Tools currently in use by PM&R PDs to assess Medical Knowledge:

Written testing during didactic curriculum

Oral examinations

Chart stimulated recall (see example PDF on neuromuscular and reference below):

Neuromuscular Medicine Competency in Physical Medicine and Rehabilitation Residents: A Method of Development and Assessment
Lin L, Cuccurullo SJ, Innerfield CE, Strax TE, Petagna A
Am J Phys Med Rehabil 2013;92:258Y266.

End of rotation evaluations based on direct observation

Self assessment examination scores

Multi source evaluations (self, peer, patients)

ROCA

The ER field did a literature review on assessment of Medical knowledge:

Assessing Medical Knowledge of Emergency Medicine Residents
Nikhil Goyal, MD, Amer Aldeen, MD, Katrina Leone, MD, Jonathan S. Ilgen, MD, MCR, Jeremy Branzetti, MD, and Chad Kessler, MD, MHPE
ACADEMIC EMERGENCY MEDICINE 2012; 19:1360–1365 © 2012 by the Society for Academic Emergency Medicine

Highlights of the above article:

- Multiple choice question exams have been shown to be reliable for MK assessment – ER uses in-service and board exams. However do not measure application of knowledge in clinical decision making
- Script Concordance Testing. Script concordance testing (SCT) was developed within the conceptual framework of illness script theory, which assumes that tasks are driven by experience-rich networks of knowledge around particular clinical problems. This testing format begins with an intentionally ambiguous case, prompts subjects to consider several possible diagnoses, and then asks the learners to assess the degree to which the addition of new information increases or decreases the likelihood of the initial diagnoses. Scores are based on the similarity of a learner's management strategy to those of experts, thereby approximating the degree of concordance between examinees' and experts' scripts.
- Mini-CEX or SDOT (ER's version of mini-CEX) similar to ROCA – not found to correlate well with other standards of MK (such as board pass rate) but ER talking about developing a more structured form.
- Key Features Problems. Key features problems present a clinical case and then allow participants to select more than one correct answer from a list of possible diagnoses. These

questions are built on a series of tasks that ask trainees to identify the problem at hand, develop diagnostic strategies, and make management decisions.

- Virtual Patients. Virtual patients are clinical scenarios that play out on a computer screen. Learners gather information by typing or selecting questions to collect focused historical, physical examination, or laboratory data. These instruments have been used in diverse ways to assess clinical reasoning and decision-making. An example of this is seen in the USMLE Step 3 examination.

- Direct Observation of clinical skills (End of Rotation evaluation): One of the most commonly used methods of MK assessment in EM and other specialties. Faculty members evaluate MK on a periodic basis, either at the end of every major assignment (e.g., monthly) or at the end of every shift. This evaluation is often unstructured, may have significant inter-rater variability or recall and rater bias, or may suffer from the halo effect.