Curriculum Design to Integrate Basic Sciences, Clinical Disciplines, and Patient-Centered Comprehensive Care

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HSDM Curriculum Overview

- Yr1 & 2: Fundamentals of Medicine/Dentistry
- Yr3: Principal Clinical Year
- Yr4: Advanced Clinical Dentistry
- PBL
- OSCE
- Case Completion Clinical Curriculum
- Educational Research
A typical class size for the DMD predoctoral program ranges from 35-40 per year.

The DMD education program at HSDM includes two years of basic science training at Harvard Medical School where our dental students are held to the same standards as their medical school classmates.

It also places a strong emphasis on small-group, problem-based learning.

Courses taken during the first two years are graded Pass/Fail at the Dental School and Satisfactory/Unsatisfactory at the Medical School.

Courses taken during the clinical portion of the curriculum in Years 3 and 4 are graded Honors/Pass/Fail.

Evaluation of clinical performance is measured using formative and summative evaluations to provide timely feedback to students, to help identify and correct incipient problems, and to help ensure that the best possible clinical care is provided to patients.
Approaches to Student Learning

- Student centered
- Integrated
- Use problem-based learning
- Emphasis on links to experiential learning including early opportunities
- Defined core
- Opportunities for choice
- Parallel emphasis on skills and communication
- Progressive testing, OSCEs, workplace assessments
What do you value?

- Communication skills
- Integration—basic/clinical/social and population sciences
- Patient as center of learning
- Team work
- Collaboration
- Problem solving
- Information appraisal/literacy
- Hypothesis generation
- Self/peer assessment
ORAL COMPREHENSIVE EXAMINATIONS and OSCEs

- Provide PBL Experience Centered Around Realistic Clinical Case
- Permit Interdisciplinary Integration Of Curricular Material
- Enhance Independent Thinking And Clinical Reasoning Skills
- Transfer Basic Science Knowledge To Clinical Context
Case Completion Curriculum
Objective:

- Development and implementation of CCC as a new clinical model for the predoctoral program.

- To achieve patient-based comprehensive care requiring case completion of assigned patient cases.

- Senior Tutors as group leaders responsible for patient assignment, tx. planning, monitoring student performance and verifying patient care.
Problems:

1. Loss of motivation once minimum numerical thresholds have been met
2. Clinic sessions in the 4th yr. are underutilized (low productivity)
3. Lack of continuation of care: “pick and choose” treatments that will fit their requirements
4. Lack of commitment to providing comprehensive patient care
5. Random transfer of patients among students
6. “Sharing” removable prosthodontic cases for credit
Goals:

1. Encourage students to perform comprehensive care

2. Instill sense of commitment and responsibility of completing treatment plans

3. Less need for transfers and smoother transitions if necessary

4. Reduce the amount of patients who are in-between treatments due to neglect (and eventually reduce the number of remakes)

5. Students will learn the importance of patient management and will make efforts to maintain their patients
Proposal:

Patient-based comprehensive care

Case completion = GRADUATION

Numerical Threshold
<table>
<thead>
<tr>
<th>Case Type</th>
<th>Procedures</th>
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<tbody>
<tr>
<td>1</td>
<td>Preventive therapies, simple operative procedures, prophylaxis and scaling and root planing</td>
</tr>
<tr>
<td>2</td>
<td>Interdisciplinary management (endodontics, periodontal surgery, oral surgery, etc) and complex restorative procedures, not including prosthodontic treatment</td>
</tr>
<tr>
<td>3</td>
<td>Interdisciplinary management and restorative procedures, including prosthodontic treatment (less than 3 fixed prosthodontic units)</td>
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<tr>
<td>4</td>
<td>Complex interdisciplinary management (4 or more disciplines) with restorative procedures including prosthodontic treatment (3 or more fixed prosthodontic units)</td>
</tr>
<tr>
<td>5</td>
<td>Removable partial dentures (metal and resin)</td>
</tr>
<tr>
<td>6</td>
<td>Complete dentures, immediate dentures, overdentures, and implant supported overdentures</td>
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</tbody>
</table>


A case completion curriculum for clinical dental education: replacing numerical requirements with patient-based comprehensive care.


Does a case completion curriculum influence dental students' clinical productivity?

<table>
<thead>
<tr>
<th>Minimum Requirements</th>
<th>Case Compositions (All cases from 3rd &amp; 4th years)</th>
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<tbody>
<tr>
<td><strong>Pass: 15 cases</strong></td>
<td>• Maximum of <strong>seven</strong> comprising of Type 1 &amp; 2 cases</td>
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<tr>
<td></td>
<td>• Minimum of <strong>four</strong> Type 3 &amp; 4 cases (one of which must be type 4)</td>
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<tr>
<td></td>
<td>• Minimum of <strong>four</strong> Type 5 &amp; 6 cases (must consist of both types)</td>
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<tr>
<td><strong>Honors: 20 cases</strong></td>
<td>• Maximum of <strong>nine</strong> cases comprised of Type 1 &amp; 2 cases</td>
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<tr>
<td></td>
<td>• Minimum of <strong>six</strong> Type 3 &amp; 4 cases (two of which must be Type 4)</td>
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<tr>
<td></td>
<td>• Minimum of <strong>five</strong> Type 5 &amp; 6 cases</td>
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# Case Completion Comparisons

(Graduated Classes of 2009 and 2010)

<table>
<thead>
<tr>
<th></th>
<th>Complete</th>
<th>Incomplete*</th>
<th>Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2010</strong> (33 students)</td>
<td>22.8</td>
<td>6.6</td>
<td>4.6</td>
</tr>
<tr>
<td><strong>2009</strong> (30 students)</td>
<td>12.8</td>
<td>14.4</td>
<td>16.4</td>
</tr>
</tbody>
</table>

*Incomplete consisted of cases where patients wished to discontinue care due to time or financial commitment issues, relocation, etc. These cases were subsequently inactivated from the system.

**The number of completed patient cases through the new comprehensive care system increased from a previous average of 12.8 cases/student prior to graduation to 22.8 cases.

***The number of patients who had to be transferred due to outstanding or pending treatment related to the graduation of their student provider, and transfers among classmates to fulfill discipline requirements has decreased from an average of 16.4 to 4.6.
Figure 1: Comparison of Study Groups by Discipline Procedure

*Number of clinical procedures performed according to major disciplines prior to (Class of 2009) and after (Class of 2010) implementation of Case Completion Curriculum. The case completion group performed a significantly greater number of operative and removable prosthodontic procedures, but fewer periodontal and endodontic procedures (p < 0.03).

**No statistically significant difference in number of procedures was observed with fixed prosthodontic procedures between the two groups.

***With regard to removable prosthodontic procedures, there was no statistically significant difference between the two groups, except for when comparing resin RPD’s, of which the case completion group completed a greater number.
Conclusions:

- Shifting the focus from numerical procedural requirements to case completions of assigned cases has increased the number of completed cases and ensured continuity of care.

- Less need for transfers took place among students and allowed for smoother transitions when student providers graduated.

- This clinical education model could help students learn the importance of patient management and make further efforts to maintain their patients.

- Clinical productivity as a result of redesigning the clinical component of curriculum varied with regard to selected disciplines. Overall, the CCC, where the comprehensive management of the patient was the priority, could contribute to achieving a patient-based comprehensive care environment.