

Entrustable Professional Activities: Ten Things Radiologists Do

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Rationale and Objectives: Learner assessment in medical education has undergone tremendous change over the past two decades. During this time frame, the concept of Entrustable Professional Activities (EPAs) was introduced to guide the faculty when making competency-based decisions on the level of supervision required by trainees. EPAs are gaining momentum in medical education as a basis for decisions related to transitioning from residency training to clinical practice. The purpose of this article is twofold: (1) define EPAs for radiology (EPA-R) and (2) illustrate radiology-specific examples of these EPAs.

Materials and Methods: A multi-institutional work group composed of members of the Alliance of Directors and Vice Chairs of Education in Radiology convened at the 2015 Association of University Radiologists annual meeting to discuss radiology EPAs. The EPAs initially developed by the Accreditation Council for Graduate Medical Education (ACGME) Radiology milestone work group and the resultant ACGME Radiology milestones formed the basis for this discussion.

Results: A total of 10 radiology EPAs and illustrative vignettes were developed to help radiology educators and trainees better understand milestone assessment and how this translates to the necessary skills and responsibilities of practicing radiologists. Examples of EPA mapping to the ACGME subcompetencies and methods of assessment were included.

Conclusions: EPAs offer an opportunity to improve our approach to training by increasing our focus on how we provide appropriate supervision to our residents and assess their progress. In this work, through suggested lists and vignettes, we have attempted to establish the framework for further discussion and development of EPA-Rs.

Key Words: Entrustable professional activities; medical education; radiology education; medical assessment; milestones.

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INTRODUCTION

Learner assessment in medical education has undergone tremendous change over the past two decades. In 2002, the Accreditation Council for Graduate Medical Education (ACGME) introduced the concept of six specific areas of performance that can be measured, the competencies, through the Outcomes Project (1). This was followed by the introduction of the milestones with the ACGME Next Accreditation System, implemented in July 2013 (2). Ten Cate introduced the concept of Entrustable Professional Activity (EPA) to allow the faculty to make competency-based decisions on the level of supervision required by trainees during this same time frame (3).

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EPAs are gaining momentum in medical education as a basis for decisions related to transitioning from residency training to clinical practice (4). The number of specialties reporting EPAs continues to increase and includes internal medicine (5–7), pediatrics (8), family medicine (9), critical care medicine (10), as well as emergency medicine (11), but, to the best of our knowledge, not radiology. The purpose of this article is twofold: (1) define EPAs for Radiology (EPA-R) and (2) illustrate radiology-specific examples of these EPAs.

WHAT IS AN ENTRUSTABLE PROFESSIONAL ACTIVITY?

An EPA is a unit of work or responsibility that attending physicians entrust to a trainee to perform independently once sufficient competence has been demonstrated (12). Examples in radiology include entrusting a trainee to:

- Obtain informed consent,
- Triage/protocol exams, and
- Communicate results of exams (13).

According to Ten Cate and Scheele, the conditions of EPAs include:

- “Is part of essential professional work in a given context,
- Must require adequate knowledge, skill and attitude,

- Must lead to recognized output of professional labor,
- Should be confined to qualified personnel,
- Should be independently executable,
- Should be executable within a time frame,
- Should be observable and measurable in its process and outcome, (well done or not well done) and
- Should reflect one or more competencies” (14).

Five levels of supervision proposed by Ten Cate are as follows:

1. “Observation but no execution, even with direct supervision
2. Execution with direct, proactive supervision
3. Execution with reactive supervision, i.e., on request, quickly available
4. Supervision at a distance and/or post hoc
5. Supervision provided by the trainee to more junior colleagues” (15).

Trustworthiness and self-awareness of limitations are foundational to all EPAs (16).

ACGME COMPETENCIES, SUBCOMPETENCIES, AND MILESTONES

The six core ACGME competencies include: Patient Care (PC), Medical Knowledge (MK), Systems-based Practice (SBP), Practice-based Learning and Improvement (PBLI), Professionalism (PROF), and Interpersonal and Communication Skills (ICS) (1). Each core competency is composed of one or more subcompetencies. The subcompetencies are each associated with ACGME milestones, reflecting increasing levels of performance. For example, consider the ACGME core competency SBP. This competency is composed of two subcompetencies: SBP1 Quality Improvement (nine milestones) and SBP2 Health Care Economics (five milestones) (13). The five level-specific milestones associated with SBP2 Health Care Economics include: “(1) Describes the mechanisms for reimbursement, including types of payors, (2) States relative costs of common procedures, (3) Describes the technical and professional components of imaging costs, (4) Describes measurements of productivity (e.g., RVUs), and (5) Describes the radiology revenue cycle” (13). An EPA typically requires the integration of multiple ACGME core competencies that can be mapped to subcompetencies and ACGME level-specific milestones (13).

CLINICAL ACTIVITIES AND RESPONSIBILITIES OF RADIOLOGISTS: DEFINING EPAS

A multi-institutional work group composed of members of the Alliance of Directors and Vice Chairs of Education in Radiology convened at the 2015 Association of University Radiologists annual meeting to discuss radiology EPAs. The following EPAs, initially developed by the ACGME Radiology Milestone work group, formed a basis for this discussion:

- Triage/protocols exams
- Interprets exams
- Communicates results
- Performs procedures
- Treats patients
- Manages patient after imaging
- Behaves professionally
- Practices good citizenship
- Manages professional practice
- Educates

The EPA work group met to formulate a list of EPAs to help radiology educators and trainees to better understand milestone assessment and how this translates to the necessary skills and responsibilities of practicing radiologists. This list is meant to serve as a starting point for EPA development rather than an exhaustive list of professional activities of radiologists. As anticipated, the EPA work group list parallels the milestone work group list to a large extent. Three areas, interprofessional teams, evidence-based medicine, and patient safety, are more explicit in the EPA work group list as follows:

- Collaborates as a member of an interprofessional team
- Triage/protocols exams
- Interprets exams and prioritizes a differential diagnosis
- Communicates results of exams
- Recommends appropriate next steps
- Obtains informed consent and performs procedures
- Manages patients after imaging and procedures
- Formulates clinical questions and retrieves evidence to advance patient care
- Behaves professionally
- Identifies system failures and contributes to a culture of safety and improvement

In the following EPA-R sections, reference is made to the ACGME radiology milestones (13). The abbreviations used in these sections are as follows: Patient Care and Technical Skills (PCTS), MK, SBP, PBLI, PROF, and ICS. The subcompetency designations (PCTS1, PCTS2, MK1, MK2, and so forth) conform to the designations used in the ACGME Milestones document (13). The vignettes are provided for illustrative purposes and are fictional.

EPA-R 1: Collaborates as a Member of an Interprofessional Team

The 2001 Institute of Medicine report, “Crossing the Quality Chasm,” raised concerns about substantial deficits in the quality of care provided to patients. Among these perceived deficits was a lack of interdisciplinary collaboration among health-care professionals, which could compromise patient safety. To optimize patient care, the report suggested that healthcare providers should no longer operate in “professional silos,” but work toward developing healthcare teamwork collaborative practices that reflect the expertise, conflicting expectations, preferences, and resources of multiple hospital-based service

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