Creation of an Active Learning Environment in the Lecture Setting

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Disadvantages of Traditional Lectures

http://projectflexner.sites.medinfo.ufl.edu/interactive-teaching/
Why promote Active Learning in lectures?

- Increase learning with active participation
- Improve attention span and motivation
  - Increased memory
- Increased faculty and resident satisfaction

Passive vs. Active Learning

Is the purpose of conducting lectures for the faculty to teach or is it for the learners to learn?

- Shift the focus to the learner
- Don’t view your lecture just as a delivery of information
- Bi-directional flow of information

What is most important at the end of the lecture is what the residents **LEARNED** and not what was taught!
Barriers to Interactive Lectures


- Losing control of audience
- Not being able to cover all content information
- Not knowing the answer to the questions posed by residents
- Time it will take to alter present lectures or create new ones
How do we promote active learning in didactic lectures?
Attributes of the Effective Medical Lecture

Case-based format
- Better retention of material
  - ‘Stories’ are easier to retrieve than conceptual memory
- Problem solving

Interactive

Higher order questioning


Interactive Techniques

- **Questioning the audience**
  - Wait time ( > 5 secs), ask the whole audience
  - Breaking into small groups or pairs
    - Think-pair-share

- **Completing worksheets**

- **Using audience response systems**

- **Simulation or role play**

- **Videotapes**
# Lower vs Higher Order Thinking

<table>
<thead>
<tr>
<th>Lower level objectives</th>
<th>Verbs</th>
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<tbody>
<tr>
<td>Knowledge</td>
<td>Define, list, state, name</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Identify, explain, recognize, discuss</td>
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</table>

<table>
<thead>
<tr>
<th>Higher level objectives</th>
<th>Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>Apply, demonstrate, illustrate, interpret</td>
</tr>
<tr>
<td>Analysis</td>
<td>Analyze, categorize, compare, differentiate</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Design, formulate, plan, manage</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Choose, critique, rate, appraise</td>
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Higher Order Questioning

*How, what if, when, why..?*

- **Identify the patient problem?**
  - *What do you think is the main problem?*

- **Data acquisition**
  - *What historical info will you obtain?*
  - *What will you be looking for on physical exam?*

- **Create a differential**
  - *What do you think could be the cause (s)?*
  - *Anything else could be causing this?*
  - *Can you compare and contrast these diseases?*
  - *What if...?*
Higher Order Questioning

- Justify their answers
  - *Why do you think ____?*
- Physical exam or lab tests or radiographs
  - *How do you interpret this?*
  - *How does it fit with your diagnosis?*
- *Can you expand your answer or explain further?*
- *How would you approach this patient?*
Review an Interactive Lecture
Getting Started: How to Create an Interactive Lecture

- Identify a few key essential points
- Create one or more cases
  - Determine how to reveal case
- Create a worksheet
  - Formulate questions/structure
- Develop a few slides
  - pictures, summary points, diagrams
- State key elements in beginning or end
Other tips...

- State the organization of the lecture
- Ask clear questions
- Pause after each question >5sec
- Ask them to recall similar cases
- Make them justify their answers
- Incorporate basic science principles