

Entrustable Professional Activities in Family Medicine

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Abstract

Background The Accreditation Council for Graduate Medical Education Outcome Project intended to move residency education toward assessing and documenting resident competence in 6 dimensions of performance important to the practice of medicine. Although the project defined a set of general attributes of a good physician, it did not define the actual activities that a competent physician performs in practice in the given specialty. These descriptions have been called entrustable professional activities (EPAs).

Objective We sought to develop a list of EPAs for ambulatory practice in family medicine to guide curriculum development and resident assessment.

Methods We developed an initial list of EPAs over the course of 3 years, and we refined it further by obtaining the opinion of experts using a Delphi Process. The experts participating in this study were recruited from

2 groups of family medicine leaders: organizers and participants in the Preparing the Personal Physician for Practice initiative, and members of the Society of Teachers of Family Medicine Task Force on Competency Assessment. The experts participated in 2 rounds of anonymous, Internet-based surveys.

Results A total of 22 experts participated, and 21 experts participated in both rounds of the Delphi Process. The Delphi Process reduced the number of competency areas from 91 to 76 areas, with 3 additional competency areas added in round 1.

Conclusions This list of EPAs developed through our Delphi process can be used as a starting point for family medicine residency programs interested in moving toward a competency-based approach to resident education and assessment.

Introduction

Medical educators, although eager to embrace competency assessment, often are stopped by the question, “What am I

supposed to measure?” Although highly useful, the 6 competencies of the Accreditation Council for Graduate Medical Education (ACGME) Outcome Project¹ were not specific enough to provide adequate direction for residency curriculum development or to guide resident assessment in a particular clinical specialty.

To avoid sweeping assessments of the general qualities of learners, some educators have turned to documenting learners’ individual skills and knowledge. Although these attributes are part of the overall process of care, assessing them individually does not “add up” to an ability to provide the appropriate care to patients. What physicians do in practice is far greater than the sum of any parts that can be documented as part of the measurement of competence.²⁻⁴

Either approach—focusing on the vague qualities of competence or a reductionist approach to assessment—risks measuring that which is measurable but not important.⁵ There is a need to identify the clinical situations in which trainees should, upon graduation, be trusted to perform competently. ten Cate and Scheele⁶ have called these specific, measurable areas of practice “entrustable professional activities” (EPAs), which are “professional

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BOX CONDITIONS OF ENTRUSTABLE PROFESSIONAL ACTIVITIES^a

- Are part of the essential professional work of the specialty and not general medical ability.
- Must require adequate knowledge, skill, and attitude.
- Must lead to recognized performance that is unique to a doctor.
- Should be unique to physicians in that specialty.
- 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)
- Should reflect one or more of the Accreditation Council for Graduate Medical Education competency categories.

^aAdapted from ten Cate and Scheele⁶

activities that together constitute the mass of critical elements that operationally define a profession.”

EPAs are part of the essential professional work in a specialty (BOX).⁷ The value of EPAs is that they identify the professional activities of daily practice and can be used to drive curriculum development as well as assessment.^{8,9} For example, a competent family medicine physician is expected to provide care for a child with a respiratory illness. This includes eliciting a history, performing a physical examination, arriving at a diagnosis, and implementing a plan of care that is evidence based and takes into account the needs and values of the patient.

Although each of these skills can be separately measured and documented in a variety of settings, the overall performance of them in situ constitutes the entrustable activity. As learners develop from beginners to competent clinicians, the corresponding level of required supervision decreases from complete oversight to “entrustment,” in which the learner receives certification that he or she could have provided the professional duty without oversight.¹⁰

Our residency program embarked on the development of competency-based assessment as part of a nationwide project to develop new models of resident education in family medicine.¹¹ The goal was to develop a list of EPAs around which to structure our competency assessment.

Methods

The initial list of activities was developed by relying on model curricula¹² and similar inventories developed by the Royal College of General Practice in the United Kingdom¹³ and the specialty document for family medicine in Denmark.¹⁴ We searched textbook chapter headings and searched lists of the most common diagnostic codes recorded by our residents to augment these resources. An iterative process was used to develop this initial list,

What was known

The Accreditation Council for Graduate Medical Education (ACGME) Outcome Project advanced competency-based education, but the resulting competencies were too generic to represent the dimensions of clinical work in a specialty.

What is new

Seventy-six entrustable professional activities (EPAs) for ambulatory family medicine practice selected by an expert panel can guide curriculum development and resident assessment for ambulatory practice in family medicine.

Limitations

Clinical experience at a single institution provided the basis for expert selection of the EPAs, and may limit generalizability.

Bottom line

These EPAs will assist programs in focusing resident education and assessment on the skills that will allow residents to be entrusted with clearly defined professional activities for ambulatory family medicine practice.

reorganizing after each of several discussions. This list was then circulated among faculty members at our institution for comment.

After initial development, we tested the list for completeness in our outpatient center. Following each patient encounter and subsequent discussion by residents, preceptors completed a computerized form documenting residents’ degree of performance of one or more EPAs during that visit. We piloted both the use of the form and the suitability of this list for 18 months. Following continuous feedback from preceptors, we developed a final list of 91 activities. Following this pilot period, we sought to determine how often each of these activities occurred during patient visits conducted by our residents during a 14-month period.

We also tested the list using a Delphi process to obtain the opinions of experts in family medicine education. Experts were chosen from 2 groups of academic physicians at the forefront of competency-based teaching and assessment in family medicine. The first group consisted of directors and key faculty members of programs participating in the Preparing Physicians for Personal Practice (P4) Project, as well as members of its organizing committee. The P4 Project is a national demonstration project conducted in 14 residencies evaluating innovative curricula to better prepare graduates for new models of primary care practice.¹⁵

The second group encompassed members of the Residency Competency Measurement Task Force formed by the Society of Teachers of Family Medicine. This group developed materials to aid family medicine residencies in creating assessment processes for their residents.

TABLE 1 FINAL LIST OF ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAs)

EPA	Percent of Documented Patient Encounters (n = 5333) ^a	Percent Labeled "Must Include" in Round 1	Percent Labeled "Include" in Round 2	Change From Round 1 to Round 2
Conducting the well-adult visit or well-woman examination	5.6	95	100	5
Managing the anxious patient	3.2	95	100	5
Managing the child with a fever	1.5	100	100	0
Conducting the child well-visit	5.3	95	100	5
Conducting the newborn well-visit	0	100	100	0
Managing the patient who needs contraception	1.1	90	100	10
Managing the patient with a change in vision, or a painful, red, or itchy eye	1.1	81	100	19
Managing the patient with a headache	1.7	100	100	0
Managing the patient with a lesion/rash	5.6	100	100	0
Managing the patient with a nicotine addiction	0.6	95	100	5
Managing the patient with a sore throat	1.5	90	100	10
Managing the patient with abdominal pain	2.8	100	100	0
Managing the patient with abnormal thyroid exam or labs	0.5	90	100	10
Managing the patient with acute urinary symptoms	1.2	100	100	0
Managing the patient with an irregular heartbeat	0.6	81	100	19
Managing the patient with chest pain	5.3	95	100	5
Managing the patient with chronic pain	2.8	95	100	5
Managing the patient with diabetes	4.2	100	100	0
Managing the patient with dizziness	0.7	90	100	10
Managing the patient with dyspepsia	0.8	100	100	0
Managing the patient with genital discharge or with possible sexually transmitted infection	1.5	95	100	5
Managing the patient with joint pain	6	90	100	10
Managing the patient with low back pain	3.3	100	100	0
Managing the patient with runny/stuffy nose	2.2	86	100	14
Managing the patient with shortness of breath/difficulty breathing	2.1	100	100	0
Managing the patient with vomiting and/or nausea	0.5	95	100	5
Managing the woman with abnormal vaginal bleeding	1.4	95	100	5
Managing the child with a cough	1.2	95	95	0.2
Managing the child with diarrhea or emesis	0.5	95	95	0.2
Managing the obese patient	0.6	84	95	11.2
Managing the older confused patient		75	95	20.2

TABLE 1 FINAL LIST OF ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAs) CONTINUED

EPA	Percent of Documented Patient Encounters (n = 5333) ^a	Percent Labeled "Must Include" in Round 1	Percent Labeled "Include" in Round 2	Change From Round 1 to Round 2
Managing the patient with a breast lump or discharge	0.3	90	95	5.2
Managing the patient with a cough	2.1	100	95	-4.8
Managing the patient with acute pain	0.7	95	95	0.2
Managing the patient with an earache or change in hearing	1.4	85	95	10
Managing the patient with changes in bowel habits	1.2	100	95	-4.8
Managing the patient with excessive fatigue	0.6	95	95	0.2
Managing the patient with menopause symptoms	...	95	95	0.2
Managing the patient with menstrual symptoms	...	90	95	5.2
Managing the patient with numbness, tingling, or weakness	1	85	95	10
Managing the patient with or at risk for heart disease or stroke	6.4	100	95	-4.8
Managing the patient with pain/swelling in the legs	0.8	90	95	5.2
Managing the patient with sleeping problems	0.5	84	95	11
Managing the child with a rash	0.8	90	90	0.5
Managing the dying patient	...	85	90	5.5
Managing the older adult	1	95	90	-4.5
Managing the patient with a genital rash/lesion	0.5	90	90	0.5
Managing the patient with a lump or bump	1.5	89	90	1.5
Managing the patient with a murmur	0.3	76	90	14
Managing the sad patient	3	95	90	-4.5
Managing the child with enuresis or encopresis	0.2	67	86	18
Managing the patient with an alcohol addiction	0.5	86	86	-0.3
Managing the patient with emotional distress	...	75	86	11
Managing the patient with high blood pressure	...	76	86	9.7
Managing the patient with premenstrual symptoms	...	85	86	0.7
Managing the patient with urinary difficulty	0.9	95	86	-9.3
Managing the patient you suspect is a victim of abuse	0.2	80	86	5.7
Managing the pregnant patient	5.1	75	86	11
Medication management in older patients	...	85	86	0.7
Managing falls in older patients	...	75	81	5.9
Managing the child you suspect is a victim of abuse	...	71	81	9.9
Managing the patient with mononucleosis	...	74	81	7
Managing the patient with muscle pain	2.2	75	81	6

TABLE 1 FINAL LIST OF ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAs) CONTINUED

EPA	Percent of Documented Patient Encounters (n = 5333) ^a	Percent Labeled "Must Include" in Round 1	Percent Labeled "Include" in Round 2	Change From Round 1 to Round 2
Managing the patient with neck pain	...	85	81	−4
Managing the child with growth or development problems	1.1	76	76	0.2
Managing the child with inattention, hyperactivity, or impulsivity	0.4	71	76	5.2
Managing the patient at risk for diabetes	...	75	76	1.2
Managing the patient with enlarged thyroid or a thyroid mass	...	60	76	16
Managing the patient with liver disease	...	65	76	11
Managing the patient with sexual problems	0.8	75	76	1.2
Managing the patient with weight changes	0.8	67	76	9.2
Managing the postpartum patient	0.5	60	76	16.2
Managing the man with genital complaints	...	79	71	−7.6
Managing the patient who needs options counseling for pregnancy	...	60	71	11
Managing the patient with anaphylaxis or anaphylactoid reaction	...	80	71	−8.6
Managing the patient with hypertensive urgency	...	76	71	−4.6

^a EPAs without data were added in round 2; ellipses indicate that these EPAs were not part of round 1 and did not have any data.

From the 2 groups, 22 of 37 potential experts agreed to participate. The Delphi Process consisted of 2 rounds of anonymous responses to a surveys sent electronically using Survey Monkey (<http://www.surveymonkey.com>). During the first round, experts were asked to rate the importance of each suggested EPA on a 7-point scale, ranging from “do not include” (1) to “must include” (7). Respondents were instructed to consider activities of a typical family physician in practice. Follow-up e-mails were sent weekly for 4 weeks to all participants to respond.

For the second round of voting, EPAs rated as 6 or 7 in round 1 were ordered by popularity (the percentage of “must include” responses during the first round), and each was labeled with the percentage of experts ranking it as “must include.” During the second round, experts were asked to mark each EPA as “must include” or “do not include.” Follow-up e-mails were again sent weekly until all responses were collected. Twenty-one experts (95.5%) responded to each round of the process.

The final list of EPAs consisted of those items ranked as “must include” by more than two-thirds of the experts. All data were processed using Microsoft Excel (Redmond, WA).

The project was approved by our Institutional Review Board.

Results

During a 14-month period, EPAs were documented for 5330 outpatient visits (27.2% of eligible visits). The percentage of documented visits for each EPA is shown in TABLE 1. Only a single EPA, “managing the care of the newborn,” was not documented during this time; yet, 23 postpartum visits were documented, and it is likely that the combined visits were only documented for the latter EPA.

During the first round, the percentage of experts ranking each activity as “must be included” (ie, a score of 6 or 7) ranged from 30% to 100%. In the second round, 76 EPAs were selected by more than 67% of the experts and comprised the final list. TABLE 1 lists the final EPAs, the results from round 1 and round 2 of the Delphi process, and the change in voting between the 2 rounds.

Three EPAs not in the original list were added via the Delphi process: “managing the patient with anaphylaxis or anaphylactoid reaction,” “managing the patient with hypertensive urgency,” and “managing the patient who needs options counseling for pregnancy.” The Delphi

TABLE 2 ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAs) REMOVED BY THE DELPHI PROCESS

EPA	Percent Labeled “Must Include” in Round 1	Percent Labeled “Include” in Round 2	Change From Round 1 to Round 2
Managing the nursing home patient	50	67	16.7
Managing the patient who wishes to become pregnant	63	67	3.7
Managing the patient with hypertensive emergency	67	67	−0.3
Managing the patient with a substance addiction	57	62	4.9
Managing the frail older adult	65	57	−7.9
Managing the older patient requiring a home visit	50	57	7.1
Managing the patient with a seizure disorder	55	57	2.1
Managing the adult with attention deficit disorder	55	48	−7.4
Managing the medical needs of a patient with a disability	45	48	2.6
Managing the patient with an eating disorder	55	48	−7.4
Managing the patient with mouth pain	57	43	−14.1
Managing the infertile couple	35	38	3.1
Managing the patient with delusions, hallucinations, or mania	55	38	−16.9
Managing the manic patient	50	33	−16.7
Managing the patient with HIV disease	35	29	−6.4

Process removed 15 activities from the original list developed in round 1 (TABLE 2).

Discussion

We identified, developed, and tested 91 outpatient EPAs for family medicine, resulting in a final list of 76 EPAs that should be documented by the end of family medicine education. The Delphi Process added 3 EPAs not considered in the initial testing, and 5 competency areas in this original list were removed by the process.

The EPAs identified through our approach can be used to drive decisions regarding curriculum and assessment. Curriculum directors in family medicine residencies are familiar with the “topic creep” that occurs as arcane or esoteric topics are added to the curriculum due to the availability of experts, a service need, or an experience opportunity in a given area. A list of EPAs can serve to focus a curriculum, allowing program directors to assure that “must know” topics are not pushed out by “nice to know” topics.

The Delphi Method has been called an “opinion technology.”¹⁶ By using experts, the number of actual participants can be relatively low because reliability improvements level off beyond 20 to 30 participants.¹⁶ It has been used by other groups and disciplines to develop curricula, competencies, and objectives.^{17–19}

A limitation of our approach to defining patient care EPAs is that we began with internal testing within a single residency program. Therefore, despite drawing on previously published lists, our list was influenced by the setting, clinical practice, faculty, and philosophy of our program. For our group of experts we sought a national sample of experts in family medicine education; yet, many of these experts were from the Northeast and none were from the Southeast. Using a different representation of experts or using a group opinion approach of all residency program directors, current residents, recent graduates, or some combination of the above may have produced slightly different results.

We feel confident in our results because there was little change in the initial list developed in our residency following the Delphi Process. Also, the list remains largely concordant with the list recently revised in Denmark.

Conclusions

A key goal of training is to create physicians who can be entrusted to perform a list of clearly defined professional activities. This list of 76 EPAs does not include many other skills and knowledge that the practicing clinician must possess, but it may help residencies further refine their curricula as well as develop methods of assessment that

document graduates' capacity to be entrusted with these activities.

EPAs likely will play a role in assisting family medicine residencies in the development of milestones for assessing residents' ongoing professional development. Future research should evaluate whether other residencies can credential residents in most or all of these EPAs. In addition, future study could evaluate whether this list is representative of typical family medicine practice.

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