

Appendix I

The 5-Minute Educator

Terry Kind

Part 1: Precepting

Part 2: Direct Observation

Part 3: Feedback

Part 4: Clinical Reasoning

PART 1: PRECEPTING

Cara Lichtenstein

DESCRIPTION

Precepting is the education and teaching of learners in a clinical care setting.

TECHNIQUES USED BEFORE THE VISIT

Orient the learner at the start of the rotation:

- Gather information on background, strengths, and weaknesses of the learner.
- Communicate goals and set expectations for the rotation.
- Discuss your style of feedback and how frequently it will be given.
- Introduce trainee to office staff they will work with during the rotation.
- Familiarize trainee with recordkeeping (electronic medical record, paper charts).

Wave Scheduling

- Build in preceptor teaching time without reducing overall number of patients.

Time (a.m.)	Room 1	Room 2
8:30–8:50	Patient A seen by student	Patient B seen by preceptor
8:50–9:10	Patient A seen by preceptor and student	—
9:10–9:30	Student charts on patient A	Patient C seen by preceptor
9:30–9:50	Patient D seen by student	Patient E seen by preceptor
9:50–10:10	Patient D seen by preceptor and student	—
10:10–10:30	Student charts on patient D	Patient F seen by preceptor

Prime learners before they go in to room:

- Prompt learner to retrieve stored information and prepare for immediate use.
- Orient the learner to the patient or possible medical problem.
 - For example: cc ear tugging: What will help you determine what the origin of the ear tugging is?
 - For example: cc speech delay: What is the typical speech of a 2-year-old like?
 - For example: cc 2-week well-child visit: What do you think the purpose(s) of this visit is?
- Give the learner a task and goal.
 - For example: cc “1st-time wheeze”: The task may be to gather a focused history, and the goal may be to formulate a broad differential diagnosis of causes of wheezing.
- Make a plan for when to meet back and discuss the case.

TECHNIQUES USED DURING THE VISIT

Reflective Modeling

- Allows learners to observe the preceptor interacting with and examining the patient
- Preceptor talks aloud during the visit explaining to patient AND to learner what’s going on, what they think the diagnosis or next steps are, and why they don’t think something else is going on.

Activated Demonstration

- Goal is for trainee to learn by observing preceptor’s interaction with a patient.
- Briefly prime them in advance for what to look for.
- Set up the observation.
 - Determine student’s relevant knowledge.
 - Identify what student should learn from observation.
 - Watch the technique the preceptor use for examining the ear, exposing the oropharynx, etc.
 - Watch how the preceptor enlist the help of the parent.
 - Watch how the preceptor navigates, excusing the parent from the room so the preceptor can talk with the teen (patient) privately.
 - Provide clear guidelines for what student should do while observing.
 - For example: Quietly observe; jot notes with what you are observing.

Student Clinical Observation of Preceptor (SCOOP)

- Allows learner to observe preceptor’s interaction with patient and family
- Learner uses a tool or writes 3 things they observed.
- Items discussed together afterwards

Brief Structured Clinical Observation (SCO)

- Allows assessment of learners skill level through direct observation
- Preceptor spends short period of time (5 minutes) observing part of visit (can be history, physical, or information giving).
- Uses a tool to give immediate feedback to learner on directly observed performance

Presenting in the Room

- After confirming there are no sensitive issues, learner presents in front of family.
- Saves time, as preceptor can examine patient while learner is presenting
- Family can correct any misinformation or clarify questions on the spot.
- Patients perceive increased time spent with doctor, better care, and more adequate explanation of problems.

TECHNIQUES USED AFTER THE VISIT

One-Minute Preceptor

- A structure allowing preceptors to assess learners effectively, teach key points of a case, and provide feedback efficiently, using 5 “microskills”
 - **Get a commitment** about diagnosis or treatment.
 - **Probe for supporting evidence** for that diagnosis or treatment.
 - **Teach general rules** about the case or diagnosis.
 - **Reinforce what was correct** with positive feedback.
 - **Correct mistakes** with suggestions for future improvements.

SNAPPS

- Method of presentation that focuses on clinical reasoning and self-directed learning that is learner-driven
- Preceptor sets expectation that learner will present using SNAPPS:
 - **Summarize** the history and findings.
 - **Narrow** the differential.
 - **Analyze** the differential diagnosis by comparing/contrasting possibilities.
 - **Probe** (student probes the preceptor) for further understanding, with questions about areas of uncertainty.
 - **Plan** for patient management.
 - **Self-directed learning: Select** an issue to learn more about.

GENERAL TEACHING TIPS

- Wait 3 seconds after asking a question.
- Focus only on 1–2 teaching points per encounter.
- If you don’t know, say you don’t know.
- Examples speak louder than words.

PITFALLS TO AVOID

- “Taking over” the case by providing answers instead of questions
- Inappropriately long, esoteric, or noninteractive lectures
- Not waiting long enough to get an answer
- Preprogrammed answers
- Not appreciating the level of the learners and teaching beyond their ability

ADDITIONAL READING

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PART 2: DIRECT OBSERVATION

Sandra Cuzzi

BASICS

- **Definition:** the process of observing a learner (e.g., student, resident) during an actual patient encounter for the purpose of assessing clinical skills
- **Aim:** to help preceptors gather accurate information about a learner's performance in real-life clinical scenarios
- **Assessment:** communication skills, history taking, physical exam techniques, information giving, professionalism, and evaluation of competence

GETTING STARTED

Primary Purpose

Defining the primary purpose of direct observation is important in choosing the tool, setting, scope, and skills to be observed.

- **Formative:** timely feedback given to initiate discussion and promote reflection, with the goal of improving clinical skills and modifying behavior
- **Summative:** scheduled summary evaluation to "grade" or rank, with the goal of assessing global performance
- **Documentation of competency:** Direct observation is required by the accrediting bodies for both medical student and resident education.

Using an Observation Tool

- Advantages of using a tool are that it:
 - Clarifies expectations for all involved
 - Standardizes what preceptors watch for
 - Guides feedback to make it more specific
 - Fulfills documentation requirements
- **Formative assessment:** Primary focus of tool is to facilitate feedback so proven reliability and validity is not as important.
- **Summative assessment:** critical for the tool to be well-studied, valid, and reliable
- Use an existing tool for direct observation that fits the primary purpose.
- **Mini-clinical evaluation exercise (mini-CEX)**
 - Best studied tool with excellent validity
 - For formative or summative assessment
 - Requires observation over 10–20 minutes, which can make it difficult to incorporate into a busy clinical setting
- **Structured clinical observation (SCO)**
 - Most commonly used tool in pediatrics for formative assessment
 - Divided into 3–4 specific sections, 1 for each part of the clinical encounter, with a behavioral checklist to guide feedback
 - Used for 3–5-minute observations; complete only the section of patient encounter that is observed.

Determine Setting, Scope, and Skills

- Look for opportunities where an observer is already present during a clinical encounter.
- For example, a physician working in the newborn nursery may be present to observe learner's newborn physical exam skills or a social worker present at family meetings where learners are leading the discussion can engage in direct observation.
- Opportunities can lend themselves to shorter observation (e.g., inpatient or outpatient visit) or longer ones (e.g., counseling session).
- Shorter observations tend to work best as formative feedback; longer ones can be used for summative evaluations.

IMPLEMENTATION

Potential Barriers to Direct Observation

- Lack of time
- Inadequate training, discomfort, or difficulty in observation and/or feedback
- Hawthorne effect: Presence of observer changes behavior of those observed.
- Family perception regarding observation
- Logistical barriers (scheduling, patient flow, space configuration)

Orienting the Preceptor and Learner

- Clearly state expectations once setting, scope, and skills are defined.
- Understand preceptor and learner attitudes, experience, and knowledge regarding direct observation.
- If setting up a direct observation program institution-wide, then determine what content areas need to be covered and provide preceptor faculty development.
- Orient all to the process and logistics.

Number of Observations

- When paired with feedback, every observation has value to the learner as formative assessment.
- 4–5 observations will probably identify an "outlier" in terms of minimal competency.
- Ideally, 10–12 observations are needed over time to be reliable in assessing competency for summative assessment.

Practical Tips

- Multiple short observations allow for less time commitment, observation in a variety of clinical scenarios, and can monitor improvement over time.

- A preceptor may want to routinely set up direct observation with the first patient in a clinical session (e.g., first afternoon patient).
- Set up the specific observation beforehand with the learner and family.
- Brief 3–5-minute observations
- Take notes while observing: Set up 2 columns, 1 for "things done well", the other for "things to improve," or consider filling out the tool's checklist as you observe.
- Be a "fly on the wall": Sit away from line of sight of the patient, avoid the temptation to interrupt.
- At times, the preceptor can get involved at a certain predetermined stage of the process (e.g., after physical exam, preceptor confirms findings and advises on technique).
- Provide timely focused feedback right after observing.

Creating a Culture of Observation

- **Goal:** Create a culture in which observation is understood, expected, nonthreatening, and routine for everyone including patients, parents, learners, and preceptors.
- Orient the participants and set expectations.
- Make it a joint responsibility between learner and preceptor to arrange.
- Observe at regular intervals so it becomes routine.
- Consistently give feedback after observing.
- Identify "champions" of direct observation as role models and mentors.
- Encourage opportunities for preceptors to be observed by learners too.

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PART 3: FEEDBACK

Terry Kind • Dewesh Agrawal

BASICS

Description

Feedback

- Formative, nonevaluative, objective appraisal of performance aimed at modifying and improving clinical skills, correcting deficits, and improving future performance
- Targeted to specific (observed) behaviors the trainee already does well and those in need of improvement
- Immediate and *formative*, not summative
- Presents information, not judgment
- Can be positive (reinforcing) or negative (constructive or corrective) or both
- Feedback involves a specific event or occurrence versus compliment/criticism, which are more vague and general.
- Like evaluation, should ideally be based on objective observations

Evaluation

- Summative judgment
- Equivalent to grading and/or assigning a final grade for the rotation
- Intent is to tell learners how they performed.
- Like feedback, should ideally be based on objective observations

Compliment and Criticism

- **COMPLIMENT:** a polite expression of praise or admiration
- **CRITICISM:** an expression of disapproval based on perceived faults or mistakes
- These are typically general, judgmental, and are not goal-based or not based on specific observations.

BARRIERS

- Potential barriers to providing effective feedback:
 - Insufficient time; competing demands
 - Insufficient observation; gathering essential information is difficult.
 - Don't have the necessary skills; didn't have good role models
 - Difficult to give negative feedback; want to be "popular"
 - Fears of student reprisals or failure to recruit into specialty
 - Not my responsibility; unimportant
 - Don't know where to start
 - Lack of sufficient structure
 - Defensive learner or one who lacks insight into his or her deficiencies
 - Lack of well-defined, mutually agreed upon goals established

- Conditions that promote appropriate feedback
 - Feedback is part of the institutional culture and is given frequently.
 - Adequate time and timing (promptly)
 - Private setting
 - Learner knows when/where it will happen.
 - Based on specific, observed, and potentially modifiable behaviors
 - Based on objective observations, not on interpretations of the learner's motives
 - Matches with well-defined learning goals
 - Nonjudgmental language

ALERT

Remember that the GOAL of feedback is to improve performance.

MODELS

Fast

- **F** = frequently given and in digestible chunks
- **A** = accurate, based on observation
- **S** = specific, focused on modifiable behaviors
- **T** = timely

Insight

- **I** = INQUIRY: How does the resident/student/learner think it went?
- **N** = NEEDS: What learning needs does the resident/student/learner identify?
- **S** = SPECIFIC: Was your feedback specific?
- **I** = INTERCHANGE: Was there a discussion?
- **G** = GOALS: What are the next steps?
- **H** = HELP: Are there ways you can help?
- **T** = TIMING: When will follow-up occur?

Feedback Grid (Walsh, 2006)

- **Continue:** Comment on aspects of performance that were effective and should be done in the future.
- **Start or do more:** Comment on behaviors that the student knows how to do and should start doing or do so more often.
- **Consider:** Comment on "doable challenges" for the future growth of the student.
- **Stop, or do less:** Comment on observed actions that were not helpful and/or could be harmful.

Pearls (Milan, 2006)

- **P** = partnership for joint problem solving
- **E** = empathic understanding
- **A** = apology for barriers to the learner's success
- **R** = respect for learner's values and choices
- **L** = legitimization of feelings and intentions
- **S** = support for efforts at correction

Sandwich

- Provide a compliment or some reinforcing feedback, then provide some constructive feedback, then close with another compliment or additional reinforcing feedback.
- The negative feedback is sandwiched between 2 positive statements.

SOAP Format

- **S** = subjective self-assessment by learner; ask learner how he or she thinks it went.
- **O** = objective balanced; descriptive feedback is provided.
- **A** = assess and summarize; ask learner to summarize 2 "take-home" points.
- **P** = plan for next steps incorporating new strategies.

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FAQ

- **Q:** Is there anything wrong with just using the "feedback sandwich"?
- **A:** It can either confuse or dilute the real message. It may be perceived as insulting or condescending by the learner. Sometimes the learner only focuses on positives or negatives and fails to understand the big picture.
- **Q:** Is it ever okay to say "good job"?
- **A:** Compliments are best used when paired with reinforcing feedback that is more specific and based on observed behavior.

PART 4: CLINICAL REASONING

Mary Ottolini • Terry Kind

BASICS

Description

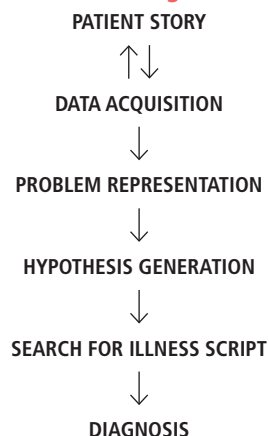
- The process of acquiring and interpreting clinical data to determine the etiology of a patient's presenting complaint
- Involves having a framework for storing and organizing medical knowledge effectively, which is critical for avoiding diagnostic error
- The experienced clinician uses problem representation, searches through "illness scripts" to make a diagnosis and employs strategies to avoid cognitive biases.

Developmental Progression

Clinical educators simultaneously diagnose the patient and diagnose the learner's developmental level of clinical reasoning.

- **Analytic reasoning:** Through basic pathophysiology, differential diagnoses are considered in "silos" or "disembodied" unrelated to patient's specific findings.
- **Development of illness scripts:** linking signs and symptoms of current patient to patterns of signs and symptoms seen in previous patients, filtering and grouping the data gathered into illness scripts
- **Problem representation:** creating a nuanced illness script for a current patient by synthesizing information into "semantic qualifiers," reflecting cognitive processing based on prior experience

The Clinical Reasoning Process



Problem Representation

SUMMARY statement of mental model of patient

- Key features of HPI/PE +
- Semantic qualifiers (adjectives)

Illness Scripts

Prototypical disease presentations based on the following:

- Epidemiology: Who gets the illness? (age, exposure, travel, etc.)
- Timing: onset and progression
- Classic/exclusionary findings
- Pathophysiology/anatomic explanation

Problem representation and illness scripts promote the "CHUNKING" of data or compiling information into a clinical syndrome, based on patterns and experience.

"Vertical Versus Horizontal Reading"

Deliberately compare/contrast illness scripts for 2–3 diagnoses for a clinical syndrome (vertically), rather than 1 diagnosis at a time (horizontally).

Type 1 Versus Type 2 Reasoning

Experts move back and forth between types (i.e., dual-processing) depending on prior experience with illness presentation:

- **Type 1:** heuristics or "rules of thumb" as mental shortcuts if a pattern of signs and symptoms or illness script is recognized
- **Type 2:** analytical/deductive reasoning used when the presentation is unusual; slow and deliberate process

FACTORS LEADING TO DIAGNOSTIC ERRORS

Cognitive Biases

- Predictable errors in reasoning occurring particularly with TYPE 1 (heuristic) processing; can make gathering essential information and clinical reasoning difficult
- COMMON BIASES
 - Premature closure: relying on initial diagnostic impression despite subsequent information to the contrary
 - Anchoring bias: relying too heavily on 1 piece of information
 - Confirmation bias: searching for, interpreting, and remembering information in a way that confirms one's preconceptions
 - Diagnostic momentum: sticking with one diagnostic label due to frequent repetition

ALERT

Diagnostic error is currently a leading cause of serious medical errors. Improved clinical reasoning can be taught as a strategy to decrease diagnostic errors.

- Availability bias: overreliance on what easily comes to mind
- Base-rate neglect: ignoring the true prevalence of a disease

Strategies to Overcome Biases

- Metacognition: deliberately reflecting "in-action" and thinking about thinking
 - Did the diagnosis come too easily?
 - Is there any data that doesn't fit?
 - Am I investing too much in one finding?
 - Do I dislike the patient/parent?
- Take a "diagnostic time-out"
 - Recognize when time pressure may lead to premature closure on the wrong diagnosis.

Oral Presentation Framework

Encourage students to include clinical reasoning in their presentations:

P: PROBLEM REPRESENTATION: assessment-driven presentation

BE: BACKGROUND EVIDENCE: Focus on pertinent positives and negatives.

A: ANALYSIS: Compare and contrast 2 likely illness scripts.

R: RECOMMENDATION: plan based on a problem rather than system

ADDITIONAL READING

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FAQ

- Q: Can the clinical reasoning process be taught?
- A: Yes, promoting "problem representation" and comparing and contrasting the differentiating features using illness scripts helps trainees to organize and store their patient experiences so that they can recall them in future similar situations.
- Q: Can one overcome cognitive errors?
- A: Yes. Using metacognition, or "thinking about your thinking," a form of situational awareness, one can develop a habit of taking a "diagnostic time-out."