

# Assessing clinical competency of medical students in a neurology clinic

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# Assessment drives learning

- We measure what we value
- Trainees learn what we measure
- Thought must go into what we measure and how we measure it
- Trainees must know what we will measure at start of rotation!

# Expectations of medical students on neurology clinical clerkship

1. Ability to conduct history & neurologic exam
2. Understand important & common neurologic diseases
3. Know basics of common neurologic tests (LP, MRI, EEG, EMG)
4. **Demonstrate clinical competence & apply knowledge to actual patients**
  - Anatomically localize the lesion site
  - Determine differential diagnosis & most likely diagnosis
  - Generate plan of evaluation
  - Develop management plan
  - Demonstrate professionalism in peer & patient interactions

# Assessment methods

## -objective-

- Written exams
  - Shelf boards or internal exams
- OSCE and simulated patients
  - Standardized across all students in class
- Independent patient encounters
  - VA clinic method of assessment
  - Direct observation of student-patient exam
- Portfolios
  - Disease types seen on rotation
  - Independent reading done

# Assessment methods

## -subjective-

- Attending summary evaluation
  - Inpatient attending
  - Clinic attending
  - Tutorial preceptor

Poor inter-observer correlation  
Made at end of rotation with limited feedback

# Evaluation of student's ability to master the history & neurologic exam

- **What many medical schools do:**
  - Direct observation by attending or resident of the neurologic exam
  - A few medical schools videotape a patient encounter
  - Simulated patients
- **Problems:**
  - Time consuming for faculty
  - Expensive
  - Rarely done more than once

# University of New Mexico School of Medicine

- 75 students per class
- 1 month neurology clerkship
- Students spend part time between:
  - University Hospital (county hospital with focus on inpatient and acute neurology)
  - VA hospital (focus on 3 general outpatient clinics staffed by 4-5 attending neurologists)

# Teaching the ability to conduct history & neurologic exam

- **University of New Mexico approach:**
  - Formal lectures on neurologic exam in phase 1
  - Review of neurologic exam at start of clerkship
  - Variable observations of students conducting the neurologic exam
  - Interpreting from case presentation student's ability to obtain a good history from patient

# Teaching important & common neurologic diseases <sup>1</sup>

- We focus our teaching on common neurologic diseases seen by all physicians
- 60 “Common and important” neurologic diseases were based on:
  - Frequency seen in general practice clinics
  - Critical if diagnosis missed (bacterial meningitis)
  - Cover important pathophysiology (myasthenia gravis)

# Teaching important & common neurologic diseases <sup>2</sup>

- **What we do:**
  - 8 lectures covering main topics
  - Weekly neurology tutorial
  - Grand Rounds and conferences
  - Variable bedside and clinic teaching
  - Neurology Website **WEB CT** (great videos & lectures)
  - Independent reading of textbooks & articles
  - Learning issues given by attendings regarding their patients

# Assessing important & common neurologic diseases

- **What we do:**
  - Shelf boards
  - Student presentation at tutorial
  - Answers to informal questions (pimping)
  - Mid rotation and end of rotation evaluations of their performance in clinics and wards

# Teaching basics of common neurologic tests (LP, MRI, EEG, EMG)

- **What we do:**
  - LP & CSF lecture and practice on dummy
  - Neuroradiology conference & reviewing patient neuroimaging with attending
  - EEG: weekly conferences with residents
  - EMG: afternoon in EMG laboratory
  - Written material about tests in student handout

# Assessment of clinical competency is seldom done

- One medical school survey found
  - 50 to 70% of a student's final grade was based on recollections of case presentations
  - Little relationship to student's ability to:
    - Conduct good history and physical exam
    - Assess the patient's problems & develop a workup & management plan

# Teaching clinical competence: The application of knowledge to actual patients

- **What we do:**
  - VA general neurology clinics
    - Students independently see patients & present to attendings who reviews student's strengths & weaknesses

# New Mexico clinical competency assessment study

- 2000 to 2002 study was conducted in the general neurology clinics at our VA
- 5 board certified neurologists were attendings
- Neurology clerkship was 1 month in student's 3<sup>rd</sup> year
- 87 students completed 417 forms

# Sequence of study

Student independently evaluated new patient



Completed assessment form



Gave form to attending & presented case to attending



Attending examined patient with student present & made final decisions



Attending completed right identical side of form & reviewed strengths & weakness of encounter with student

# Scoring & Analysis

- Forms were scored against decisions of attending faculty.
- Faculty responses were considered definitive.
  - All 5 attendings had >10 years experience working in VA neurology clinics.
- Scoring information was entered on Access database for analysis.

# Value of assessing clinical competency

- Informs students immediately on clinical strengths and weaknesses
- Objective and can be averaged over several attendings
- Objective in case of dispute by student
- Informs attendings on areas of weakness in their teaching

# Areas to consider in clerkship

- Clear message at clerkship start of what you measure
- Emphasis on common neurologic problems
- Help students improve problem-solving ability
- Give immediate feedback (positive and negative) at end of student-patient encounter
- Give mid-rotation feedback, esp on areas to improve
- Assess both student neuroscience and neurology knowledge **AND** their ability to apply the knowledge to their patient

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