Teaching Up the Ladder: Strategies for Meeting Your Trainees’ Clinical Learning Needs at Every Level

### Question Classification

**Comprehension Application**
- **Convergent, High Order**
- **Divergent, High Order**

**Knowledge**
- **Convergent, Low Order**
- **Divergent, Low Order**

**Synthesis Evaluation**

#### Low-order, convergent ~ Knowledge
- “What are drugs that have proven mortality benefit in heart failure with reduced ejection fraction (EF)?”

#### High-order, convergent ~ Comprehension and Application
- “In what ways is heart failure with reduced EF different from heart failure with preserved EF?”

#### Low-order, divergent ~ Analysis
- “Why might it be difficult for our homeless patients with heart failure to adhere to their prescribed low-salt diet?”

#### High-order, divergent ~ Synthesis and Evaluation
- “Given the results of the COURAGE trial for PCI vs medical therapy in patients with ACS, what is your recommendation for our patient?”

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**Bloom’s Taxonomy**

- **Remember**
  - “What is the mechanism of action of acetaminophen?”
- **Understand**
  - “Describe the goals of therapy in patients with malignant pain?”
- **Apply**
  - “According to the WHO guidelines, what would be the most appropriate choice in this case scenario?”
- **Analyze**
  - “Given the patient’s symptoms, what are the most likely etiologies of her pain?”
- **Evaluate**
  - “Based on the findings of this study, what do you believe is the role of pregabalin in the treatment of post-herpetic neuralgia”
- **Create**
  - “This patient has had four ER visits in the past month due to uncontrolled pain. How would you manage this patient to help prevent another urgent care visit?”

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Descriptions of Multi-level Teaching Techniques

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<thead>
<tr>
<th>Technique</th>
<th>Description</th>
<th>Example</th>
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<tr>
<td>Broadening</td>
<td>Change the specifics of a case to make it more challenging or interesting</td>
<td>“What if the patient developed fevers overnight? How would that change management?”</td>
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<tr>
<td>Targeting</td>
<td>Target medical knowledge or management questions to specific team members based on the difficulty of the question</td>
<td>John (student), what are some major causes of atrial fibrillation; Sarah (intern), how do you manage atrial fibrillation with RVR; June (resident), can you summarize the key points of the BRIDGE trial?</td>
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<tr>
<td>Novelty</td>
<td>Offer new data</td>
<td>“Let’s discuss the new c. difficile guidelines...”</td>
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<tr>
<td>Up the Ladder</td>
<td>Ask the same question to the medical student, then the intern, then the resident, etc.</td>
<td>“OK, we have a patient with chest pain and fevers...Oliver, what do you think it is? Jill, what about you? Jose, what do you think it is?”</td>
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<tr>
<td>Student as Teacher</td>
<td>Have a more senior learner train a more junior learner</td>
<td>“Carline, can you tell Joyce how to assess for lymphadenopathy?”</td>
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<tr>
<td>Multi-Answer</td>
<td>Seek many answers to the same question</td>
<td>“We have a patient with chest pain. What do you think is going on? OK, Sarah thinks it’s PE because of his recent hospitalization. What does everyone else think?”</td>
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<tr>
<td>No Right Answer</td>
<td>Ask questions with no single correct answer</td>
<td>“When and how should we tell the patient her diagnosis?”</td>
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<td>Teaching to the Top</td>
<td>Teach to the most senior trainee on the team</td>
<td>“Susan, what’s the next step in heart failure patient who is already on maximum dose of inotropic agents and cannot tolerate further afterload reduction?”</td>
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<tr>
<td>Extreme Challenge</td>
<td>Teach to the level above everyone on the team</td>
<td>“One way to study the development of drug resistance is to do a haplotype analysis...”</td>
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How to ENGAGE Multilevel Learner Groups

- Everyone Teaches
  - Set the expectation that all learners will contribute to teaching
  - Can tailor the teaching points to each learner’s individualized learning goals
- Novel Topics
  - Collectively review recent publications, hospital protocols, clinical guidelines and new understandings of disease mechanisms or treatments
  - Complexity not model harder to teach competencies such as humanism, professionalism, communication, or diagnostic bias
  - Reflect out loud, demonstrate vulnerability, role-play difficult conversations, as a team, consider multiple perspectives about a patient

Ascend the Ladder

- Targeted questioning helps the clinical teacher target specific learning objectives for each team member
- Students – foundational questions (i.e. pathophysiology); interns – diagnostic and treatment options; residents – case synthesis

Groups within the Group

- Create pairs or trios to complete a task
- Pair medical students with residents to ensure teaching relationships
- When possible, pair learners according to complementary skills/similar learning goals

Empower Learners for Autonomy

- Promote autonomy among all team members
- Delegate duties appropriate for each learner’s level and skill set
- Encourage junior members to lead discussions

Useful Resources and References


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