Modified Problem Based Learning (mPBL) in Graduate Medical Education: How to Make it Work?

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If you could get one thing out of this workshop……

• Poll everywhere for expectations…
Objectives

1. Explore the current use of problem based learning methods in graduate medical education

2. Demonstrate the components of an effective modified PBL curriculum for residency programs

3. Introduce new and robust methods of delivering content using a problem based learning approach

4. Identify the affordances and constraints of incorporating problem based learning methods in a residency curriculum

5. Brainstorm approaches into incorporating problem based learning strategies in residency programs
History of PBL?

- Problem based learning is a method of teaching and learning that originated at McMaster University, Medical Program, in the mid-60s.

- This method of teaching and learning spread fairly fast and within a few years of its conception. Now several hundred schools offer some form of problem-based learning.

- Informed by adult learning theory:
  - Dewey
  - Socratic
  - Piaget
  - Vygotsky
What is Problem Based Learning?

- **Problem-based learning** (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve a problem.

- **PBL** is an active and iterative process to identify what students know and, more importantly, what they don’t know.

- The problem is what drives the motivation and the learning by:
  - Examining and defining the problem
  - Exploring what they already know about underlying issues related to it
  - Determining what they need to learn and where they can acquire the information and tools necessary to solve the problem
  - Solving the problem
  - Reporting on their findings

![PBL Process Diagram](https://www.bcellular.net/katalogien/problem-based-learning-basics)
Why to make a move towards PBL?

- Critical thinking and analysis
- Problem solving across disciplines
- Working in teams
- Self-directed learning
- PBL promotes self-directed learning and teaches people how to learn
- PBL fosters independent learning and teaches students to help and teach each other
- Self-awareness and evaluation of group processes
Activity #1

Small Group discussion:

• Have you ever been part of a PBL? What was it like?
• What is the value of PBL methods in medical education?
• Have you had a chance to use problem based teaching methods during residency training? How was it?
What is Modified PBL (mPBL)

- In traditional problem based learning, the facilitator:
  - Keeps the students on topic
  - Aims to address and handle difficult group dynamics
  - Provides small amounts of targeted information
  - Evaluates students

In modified problem based learning (mPBL), the facilitator, in addition to the above:
- Provided “active facilitation” during the small group discussions
- May be a content expert in the problem
- Challenges the learner by posing questions that targets higher order levels of learning (e.g. applying, analyzing, and evaluating rather than just remembering)
Activity #2

Small Group discussion:

• How could you implement PBL into your residency program?
• What are the challenges you anticipate?
• Brainstorm solutions to overcome these constraints
THE CLEVELAND CLINIC EXPERIENCE
Structure

- Embedded Curriculum
- Y-Week Didactics
- Bedside Teaching
Break down of the Y-week structure

- Each Y-week is every 5 weeks
- 10 y-weeks / year
- 6 internal medicine clinics/week + 1 subspecialty clinic
- Two protected half-days for delivering academic content
- Each FRAME consists of 16-18 PGY 2/3’s
- PBL is delivered during the Y-week
Break down of “Y” WEEK CURRICULUM

MONDAY

- 8:00 – 8:30: Case introduction
- 8:30 – 9:00: Interactive core didactic
- 9:00 – 10:00: Journal club
- 10:00 – 12:00: FRAME

TUESDAY

- 1:30 – 2:30: Case discussion in 3 groups
- 2:30 – 3:00: Q&A session with content expert
- 3:00 – 3:30: Didactic by content specialist
- 3:00 – 3:30: Didactic by content specialist
Session 1 (Monday, 8:00 am - 8:30 am)

- Case introduction (Multi-system case)
- Formation of differential diagnosis
- Formation of learning objectives

Session 2 (Tuesday, 1:30 pm - 3:30 pm)

- Discussion of LO's (1:30 - 2:30 pm, small resident group discussion (faculty and chiefs present))
- Q&A session (2:30 – 3:00 PM)
- Didactic (3:00 - 3:30 PM)
- Promotes adult learning, including self-directed learning and timely application of new information
## Assessment

### Modified PIOL: Assessment of Medical Knowledge (MK) and Assessment of Interpersonal and Communication Skills (IC) 5: Milestone Stage

Please check the box under the appropriate milestone stage for the trainee you are assessing. Milestone stages are aligned with soft competencies on this form. At the end of the assessment, you will have the opportunity to provide narrative feedback to the trainee. Your feedback is critical to helping your trainee progress to the next milestone stage.

<table>
<thead>
<tr>
<th>Critical</th>
<th>Minimal</th>
<th>Advanced</th>
<th>Uncommon</th>
<th>Aspiration</th>
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</thead>
<tbody>
<tr>
<td>1. Subcompetency: IC5: Resident communicates effectively with other professional teams.</td>
<td><em>Executive gaps in Collaboration and teamwork.</em></td>
<td>Use unidirectional communication that leads to effective communication within the team.</td>
<td><em>Fully engages in Collaborative Communication with appropriate members of the team.</em></td>
<td>Consistently and actively engages in collaborative communication with all members of the team.</td>
</tr>
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<td>2. Subcompetency: MK: Resident has the foundational knowledge to apply diagnostic testing and procedures to patient care.</td>
<td><em>Exhibits gaps in knowledge of basic diagnostic tests and common procedures.</em></td>
<td>Inconsistently demonstrates knowledge of basic diagnostic tests and common procedures.</td>
<td>Consistently demonstrates knowledge of basic diagnostic tests and common procedures.</td>
<td>Consistently demonstrates knowledge of complex diagnostic tests and common procedures.</td>
</tr>
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**Comments/Feedback:**

Submit completed evaluation

*Required fields*
WHAT'S HAPPENING AS A RESULT

FEEDBACK
• Residents have enjoyed focus on self-directed learning and teaching peers
• Relevance to learning has increased and has become more dynamic, fun and interactive
• Each resident has not been able to cover all learning objectives due to short turnaround time between introduction and case discussion

VISION
• Increasing turnaround time between case introduction and discussion
• Advancing cases to cover more curricular topics
• Having multidisciplinary content experts for multisystem cases
• Building up video library / podcasts to enhance curricular content
Key Takeaways

- PBL can successfully be implemented in graduate medical training programs

- Modified PBL allows for a hybrid structure that encompasses both peer to peer learning and traditional didactic style teaching

- Modified PBL would work best if implemented into a X+Y week structure

- Allows for assessment of learners
References


• https://www.cte.cornell.edu/teaching-ideas/engaging-students/problem-based-learning.html
Cleveland Clinic

Every life deserves world class care.

Questions:
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