**STFM Faculty for Tomorrow Resident as Educators Curriculum:  
Residents Teaching—Facilitator’s Guide**

**Key Learning Points**

Purpose: A major part of resident responsibilities is to teach medical students, interns, and fellow residents. However, typically minimal instruction on effective teaching is incorporated into educational programs. By making teaching a more intuitive process, ultimately resident education is enhanced resulting in improved patient care.

Instructional Goal: To train residents with the necessary skills to become more effective teachers thus improving resident and student education and ultimately patient care.

Session Outline:

1. Introduction to teaching and learning
2. Adult Learning Theory
   1. Overview
   2. Scenarios/case examples
3. Getting Ready to Teach
   1. Initial orientation
   2. Scenarios/case examples
4. General Teaching Tips
   1. Teaching Pitfalls to Avoid
   2. Scenarios/Case Examples
5. Teaching Techniques
   1. Priming
   2. Framing
   3. Modeling
   4. One Minute Preceptor
   5. Scenarios/Cases Examples
6. Conclusion and Summary

Learning objectives:

1. Define teaching versus learning
2. Explain the basic tenets of adult learning theory
3. Examine how learning *generally* develops among students & residents
4. Describe specific types of case based teaching techniques

**Session Time: 90-120 minutes (OR May be broken into two 45-60 minute sessions)**

**Step-by-step instructions for teaching the curriculum: Teaching Introduction**

The format of the beginning of this presentation is question and answer based in order to facilitate active participation and content retention. For convenience, a “script” is provided in the comments section of various slides throughout the presentation to be used at the facilitator’s discretion.

In order to illustrate the importance of resident teaching, the initial portion of the curriculum (**Slide 3**) delves into the impact of such teaching as a whole on the education of both medical student and other residents.

The definition of teaching (**Slide 4**) is then discussed, in addition to highlighting the fact that teaching and learning are not necessarily synonymous activities. For completeness, learning (**Slide 5**) is defined as well, but one step further is taken by interjecting a discussion of situations in which workshop participants learned well or did not learn very well. By categorizing (and discussing) such answers, common themes will begin to emerge and point toward teaching behaviors that should be both emulated and avoided (in order not to hinder learning).

A brief overview of adult learning theory is discussed (**Slide 6**) so that the ‘teachers’ can gain a better understanding of the way in which future learners (in general) will desire to have information presented.

* Adult learners in general:
* Want to use what they learn quickly i.e. learn information that is RELEVANT
* Like to learn concepts and principles rather than just facts; actively participate in the learning process in order to apply the information that they are learning
  + **Additional Discussion Question:** *What are some ways that we can encourage investment/engagement by learners? Examples below.*
    - Allow them do non-urgent procedures such as ABG’s
    - Allow learners see patients first and then you follow behind them and describe relevant physical exam components as well as discuss the assessment and plan
* Learn at their own pace
* Most motivated when helping set learning objectives or the information immediately relates to him/her
* Want to know what is expected (early in the course of a given interaction)
* Desire feedback and to know how well they are doing or areas of needed improvement
* Furthermore, adults are in control of their own learning. As teachers your job is to *help* the learner learn, but the actual learning is up to the learner. A helpful strategy to ensure the learning process takes place is to establish what learning needs are present, develop a strategy to address those needs and then identify resources to achieve goals. Afterwards, the process should be evaluated to determine if the goals were achieved and if the process was helpful.

The general evolution of residents’ clinical decision making process (**Slide 7**) is discussed as well as how residents tend to learn. The following questions are explored. *What happens during the course of a resident’s education? How does their clinical reasoning evolve?*

* Residents tend to utilize a decision making process that weighs decisions. Instead of purely focusing on the ‘right’ answer, residents tend to try to decide which decision is better or worse for a particular patient. In other words, residents are able to demonstrate a ‘reasoned process of decision making.’
* Residents, depending on level of training, will generate hypotheses (a differential diagnosis) to begin the process of figuring out the cause of a given patient’s symptoms.
* Pattern recognition is often used by the novice learner when first developing clinical reasoning abilities. Targeted question or additional testing are used to then decide which diagnosis is most likely. Even in absence of a clear diagnosis, residents are able to begin treating the patient’s symptoms despite lingering clinical uncertainty.
* In addition to pattern recognition, the more advanced learner is able to utilize analytical thinking to compare multiple conditions and articulate why one is more likely than another. Information such as epidemiology or knowledge of risk factors allows this to occur. Ultimately, the diagnostic process tends to become intuitive and non-analytical as the learner gains more experience though the foundation of such is the analytical approach.
* Take Home Point: Again, by understanding where your learners ‘are’, you can begin to better frame just how you teach to best encourage learning.

In comparison, the medical student learners’ clinical reasoning process development (**Slide 8**) is explored as well. The following questions are posed to the workshop participants. *What happens during the course of a student’s education? How does their clinical reasoning evolve?*

* Medical Students tend to learn to be data gatherers and scribes. They tend to record and memorize a lot of information. They also tend to expect the teacher to give them clear and organized information and tell them what is considered right or wrong. As their education progresses to the third and fourth years, the students learn that answers may not clearly be ‘right’ or ‘wrong,’ They may become overwhelmed with the fact that some answers are not known and may never be known.
* Early on, students will likely focus on individual symptoms rather than being able to see a unifying pattern and thus, identify a specific disease. For example, the student may attempt to address shortness of breath, edema, and paroxysmal nocturnal dyspnea separately rather than recognizing the symptoms of congestive heart failure.
* As learning progresses, students are able to use pattern recognition to determine a specific diagnosis. This tends to work well for common or uncomplicated presentations. If a disease process does not, however, fit a known pattern, then the student may revert to focusing upon symptoms.
* Advanced reasoning ability is unlikely to be developed fully in medical students but is worth noting as different learners perform at different levels. The more advance learner is able to utilize analytical thinking to compare multiple conditions and articulate why one is more likely than another. Information such as epidemiology or knowledge of risk factors allows this to occur. Ultimately, the diagnostic process tends to become intuitive and non-analytical as the learner gains more experience though the foundation of such is, again, the analytical approach.

As an introduction to the ‘getting ready to teach’ section, the ideal of the ‘good teacher’ (**Slide 9**) is briefly discussed in order to frame additional discussions for the remainder of the presentation: tasks necessary to accomplish in order to get ready to teach & specific useful teaching techniques.

Initial Orientation Additional Tasks (**Slide 11**)

In addition to the previously discussed tasks (see slide comments), the initial orientation should make sure to cover the following:

* Setting goals and objectives
  + Learners define personal goals & objectives
* Setting expectations of each team member
  + For a typical day
* Discussing team organization
  + Schedule for days off & teaching
* Ensuring communication
  + Sharing phone numbers and pagers
  + Oral case presentations
  + Written notes
  + Tracking patient data—ie cards, books, device etc—to monitor trends for example in labs
  + How to get help
* Describing the supervision-autonomy spectrum
  + How decisions will be made
  + Resident team leader has final say in absence of attending if there is disagreement
  + Expected to make patient care decisions

**Orientation Scenario (Slide 12)**

*Ask for volunteers or assign someone from the audience to play the role of the resident and intern. Any of the above listed goals for orientation may be discussed. Specific topics to be absolutely covered are listed for each role in the scenario. Instruct the audience to pay close attention and take note of what was done well or what could be improved.*

* Resident—Intern

(Resident) This is day one on the inpatient Family Medicine service. You need to orient a brand new Intern and give an overview of the day. Make sure to exchange contact information so your intern knows how to reach you. Briefly discuss patient load, presentations, notes, and orders. You have 5 minutes to orient the intern to the inpatient service as you need to go and check on a new admission that was just signed out to you.

(Intern) You are really interested in becoming more comfortable with the inpatient management of diabetes and diabetic ketoacidosis. During sign outs, you heard that the new admission overnight has this, but being that this is only your first day, you are not sure that you should ask to follow this patient. You’re wondering how many patients you will follow, though, and how much time you will have to check on patients before formal rounds. You would like to know expectations are far as presenting on rounds, too. The floor just called you about a patient with constipation. You feel comfortable ordering a medication but did not know in what situations you can just go ahead and give verbal orders since this is your first rotation.

* Resident—Medical student

(Resident) This is the 1st day on inpatient service. You need to know if student will be out any days so that you can discuss the work schedule. The day’s tasks need to be explained, and you need to communicate expectations regarding rounds, notes, dress code. Your student need to know where to put their things, when is lunch, etc. Don’t for get to develop a feedback plan.

(Medical Student) The student will not volunteer that he or she knows how to do a soap note unless asked about previous rotation experiences. The student is off cycle so this is not his or her first rotation. Share your learning goals.

**IF TIME DOES NOT PERMIT YOU TO COMPLETE THE ENTIRE WORKSHOP IN ONE SITTING, THIS MAY BE A GOOD PLACE TO STOP AND THEN RESUME LATER.**

**READY…SET…TEACH!!! (Slide 13)**

**OPTIONAL:** If the workshop is broken up into multiple sections, then this would be a good time to briefly review what was discussed/learned previously. Encourage the audience to call out what they learned and record it on white board if available. Additionally, fill in gaps with any missing info*.* The following was covered:

* Setting goals
* Organizing the team
* Team member expectations
* Supervision & autonomy
* Ensuring communication

Prior to the discussion of specific teaching techniques, a general discussion of teaching tips occurs (**Slide 14**). The following provides specific points for discussion.

* When asking a question, wait 3 seconds for answers to questions. (The average is 1 second.) If you do so then responses become 3–7 times longer and contain more logical arguments and speculative thinking.
* Question in a non-threatening supportive way
  + Ask questions that show problems solving skills i.e. higher order questions that don’t just have a single right answer. (Avoid the whole guess what I’m thinking trap.)
    - Example questions: What do you think is going on? What do you want to do next for this patient? *What is your favorite question to ask learners? Why?*
  + Assess the learner’s level of understanding. *What is an example of a question that does this?*
* Select one or two teaching points or general rules especially as related to the learner’s questions. Do not include everything that you know. Emphasize principles that will apply to other clinical cases. If the learner does not have any questions, then you can focus on preventive care, physical diagnosis, interview techniques, or an inactive problem.

General Rule Practice (**Slide 15**). Please give the *disclaimer* that the purpose of this exercise is NOT to test the audience’s medical knowledge, but rather to highlight the fact that teaching general rules can be an easy, intuitive process.

* Encourage the audience to list 5–10 general rules per case, more if possible. If no readily given answers, useful prompts might include asking-- What lab could you teach about? What physical exam could you teach about? What psychosocial issues might need to be addressed?
  + 62 yo alcoholic with fever and shortness of breath. CXR with new right sided infiltrate.
  + 48 yo with chest pain in the mid-sternum that is responsive to nitroglycerin. Initial EKG is unremarkable.
  + 83 year old with altered mental status for the last 24 hrs. The patient resides in a nursing home and was coherent and walking one week ago.
  + An obese 18 year old with low back pain of 2 weeks duration. No red flag symptoms such as numbness, weakness, or incontinence are present.

The final section of the presentation (**Slides 16–23**) explores various teaching techniques that can be useful especially given certain time constraints. It should also be highlighted that using a structured approach to teaching may mitigate some of the challenges previously identified (see comments of slide 16 for discussion questions) in teaching residents and students as well as assist in the seamless incorporation of teaching into clinical care.

Priming (**Slide 17**) can be useful BEFORE the visit. Framing (**Slide 19**) may help improve learner efficiency, and modeling (**Slide 20**) may be most useful when limited time is available for teaching. Finally, the one minute preceptor model (**Slide 22**) might be most useful after the visit thus allowing the teacher to address both the learner’s and patient’s needs efficiently and effectively. Scenarios for role play of the various teaching techniques are included as well (**Slides 21 and 23**)

**Modeling Scenarios (Slide 21)**

Ask for volunteers to model the following for another resident or medical student. You will need a volunteer to serve as a patient as well. *As appropriate, feel free to interject other challenging scenarios that you have personally experienced.*

* A Code Status discussion with an unresponsive patient’s family. The family is deeply religious. EEG performed by neurology shows essentially no brain activity. The patient is intubated & sedated and is on multiple vasopressors to maintain blood pressure in the setting of multisystem organ failure, including cardiogenic shock.
* A discussion with a patient needing narcotics refilled but has a drug screen positive for illegal substances. The patient has broken the pain contract by visiting another clinic in order to receive narcotics and by having prescriptions filled at various pharmacies. This patient has a history of hip osteonecrosis and has had a joint replacement in the past, so there is no doubt that the pain is legitimate.

**One Minute Preceptor Scenarios (Slide 23)**

* Resident

You are the upper level on the inpatient service. The ER just paged your intern with a new admission. The patient is a 63 yo Mexican female who has come to visit her daughter for an extended stay. She does not speak English fluently but does understand a little English. Her daughter is here with her today. She is complaining of fever, chills, and abdominal pain. She has not seen a doctor in several years and takes no medication.

* Intern

You have gone to see the patient in the emergency room. Your upper level really likes to teach. You feel pretty comfortable that you have accurately assessed the patient. Her urinalysis showed some bacteria, white cells, and blood. You think this is definitely at urinary tract infection and want to discharge her from the ER with something for pain and an antibiotic.

* Resident

You are working in the ambulatory clinic. A third year medical student has been assigned to work with you today. The student has shadowed you for multiple days, and you feel that it is time for him/her to try to see a patient alone. Patient Ms. F is a 41 yo Caucasian female complaining of cough for the last month. Your patient is new to the clinic and is a smoker with a 15 pack year history. She takes no medications. As you knew her chief complaint when she arrived and saw that her temperature was slightly elevated at 100 degrees Fahrenheit, you asked the nurse to go ahead and send her to x-ray. Her image revealed a lingular infiltrate.

* Medical Student

This is your first week working in the ambulatory clinic. You are feeling more comfortable and are pretty sure that you can handle seeing the next patient alone. Your patient is a 41 yo F who has been complaining of a cough for the last month. Per the nurse, her current temperature is 100 degrees F. She also has a 15 pack year history of smoking. She takes no medications. She has never been seen at this clinic before.

**Avoid the Pitfalls (Slide 24)**

(Optional) As time permits, this may be a good place to refer back to the above mentioned qualities of a good teacher and note where any of the teachers avoided these. For example, Dr. Jones was my favorite teacher. She always asked questions that made me think in new ways. Though she took time to teach, she sure did still round quickly! Pitfalls avoided—asking too many questions, pushing the learner past his/her ability, and inefficiency.

(**Slides 25 and 26**) Do solicit questions at the end of the presentation and review/clarify any presentation points as necessary.

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Residents Teaching—QUIZ**

1. Which of the following statements is true?
   1. Teaching and learning are mutually exclusive.
   2. **Learning involves gaining knowledge and expertise based on personal goals.**
   3. Adult learners in general prefer to learn facts as opposed to concepts.
   4. Resident teaching has little impact on knowledge acquisition of learners.
2. Adult learners in general
   1. Prefer to learn at their own pace
   2. Are most motivated when helping set learning objectives or the information immediately relates to him/her
   3. Want to know what is expected
   4. Desire to know how well they are doing
   5. **All of the above**
3. Initial learner orientation should include a discussion of
   1. Goals and objectives
   2. Team organization
   3. Expectations of each team member
   4. The supervision-autonomy spectrum
   5. **All of the above**
4. Which teaching technique is most useful when the case is too complex for the learner and/or time is very limited?
   1. Priming
   2. Framing
   3. **Modeling**
   4. One-Minute Preceptor
5. Which of the following correctly lists in order the steps of the One Minute Preceptor Model?
   1. **Get a commitment, probe for supporting evidence, teach general rules, reinforce what was done right, correct mistakes**
   2. Reinforce what was done right, correct mistakes, get a commitment, probe for supporting evidence, teach general rules
   3. Teach general rules, get a commitment, correct mistakes, probe for supporting evidence, reinforce what was done right
   4. Correct mistakes, reinforce what was done right, probe for supporting evidence, get a commitment, teach general rules

**References**

AAIM (Alliance for Academic Internal Medicine) Toolbox

AAP Residents as Teachers Curriculum

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