  2. Critical Thinking
  3. Principles of Ethics and Patient Management
  4. Biomedical Sciences
  5. Clinical Sciences
  6. Data and Research Interpretation.

- The number of correct responses is NOT reported. Examinees do NOT receive immediate feedback concerning their test results.

- Scores are reported to the programs selected by the candidate at the time of application. Additionally, if a candidate requests their results be sent to any advanced dental education program, their results will also be made available to ADEA PASS and distributed to all programs that participate in ADEA PASS.
Reporting

- ADAT scores are made available through ADEA PASS, and an online score reporting portal (DTS Hub) developed by the ADA. The following timetable applied in 2016. DTS anticipates a similar schedule will be necessary in 2017.

<table>
<thead>
<tr>
<th>PRELIMINARY SCORE RESULTS</th>
<th>Test Administration Period</th>
<th>Results posted in ADAT Candidate’s “My Account”</th>
<th>Results available to Advanced Dental Education Program Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1, 2016 to July 31, 2016</td>
<td>August 12, 2016</td>
<td>August 12, 2016</td>
<td></td>
</tr>
<tr>
<td>August 1, 2016 to August 31, 2016</td>
<td>September 9, 2016</td>
<td>September 9, 2016</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OFFICIAL SCORE RESULTS</th>
<th>Test Administration Period</th>
<th>Results posted in ADAT Candidate “My Account”</th>
<th>Results Available for Advanced Dental Education Program Directors and Dental School Deans</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 16, 2016 to August 31, 2016</td>
<td>September 15, 2016</td>
<td>September 15, 2016</td>
<td></td>
</tr>
</tbody>
</table>

- Preliminary score results were reported as percentiles (not scale scores). Candidates were informed that these percentiles would change with each test administration period, as the total norm group increased. Reported candidate percentiles thus changed at each reporting interval (July, August, and September). Final scale scores were reported on September 15, 2016.
Results Interpretation

• A User’s Guide was created to assist programs with results interpretation. It includes information such as the following:
  • Utilization of ADAT Results in Admission Decisions
  • Evidence Supporting Use of the ADAT
  • ADAT Content and Scales
  • Interpretation of ADAT Results
  • Guidelines for Interpreting and Applying ADAT Results
Additional notes

• DTS removed non-performing items from scoring as soon as they were reasonably detected

• DTS updated the ADAT User’s Guide shortly after the close of the testing window with the following information:
  • Scale reliabilities
  • Normative information
    • Overall norms
      – Descriptive statistics
      – Histograms
      – Frequency distributions
    • Norms within specialty (where possible)
  • DTS recently shared ADAT results with dental schools, for students and graduates who indicated they wanted their ADAT scores sent to their dental school. Individual and average performance was provided.
As was articulated in interpretational reports issued throughout the 2016 preliminary ADAT Results Reporting cycles, DTS has strongly recommended that candidates and programs focus their attention on the ADAT Overall and Critical Thinking scales. These scales contain larger numbers of items and are therefore more reliable than scales containing fewer items. Scale reliabilities are anticipated to increase in future years, as additional performance data become available.

<table>
<thead>
<tr>
<th>ADAT Scale</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADAT Overall (ADAT)</td>
<td>.83</td>
</tr>
<tr>
<td>Critical Thinking (CRT)</td>
<td>.82</td>
</tr>
<tr>
<td>Biomedical Sciences (BIO)</td>
<td>.76</td>
</tr>
<tr>
<td>Clinical Sciences (CLI)</td>
<td>.63</td>
</tr>
<tr>
<td>Data, Research Interpretation, &amp; Evidence Based Dentistry (DRI)</td>
<td>.67</td>
</tr>
<tr>
<td>Principles of Ethics &amp; Patient Management (PEPM)</td>
<td>.49</td>
</tr>
</tbody>
</table>
Norms – ADAT Scale Scores

<table>
<thead>
<tr>
<th>Scale Type</th>
<th>Scale</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite</td>
<td>ADAT Overall (ADAT)</td>
<td>500.3</td>
<td>73.7</td>
<td>230</td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>Critical Thinking (CRT)</td>
<td>500.1</td>
<td>78.9</td>
<td>220</td>
<td>720</td>
</tr>
<tr>
<td>Discipline</td>
<td>Biomedical Sciences (BIO)</td>
<td>500.2</td>
<td>98.7</td>
<td>200</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>Clinical Sciences (CLI)</td>
<td>499.8</td>
<td>98.7</td>
<td>200</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>Data, Research Interpretation, &amp; Evidence Based Dentistry (DRI)</td>
<td>499.4</td>
<td>97.8</td>
<td>200</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>Principles of Ethics &amp; Patient Management (PEPM)</td>
<td>500.0</td>
<td>99.3</td>
<td>210</td>
<td>800</td>
</tr>
</tbody>
</table>

A total of 462 ADAT administrations occurred in 2016
Norms – ADAT Scale Scores

Frequency distribution for the ADAT Overall scale: 2016 (N= 462)
Norms – ADAT Scale Scores

Frequency distribution for the ADAT Critical Thinking scale: 2016 (N= 462)
Norms – ADAT Scale Scores

Frequency distribution for the ADAT Biomedical Sciences scale: 2016 (N= 462)
Norms – ADAT Scale Scores

Frequency distribution for the ADAT Clinical Sciences scale: 2016 (N= 462)
Norms – ADAT Scale Scores

Frequency distribution for the ADAT Data, Research Interpretation, & Evidence Based Dentistry scale : 2016 (N= 462)
Norms – ADAT Scale Scores

Frequency distribution for the ADAT Principles of Ethics & Patient Management scale: 2016 (N= 462)
Reflections on ADAT performance

• Generally speaking the ADAT appears to be performing well.
• Results indicate that the ADAT can be used to discriminate among candidates with lower and higher cognitive skills.
• The ADAT Overall score in particular is performing very well.
• DTS noted the following issues with regard to ADAT performance:
  – The Principles of Ethics & Patient Management scale is underperforming and likely does not measure what advanced education programs would like to know (i.e., whether a candidate would behave ethically)
  – Certain scales had lower than desired reliabilities.
Reflections on ADAT performance

• DTS is considering the following to address these issues:
  – Elimination of Principles of Ethics & Patient Management as a separate, reported scale. Items within these areas would still appear on the exam, but a separate scale score would not be reported.
  – Increasing the number of items in the following scales:
    • Clinical Sciences
    • Data, Research Interpretation, and Evidence Based Dentistry
• The preceding would have implications for the ADAT administration schedule and reported scores.
DTS recommended structure (updated)

ADAT
Critical thinking in dentistry.

- Biomedical Sciences
- Clinical Sciences
- Data, Research Interpretation, & Evidence Based Dentistry
Use of ADAT Results in Admission Decisions

- With respect to ADAT participation in 2016, programs required, accepted, or did not accept ADAT results at their own discretion.

- Programs made their own decisions as to the use of ADAT results in admission decisions.
  - For example, those who “required” ADAT results could simply “collect and evaluate” those results.

- Admission decisions should consider available validity evidence that supports current admission tools, as well as evidence supporting use of the ADAT.

- Programs should base their decisions on the tools that have the greatest validity in supporting admission decisions.
ADAT Content Validity Evidence

• The ADAT relies on content validity evidence (appropriateness and relevance of content). Current evidence includes the following:
  • Overall test specification content areas based on findings from an ADA Task Force and ADEA/FADEA survey on advanced dental education.
  • Clinical science test specifications were based on the practice analysis that supports National Board Dental Examination (NBDE) Part II.
  • Biomedical science test specifications similarly based on NBDE Part I.
  • CDEL reviewed and approved the test specifications and TCC members.
  • TCC members are dental & biomedical subject matter experts who receive extensive item writing training; many have years of experience writing National Board items.
  • The ADAT is administered under controlled, standardized testing conditions.
  • Window testing and delayed scoring is employed; any non-performing items will be eliminated prior to final scoring.
  • Test development, administration, scoring, and reporting occurs by a professionally trained staff, many of whom hold advanced degrees in testing.
  • DTS staff have years of experience in high stakes testing (e.g., NBDE, NBDHE)
ADAT and the NBDEs: A Key Comparison

• The ADAT is designed for admission purposes, to help advanced dental education programs identify the most qualified, strongest candidates for selection into advanced dental education programs.
  • Applicants are compared and results are interpreted normatively (norm-referenced).

• The NBDE Parts I and II are designed for use by state dental boards, to help boards understand whether a candidate for licensure has the required cognitive skills to safely practice dentistry (minimum competency).
  • Results are interpreted relative to a performance criterion (criterion-referenced).
ADAT Communications

• **Website**  [www.ada.org/adat](http://www.ada.org/adat)
  Examination Guide, User’s Guide, Practice Test, FAQs, past presentations, program tracker spreadsheet, test specifications, reference texts, link to ADA/ADEA PASS video, Test Construction Committee (TCC) application, etc.

• **Presentations**
  American Dental Education Association (ADEA)(3/15); ADEA Council of Hospitals and Advanced Education Programs (COHAEP)(3/15); American Academy of Pediatric Dentistry (AAPD); (10/15); American Student Dental Association (ASDA) (1/16); ADEA Council of Students Residents and Fellows (3/16); ADEA (3/16); American College of Prosthodontics (4/16); American Association of Orthodontists (4/16); AAPD (5/16), ADA/ASDA Board Meeting (7/16), etc.

• **Email**  [adat@ada.org](mailto:adat@ada.org)
Two-way Communication: Listening to Students and Programs

The ADA listened to feedback from students and advanced educational programs, and took steps to facilitate the transition to the ADAT Program.

- Reduced exam fees in 2016 (from $350 to $250)
- Widened the test administration window to make it easier for candidates to test
- Provided a 100-item practice test booklet online, free of charge
- Posted an online, updated “program tracker” sheet that showed which advanced dental education programs would “require,” “accept,” or “not accept” ADAT results
- Provided preliminary results reporting to candidates and programs, to help inform decision making
- Provided programs with a user’s guide to help inform interpretation of the ADAT
- Collaborated with ADEA PASS to develop an online video involving the ADAT (http://www.adea.org/PASSapp/2017_ADEA_PASS.aspx)
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Questions?
Thank You