Designing a Portfolio-Based Assessment System: Lessons from the Trenches

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Director of Assessment and Evaluation

Cleveland Clinic Lerner College of Medicine (CCLCM) of CWRU
Established in 2002
Prepare physician-investigators
Curriculum
• Organ-based courses
• Early clinical experiences
• Longitudinal research curriculum
Portfolio-based Assessment System
• No grades, class ranks, or AOA

Overarching Goal
Prepare reflective practitioners of medicine and science whose drive for lifelong learning is complemented by a critical approach to self-assessment and self-improvement.

Reflective Practice Cycle

Self-assess Performance
Set Goals and Develop Learning Plan
Implement Learning Plan
Monitor Progress and Refine Strategies

How did we obtain faculty buy-in?
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Initial Strategies

- Visionary leadership
- Catalyst foundation grant
- Faculty retreats
  - What was assessment like for you?
  - When did you become a self-directed learner?
- Consultants
- Central oversight

Building Blocks of CCLCM's Portfolio-Based Assessment System

Assessment Principles

- Should enhance learning
- Remain progressive and cumulative
- Occur in authentic, experiential settings
- Feature self-assessment cycles and advising
- Focus on competencies – no grades/ranks
- Facilitate partnerships


Assessment for Learning

- Frequent formative feedback
- Clear performance expectations
- Opportunities to address performance gaps
- Collaborative dialogue
- Supportive learning environments


CCLCM’s Competencies

- Professionalism
- Interpersonal and Communication Skills
- Patient Care
- Knowledge for Practice
- Teamwork & Interprofessional Collaboration
- Systems Based Practice
- Research & Scholarship
- Professional & Personal Development
- Reflective Practice

Milestones

- Specifies expectations
  - Developmentally appropriate
  - Aligned with educational experiences
- Demonstrates observable behaviors/abilities
- Can be assessed in multiple ways
- Can be judged by others
Designing a Portfolio-Based Assessment System: Lessons from the Trenches

Patient Care Milestones

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performs individual components of standard history and physical exam</td>
<td>Performs individual components of standard history and physical and integrates these components into a comprehensive evaluation</td>
<td>Obtains thorough and accurate information through an H&amp;P adapting to the clinical setting</td>
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Curricular Alignment

<table>
<thead>
<tr>
<th>Year 1 Milestones</th>
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</thead>
<tbody>
<tr>
<td>Performs individual components of standard history and physical exam.</td>
</tr>
<tr>
<td>Uses reasoning to analyze case-based problems in a systematic approach that includes the generation of learning objectives and hypotheses.</td>
</tr>
<tr>
<td>Prioritizes information when analyzing case-based problems.</td>
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</table>

Year 1 Experiences

- Physical examination with SPs
- Communication skills with SPs
- Longitudinal clinic experiences
- Recorded patient encounter
- Observed history and physical
- PBL presentations
- Pediatrics & geriatrics experiences
- Formative OSCE

Assessment Evidence

**College Provided**
- Concept appraisals
- Self-assessment questions
- Narrative faculty feedback
- Narrative peer feedback
- OSCEs (formative)
- Clinical Skills Exam
- Self-assessments

**Other Sources**
- Licensure exams
- NBME exams (optional)
- Research products
- Graduate course work
- Other work products
- Unique evidence

What is a Portfolio?

“A purposeful collection of student work that tells the story of the student's efforts, progress, or achievement in (a) given area(s). This collection must include student participation in selection of portfolio content; the guidelines for selection; the criteria for judging merit; and evidence of student self-reflection.”


Benefits of Portfolios

- Captures what learners know and do
- Promotes reflective practice
- Gives learners more responsibility
- Provides autobiography of learner growth
- Supports formative and summative assessment

Portfolio Assessment System

- Electronic Evidence Database
- Formative Portfolios
- Summative Portfolio
- Student
- Physician Advisor
Perform individual components of standard history and physical exam

It's strange to think that eventually patient care will be a cornerstone of my career, but for now, I'm the competency in which I have the least experience. Initially, Basic Communication Skills and Physical Diagnosis sessions were very helpful for preparing for the standard history and physical exam, which is expected to be a major part of my medical future. Ideally, my ability to effectively perform the standard history and physical exam will improve with practice. In the past, I've found medical/surgical history, medications, and family/social history especially as they relate to the patient's reason for the visit and this was reflected in my CS, LC, and OSCE assessments (41, 42).

By the end of the year, I was praised by both my CS facilitators and LC preceptor for the comprehensiveness of my medical interviews and database collection, which became easier once I figured out a systematic way to mentally organize each interview section (42). Hearing and productive review of Systems in CS throughout the year helped me to see for Otolaryngology and have tried to keep track of information about including it (40). Throughout the year, I also worked on my oral presentation skills and received positive feedback from my CS facilitators, along with some tips for including more of the patient's perspective that I'm to incorporate into future presentations (91). For the physical exam, I practiced obtaining blood pressure and heart rate, performing the cardiovascular, pulmonary/neck, and abdominal exams, as well as a complete neurological exam in both PD and LC, and continue to gain proficiency as I get more experience (69, 90, 46). It was initially challenging for me to locate the carotid pulse rapidly, but I've gotten better with practice (45). After getting a reminder, it has become habitual for me to sanitize my hands before touching any part of the patient's body (45, 47). Based on my OSCE results, additional PD skills to practice include chest excursion, liver palpation, and order of abdominal quadrant palpation (painful area last) (43). Since I haven't yet encountered many abnormal physical exam findings, I'm still uncertain how pathological anatomy such as an enlarged liver feels upon abdominal exam and look forward to gaining more experience in this area next year.

Example of Learning Plan

<table>
<thead>
<tr>
<th>Competency</th>
<th>Learning Goal</th>
<th>Plan of Action</th>
<th>Measurable Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal and Communication Skills</td>
<td>Make presentations more interactive and engaging</td>
<td>Practice in PBL giving interactivity of learning objective presentations</td>
<td>Feedback from PBL facilitator and peers on efforts to give concise presentations that engage audience</td>
</tr>
</tbody>
</table>

“Portfolios are training wheels for reflective practice.”

Renee Salas, MD, MS, MPH
https://en.wikipedia.org/wiki/Renee_Salas
Key Roles in Assessment System

Assessors
PBL facilitators, research preceptors, lab personnel, clinical preceptors, essay reviewers, peers, self, etc.

Physician Advisors
Feedback coaches, informal performance monitoring, curriculum advising, portfolio preparation & verification

Promotion Committee
Promotion and disciplinary decisions, formal performance improvement monitoring

Educator Development

Role Specific
PBL facilitator, longitudinal clinic facilitator, research preceptors, communication skills preceptors, etc.

Longitudinal
Physician Advisors (weekly meetings and onboarding)
Promotion Committee (monthly meetings and onboarding)

System-wide
Essentials Series (in person and asynchronous)
Distinguished Educator Certificates and Fellowships
Masters in Medical and Health Professions Education

Learner Development

Workshops
- Introduction to Assessment System
- Providing Peer Feedback
- Creating Formative Portfolios and Learning Plans
- Creating Summative Portfolios

Regular Meetings with Physician Advisors
Ongoing communication

Challenges
- Time intensive
- Onboarding new faculty to roles, feedback expectations, and culture
- Increasing time demands on faculty
- Updating technology regularly
- Maintaining rather than creating

How can I prove CCLCM’s portfolio-based assessment system “works”?

How do we monitor and continuously improve CCLCM’s portfolio-based assessment system?
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Graduates’ Specialty Choices
Classes of 2009-2022 (n = 433)

<table>
<thead>
<tr>
<th>Medical (n = 232, 54%)</th>
<th>Surgical (n = 154, 35%)</th>
<th>Procedural (n = 47, 11%)</th>
</tr>
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<tbody>
<tr>
<td>Internal Medicine (99)</td>
<td>Orthopedic Surgery (25)</td>
<td>Anesthesiology (16)</td>
</tr>
<tr>
<td>Pediatrics (39)</td>
<td>General Surgery (21)</td>
<td>Radiology – Diagnostic (14)</td>
</tr>
<tr>
<td>Dermatology (20)</td>
<td>Neurological Surgery (20)</td>
<td>Pathology (9)</td>
</tr>
<tr>
<td>Neurology (20)</td>
<td>Otolaryngology (20)</td>
<td>Radiation Oncology (8)</td>
</tr>
<tr>
<td>Emergency Medicine (18)</td>
<td>Obstetrics and Gynecology (19)</td>
<td></td>
</tr>
<tr>
<td>Family Medicine (12)</td>
<td>Ophthalmology (17)</td>
<td></td>
</tr>
<tr>
<td>Psychiatry (11)</td>
<td>Urology (15)</td>
<td></td>
</tr>
<tr>
<td>Medicine – Pediatrics (5)</td>
<td>Thoracic Surgery (7)</td>
<td></td>
</tr>
<tr>
<td>Child Neurology (4)</td>
<td>Vascular Surgery (4)</td>
<td></td>
</tr>
<tr>
<td>Physical Medicine &amp; Rehab (4)</td>
<td>Plastic Surgery (3)</td>
<td>Surgery – Preliminary (3)</td>
</tr>
</tbody>
</table>

Graduates’ Match Results*

<table>
<thead>
<tr>
<th>Cleveland Clinic Foundation (67)</th>
<th>Johns Hopkins University (19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beth Israel Deaconess Medical Center (10)</td>
<td>Yale – New Haven Medical Center (10)</td>
</tr>
<tr>
<td>University of Pennsylvania Health System (19)</td>
<td>Duke University Hospital (9)</td>
</tr>
<tr>
<td>Stanford University (19)</td>
<td>University of Michigan Hospitals &amp; Health Ctrs (9)</td>
</tr>
<tr>
<td>Massachusetts General Hospital (18)</td>
<td>Vanderbilt University Medical Center (9)</td>
</tr>
<tr>
<td>Brigham and Women’s Hospital (15)</td>
<td>New York Presbyterian Hospital - Columbia (8)</td>
</tr>
<tr>
<td>University of Washington Medical Center (15)</td>
<td>New York Presbyterian Hospital - Cornell (8)</td>
</tr>
<tr>
<td>David Geffen School of Medicine/UCLA (12)</td>
<td>McGaw Medical/Northwestern University (8)</td>
</tr>
<tr>
<td>University of Pittsburgh Medical Center (12)</td>
<td>University of California (Davis) (6)</td>
</tr>
<tr>
<td>CHRU/University Hospitals Medical Center (11)</td>
<td>Children’s Hospital of Philadelphia (5)</td>
</tr>
<tr>
<td>University of California (San Francisco) (11)</td>
<td>University of Utah (5)</td>
</tr>
</tbody>
</table>

Faculty Perceptions
2021 (n = 402/752, Response = 53%)

<table>
<thead>
<tr>
<th>Perceptions of CCLCM</th>
<th>Physicians n = 316</th>
<th>PhDs/Others n = 86</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a sense of pride in the CCLCM program</td>
<td>97.8</td>
<td>98.8</td>
</tr>
<tr>
<td>CCLCM enhances the overall reputation of the Cleveland Clinic</td>
<td>97.5</td>
<td>100</td>
</tr>
<tr>
<td>I have been intellectually stimulated by my work in the CCLCM program</td>
<td>95.6</td>
<td>94.2</td>
</tr>
<tr>
<td>My work in the CCLCM program is professionally rewarding</td>
<td>94.3</td>
<td>94.1</td>
</tr>
<tr>
<td>My department chair values my involvement in the CCLCM program</td>
<td>87.0</td>
<td>89.5</td>
</tr>
<tr>
<td>CCLCM’s leadership appropriately recognizes faculty for their contributions to the program</td>
<td>83.1</td>
<td>89.3</td>
</tr>
<tr>
<td>I received sufficient faculty development for my role(s)</td>
<td>77.2</td>
<td>73.3</td>
</tr>
<tr>
<td>I used my CCLCM activities to produce scholarly work (e.g., poster, presentation, publication, etc.)</td>
<td>34.8</td>
<td>41.9</td>
</tr>
</tbody>
</table>

Institutional Impact

- Expanded educator development programs
- Added reflective essays to faculty annual performance review (“mini portfolio”)
- Revised teaching evaluations to increase qualitative feedback
- Developed award for clinicians who complete assessments and provide useful feedback

Alumni Follow Up

Questionnaires
- After internship
- 10 years post graduation

Engagement
- 22 graduates on staff

Scholarship
- Qualitative study

Alumni Follow-up

“The CCLCM model is to try to create well-rounded physicians who have research competency and other competencies…There is no test that would allow you to show that. The portfolio system is kind of the only way to do that.” (Physician)
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**Alumni Follow-up**

“You know I think that it is a very personalized system, which involves a lot of work both on our part and on the person who has to read our portfolio... You know it makes you feel a lot more like they see you as a whole person rather than as a number.” (Physician)

**Alumni Follow-up**

“I think the most important one that I can recall is just the overall concept of self-learning and trying to always continuously improve upon your performance. That was something that directly carried over from [CCLCM’s] assessment system over into residency.” (Physician)

**Scholarship on Educational Effects**

**Lessons Learned**

- Better to be revolutionary, than evolutionary.
- View assessment as a complex system with multiple, integral components.
- Advisors are critical.
- Develop principles to obtain faculty buy-in, guide assessment system design, and inform policies.
- Create a “graduate education” during medical school to prepare learners for their careers.

- A portfolio is not a filing cabinet. Students must have ownership to select and reflect upon assessment evidence.
- Engage frequently with stakeholders and offer reassurance and support.
- Let the vision, not available technology, dictate the features and functions of portfolios.
- Determine if goal is “assessment for learning”, “assessment of learning”, or combination.
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I just spent 45 min speaking with you. What is something that you heard that you think could apply to your curriculum renewal process?

Cleveland Clinic
Every life deserves world class care.