

Determining and Tracking Resident Procedural Competency in the New Accreditation System

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Submission Abstract:

Determining competency in procedural skills is a challenge in resident education, recently brought into prominence by the New Accreditation System and 2014 program requirements. To ensure readiness for safe and responsible independent practice, residents' technical performance needs to be assessed during each observation, in addition to their cognitive understanding. To truly determine competence, consistency over time and between patient encounters must be demonstrated. Session participants will apply a variety of evaluation scales in small groups to a videotaped procedure, and also learn about the comprehensive system for tracking and evaluation of procedural competency developed at the Montana Family Medicine Residency.

Objectives:

On completion of this seminar, participants should be able to . . .

- 1) Describe and utilize objectively descriptive evaluation scales
- 2) Construct a competency-based, objectively descriptive evaluation tool of a procedure
- 3) Use these skills to develop a customized procedural competency system at their residency program

Background:

ACGME requirements re: procedures (combined from different sections)¹:

- **Residents must be able to competently perform all medical, diagnostic, and surgical procedures considered essential for the area of practice.** ^(Outcome) **Residents:**
 - must appropriately use and perform diagnostic and therapeutic procedures. ^(Outcome)
- Residents must receive training to perform clinical procedures required for their future practices in ambulatory and hospital environments. ^(Core)
 - The program director and family medicine faculty should develop a list of procedural competencies required for completion by all residents in the program prior to graduation. ^(Core)

- This list must be based on the anticipated practice needs of all family medicine residents. ^(Core)
 - In creating this list, the faculty should consider the current practices of program graduates, national data regarding procedural care in family medicine, and the needs of the community to be served. ^(Core)
- **The program must:**
 - **provide objective assessments of competence in patient care and procedural skills, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice based on the specialty-specific Milestones;** ^(Core)
 - This assessment must involve direct observation of resident-patient encounters. ^(Detail)
 - Each resident must be assessed in data gathering, clinical reasoning, patient management, and procedures in both the inpatient and outpatient settings. ^(Detail)

AOA requirements re: procedures (combined from different sections)^{2,3}:

- *Procedural Medicine:* The program must have defined mechanisms to train residents to competency in the following procedures:

Joint injections.	Office microscopy.
Biopsy of dermal lesions.	Splinting.
Excision of subcutaneous lesions.	EKG interpretation.
Incision and drainage of abscess.	Office spirometry.
Cryosurgery of skin.	Toenail removal.
Curettage of skin lesion.	Defibrillation.
Laceration repair.	Removal of cerumen from ear canal.
Endometrial biopsy.	Endotracheal intubation.

- *Optional Procedures:*

Vasectomy	IUD insertion
Central line placement	Breast cyst aspiration
Vaginal delivery	Epistaxis management (nasal packing/anterior cautery)
Episiotomy repair	Trigger point injections
Flexible sigmoidoscopy	Allergy testing
Colonoscopy	Neonatal circumcision
Lumbar puncture	

- The family medicine program faculty shall, as a group, be qualified to teach all required procedures as listed in this document.
- During the training program, the resident must:
 - Keep a log of each procedure performed.

Content Summary:

How do medical educators know when a resident is “ready” to perform a procedure independently? Several techniques have been utilized, with inherent drawbacks:

- Knowledge-based tests—assess knowledge, but not skills or attitudes
 - Verbal (“walk me through the steps of the procedure” ≈ pimping)
 - Written (e.g., multiple-choice test)
- Completion of set number of procedures—quantitative but not qualitative assessment
- Supervisor observation of technical section of the procedure—may not assess resident’s knowledge of indications/contraindications or resident’s ability to engage in informed consent discussion, and different supervisors may not share the same frame of reference
- Rating scales (see below)

Exercise One: Group evaluation of videotaped procedure using different traditional rating strategies.

Rating scales were developed in the early 1900s specifically to try to extend measurement beyond that of knowledge to that of skills and attitudes⁴

- Thurstone (1920s) advocated for scales to use “equal-appearing intervals”
- Likert (1932) added descriptors at each point along the scale (e.g., strongly agree, agree, undecided . . .)

Many traditional rating scales are subjective (“pass” is in the eye of the beholder). This increases the likelihood of different forms of bias and error affecting performance evaluations.⁵ Note that some of these issues may arise in group settings, such as the deliberations by the Clinical Competency Committee:

- **Halo Effect**—a type of confirmation bias in which a positive feeling in one area leads to neutral or ambiguous performance areas to be viewed positively⁶
- **Horns Effect**—the converse of halos, in which dislike in one area creates a predisposition to view other performance areas negatively⁶
- **Sunflower Management**—when evaluation occurs by groups, tendency of the group (“the sunflowers”) to align with the views of the most powerful or charismatic member of the discussion (“the sun”)⁷
- **Leniency/Severity Error**—being too lenient or too harsh for reasons that have nothing to do with the facts of performance. This is common when evaluators lack sufficient information or the time to prepare adequately; when due to extremes of faculty personalities, has been described as a “hawks and doves” problem.
- **Central Tendency Bias**—classically, the tendency to rate individuals around the midpoint of a rating scale, avoiding the extremes of the scale, despite variations in actual performance.⁸ A corollary with the milestones would be to tend to rate all interns at Level 2, and all graduating residents at Level 4.
- **Proximity Bias**—rating based on recent performance rather than properly weighting performance over whole time period

- **Longevity Bias**—the converse of proximity bias: basing the current evaluation on past evaluation(s), rather than fairly evaluating current performance
- **Fundamental Attribution Error**—the tendency to place an undue emphasis on a resident’s internal characteristics to explain poor performance in a given situation, rather than considering external factors, such as problems with the educational program.
- **Actor-Observer Bias**—the converse of fundamental attribution error: overemphasizing situational factors when addressing poor performance⁹
- **Contrast Bias**—occurs when reviews for a higher performer and a lower performer are conducted one after the other; the higher performer may be reviewed excessively high in contrast, and the lower performer may be reviewed excessively low
- **Tweaking**—matching the assessment to a predetermined outcomes that make the program/organization look good (for example, when reporting sub-competency performance to the Accreditation Data System)

More recently, behaviorally anchored rating scales (BARS) have been developed, providing more objective descriptors of performance along the scale in the hopes of limiting bias and improving the psychometrics of the performance evaluations.⁴

- For example, a behaviorally anchored rating scale regarding H&P documentation might have descriptors ranging from “inaccurate data or major omissions” to “concise, reflects thorough understanding of disease process & patient situation”⁴
 - While the ACGME milestones are not intended to be used as global rating scales,¹⁰ the progression of behaviorally anchored descriptors is similar to that seen in a BARS
- The use of BARS may improve inter-rater **reliability** and support shared frames of reference in the faculty, provided the anchors are sufficiently objective.
- Deriving the anchors from a “gold standard” may increase the **validity** of the evaluation

The use of **checklists** to document whether specific behaviors did or did not occur can help to improve **accuracy** of the evaluation—though checklists themselves do not make for good global evaluations or longitudinal evaluations, because only so many behaviors or incidents can appear on a given evaluation form.⁴

MFMR has overhauled its procedural competency evaluation system in light of the issues discussed above.

- Faculty developed list of procedures for which competency for independent performance is required prior to graduation, as well as additional optional procedures for which we felt it would be important to document procedural competency if attained.
- Faculty give objective competency ratings at each observed procedure (BARS). The level of correction/assistance needed from the preceptor is the behavioral anchor:
 - Significant Correction Needed
 - Some Assistance Required
 - Competently Performed Unassisted
- The ratings and comments are captured by a digital tally system called the Procedures Passport.

- When a resident is performing procedures during a focused procedure clinic, the supervising faculty will also complete a milestone-based evaluation (PC5), as well as collaborate with the resident to develop goals for the next procedure clinic.
- When a resident has performed a minimum number of a given procedure at the “competently performed unassisted” level, the resident may attempt to pass the procedure-specific Basic Skills Qualification (BSQ), which compares their performance to standardized technical and cognitive expectations.
 - The MFMR BSQs were adapted from the Providence St. Peter Family Medicine Residency Program¹¹ (with them giving credit to the Tufts University FMR at Cambridge Health Alliance¹²) based on what our faculty agreed are the “gold standard” for family medicine procedures, the textbook *Procedures for Primary Care*¹³ and the digital resource *Procedures Consult*¹⁴
- When a resident has passed the BSQ for a procedure, the resident is considered competent for independent performance. The Procedures Passport tracks this throughout the resident’s time in the program.

Exercise Two: Group evaluation of videotaped procedure using MFMR Basic Skills Qualification form.

Discussion and Questions

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