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

Part 1
Introductions

• [insert your name, title and qualifications here]
Objectives

• Characterize methods used by exceptional clinical teachers to effectively gauge and teach to a learner’s level.

• Discuss multi-level teaching techniques, including appropriate and safe use of questioning as a teaching tool.

• Practice concrete strategies for engaging varying levels of learners in the same clinical teaching encounter.
Roadmap

Part 1

• Introduction
• Preparation
  • Development of excellent multi-level teachers
  • Characteristics of excellent clinical teachers
• Questioning as a teaching tool
  • Bloom’s Taxonomy
  • 4-Quadrant Approach
  • Application: Small group
Roadmap

Part 2

• Techniques
  • Literature review
  • Multilevel teaching techniques
  • Application: Role-play activity

• Conclusion
  • Large group discussion/Q&A
Learning Cycle

Introduction

Preparation

Questions

Techniques

Conclusion

Set Goals → Observe Performance

Action Plan → Feedback

Learner

Attending
Learning Cycle

1. **Introduction**
2. **Preparation**
3. **Questions**
4. **Techniques**
5. **Conclusion**

- **Learner**
- **Set Goals**
- **Observe Performance**
- **Action Plan**
- **Feedback**
- **Attending**
Clinical learning environments are extraordinarily complex!
Spoiler Alert!

• It isn’t possible to meet every learner’s needs simultaneously....

• ...but there are some tactics to best engage the learning team, when there are multiple levels of learners present, if you do your homework!
PREPARATION:
How do we set ourselves up for success?
Teacher Homework

• Attending Preparation Strategies
  • Trainee-specific
  • Disease-specific
  • Patient-specific
  • Mental preparation
Teacher Homework (Trainee-Specific)

**Introduction**

- Get to know your learners
  - Past experience
  - Areas where learners have done well
  - Areas where learners need some work
  - Get to know your learners as people, too...

**Preparation**

- Know what is expected of your learners
  - Course/rotation objectives

**Questions**

**Techniques**

- Understand your role in your learners’ education

Teacher Homework (Trainee-Specific)

Introduction

Preparation

Questions

Techniques

Conclusion
Goal Setting

• Ask your learner to set his/her own goals
• Help your learner to refine his/her goals (negotiation)
• Add your own goals for the learner
• It’s important to have SMART goals!
  • Specific
  • Measurable
  • Attainable
  • Relevant
  • Time-framed
Teacher Homework (Disease-Specific)

- Identify diagnoses, procedures, processes with which your learners (and you!) feel least comfortable and review these
- Create teaching points or teaching scripts
Teacher Homework (Trainee & Disease-Specific)

Introduction

Preparation

Questions

Techniques

Conclusion

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### Rounding Sheet

<table>
<thead>
<tr>
<th>Name:</th>
<th>Phone Number:</th>
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</thead>
<tbody>
<tr>
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</table>

Which topics are you interested in learning about? (Feel free to add another topic to the list):

<table>
<thead>
<tr>
<th>Topic</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Hyponatremia</td>
<td>Peripheral smears</td>
</tr>
<tr>
<td>Hypercalcemia</td>
<td>Hemolytic anemia</td>
</tr>
<tr>
<td>Dermatology</td>
<td>Coagulation cascade</td>
</tr>
<tr>
<td>Nephrotic syndrome</td>
<td>HIT</td>
</tr>
<tr>
<td>Glomerulonephritis</td>
<td>EKGs</td>
</tr>
<tr>
<td>Vasculitis</td>
<td>Cardiac pre-op risk stratification</td>
</tr>
<tr>
<td>Rheumatology primer</td>
<td>Pulmonary HTN</td>
</tr>
<tr>
<td>Bacteremia Basics</td>
<td>COPD</td>
</tr>
<tr>
<td>Inpatient Diabetes Management</td>
<td>Evidence Based Medicine (articles)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Wildcard</td>
</tr>
<tr>
<td>DVTs/anti-coagulation</td>
<td>Other (Pick topic)</td>
</tr>
</tbody>
</table>

Main goals you want to accomplish during rotation:

- [ ]
- [ ]
- [ ]
- [ ]
Teacher Homework (Patient-Specific)

• Review notes, labs, studies, EMR (and possibly evaluate patients directly)

• Along with knowledge of learning goals, decide on areas of educational focus and prepare teaching points
Clinical teaching is not as opportunistic as it initially appears...
Excellent Clinical Teachers

- Deliberately structure and sequence learning opportunities for different level learners
- Sequence clinical learning opportunities by adjusting case content, managing case complexity and tailoring expectations for different learners
- Strategically select learning activities to promote individual learner progression along a developmental trajectory
- Learner growth and patient safety considerations drive teacher attention to learner developmental levels and selection of learning activities

But how does one make music?
Small Group Activity #1

• What strategies do you employ when teaching multiple levels of learners simultaneously?

• Discuss in groups of three or four

• Share with the larger group.
QUESTIONS:
Use of questioning as a teaching tool
Bloom’s and Revised Bloom’s Taxonomy

1956

Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation

2001

Remember
Understand
Apply
Analyze
Evaluate
Create

Noun to Verb Form
Bloom’s Taxonomy

- **Remember**: Recall facts and basic concepts (define, duplicate, list, memorize, repeat, state)
- **Understand**: Explain ideas or concepts (classify, describe, discuss, explain, identify, locate, recognize, report, select, translate)
- **Apply**: Use information in new situations (execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch)
- **Analyze**: Draw connections among ideas (differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test)
- **Evaluate**: Justify a stand or decision (appraise, argue, defend, judge, select, support, value, critique, weigh)
- **Create**: Produce new or original work (design, assemble, construct, conjecture, develop, formulate, author, investigate)

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**Introduction**

**Preparation**

**Questions**

**Techniques**

**Conclusion**
Bloom’s Questions

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?”

Bloom’s Questions

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?”
Question Classification

- **Convergent**
  - closed questions, not offering many options
  - questions converge on a single or narrow list of “best” answers

- **Divergent**
  - open-ended questions
  - permits exploration of diverse perspectives
  - encourages dialogue
Question Classification

• **Low Order**
  - Questions that elicit responses in the knowledge, comprehension and application domains

• **High Order**
  - Elicit deeper and more critical thinking
  - Questions that elicit responses in the analysis, synthesis and evaluation domains
Question Classification

Introduction

Preparation

Questions

Techniques

Conclusion

Knowledge

Comprehension

Application

Convergent, Low Order

Convergent, High Order

Divergent, Low Order

Divergent, High Order

Synthesis

Evaluation

Analysis

Examples of Questions

• **Low-order, convergent ~ Knowledge**
  • “What are drugs that have proven mortality benefit in heart failure with reduced 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, 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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Questioning When Teaching

- **Create safe environment**
  - Growth mindset

- **Set expectations**
  - Questions are a learning exercise.
  - It is OK to not know the answer, but trying is expected.

- Focus on the team, not the individual
- Avoid “read my mind.”
- Start with an easy question (a question 90% of the people will know 90% of the time)
- Always question up the team
- Allow for an out
  - Phone a friend
- Wait time and think time
Questioning When Teaching

- Change the scenario
  - Ask, “What if...??”
- Extend the question
- Ask, “Why?”
- Probe the student
  - Encourage students to complete, clarify, expand or support their answers
- “Redirect questions to the other learners
  - “What does everyone else think?”
- Be democratic; get a commitment from each learner.
- Generate discussions
- Majority of questions should be clinical reasoning, rather than facts
  - Pre-plan questions that lead to key teaching points*
Correcting Wrong Answers

• Have a list of stock phrases
• Look for the nugget of truth in answer...and praise it, reinforce it...then build on it.
• Lead them to the correct answer
• Encourage/model self-directed learning
  • Look it up and report back
• Encourage learners’ questions
Small Group Activity #2

• Using Bloom’s taxonomy or the 4-Quadrant classification system as a guide, create teaching points/questions for the following trainees:

<table>
<thead>
<tr>
<th>Trainees</th>
<th>Possible Topics (Pick one)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New medical student</td>
<td>Pulmonary – Pneumonia</td>
</tr>
<tr>
<td>Advanced med student/sub-intern</td>
<td>Hematology – Anemia</td>
</tr>
<tr>
<td>Intern</td>
<td>Renal – Acute Kidney Injury</td>
</tr>
<tr>
<td>Resident/Fellow</td>
<td>Infectious Disease – Sepsis</td>
</tr>
</tbody>
</table>
Take Home Points

• Good clinical teaching is not completely opportunistic
• It is especially important to do your homework when teaching a session that includes multilevel learners
• Develop questions surrounding key teaching points ahead of time
• Attempt to utilize higher-order questions when possible

• Please refer to Part 2 for a discussion of specific techniques used to teach multilevel learners
References


