

# Implementing Entrustable Professional Activities in Pediatric Fellowships: Facilitating the Process

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**BACKGROUND AND OBJECTIVES:** Entrustable professional activities (EPAs) will be used for initial certification by the American Board of Pediatrics by 2028. Less than half of pediatric fellowships currently use EPAs for assessment, yet all will need to adopt them. Our objectives were to identify facilitators and barriers to the implementation of EPAs to assess pediatric fellows and to determine fellowship program directors' (FPD) perceptions of EPAs and Milestones.

**METHODS:** We conducted a survey of FPDs from 15 pediatric subspecialties. EPA users were asked about their implementation of EPAs, barriers encountered, and perceptions of EPAs. Nonusers were queried about deterrents to using EPAs. Both groups were asked about potential facilitators of implementation and their perceptions of Milestones.

**RESULTS:** The response rate was 65% (575/883). Of these, 344 (59.8%) were EPA users and 231 (40.2%) were nonusers. Both groups indicated work burden as a barrier to implementation. Nonusers reported more barriers than users (mean [SD]: 7 [3.8] vs 5.8 [3.4],  $P < .001$ ). Both groups identified training materials and premade assessment forms as facilitators to implementation. Users felt that EPAs were easier to understand than Milestones (89%) and better reflected what it meant to be a practicing subspecialty physician (90%). In contrast, nonusers felt that Milestones were easy to understand (57%) and reflected what it meant to be a practicing subspecialist (58%).

**CONCLUSIONS:** Implementing EPA-based assessment will require a substantial investment by FPDs, facilitated by guidance and easily accessible resources provided by multiple organizations. Perceived barriers to be addressed include FPD time constraints, a need for additional assessment tools, and outcomes data.

abstract



**WHAT'S KNOWN ON THIS SUBJECT:** Although <50% of pediatric FPDs assess their fellows using the EPAs, all will need to implement EPA-based assessment by 2028. Little is known about barriers and facilitators to implementing EPA-based assessment within pediatric subspecialty fellowships.

**WHAT THIS STUDY ADDS:** To ease the implementation of EPAs in subspecialty programs, FPD time constraints, a lack of faculty training materials and premade assessment tools, and additional outcome data with EPA-based assessments need to be addressed as new certification requirements are enacted.

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The landscape of assessment in graduate medical education (GME) has undergone substantial change and will continue to evolve as competency-based medical education continues to advance. Entrustable professional activities (EPAs) represent an important part of this process.<sup>1</sup> EPAs are the activities required of an individual physician to practice in their profession and were developed to help supervisors in their determination of trainee readiness for practice.<sup>2</sup>

The EPAs for pediatrics and the pediatric subspecialties were developed nearly a decade ago.<sup>3</sup> There are 7 Common Pediatric Subspecialty EPAs (common EPAs) that are shared across all pediatric subspecialties, and these include 5 of the EPAs that apply to general pediatrics. In addition, members from each subspecialty developed a set of EPAs unique to their field.<sup>3</sup> Subsequently, level of supervision (LOS) scales and validity evidence for the EPAs have been published.<sup>4</sup> Although the Royal College of Physicians and Surgeons of Canada mandated competency-based assessment across all specialties by 2022,<sup>5</sup> and despite the lack of a similar mandate for use of EPAs by the American Board of Pediatrics (ABP) for pediatric subspecialty training programs in the United States, we demonstrated in 2021 that 43.7% of US pediatric subspecialty programs are using EPAs.<sup>6</sup> The ABP recently stated that EPAs will be used in the decision-making process for the initial certification of pediatric fellows by 2028, implying that >50% of fellowship program directors (FPDs) who are not currently using EPAs will need to adopt them in their assessment process.

Successful implementation typically requires key elements, including effective communication, knowledge translation, and a relative advantage of the intervention.<sup>7</sup> Barriers to implementation, both known and unknown, are important to anticipate, explore, and strive to overcome. These barriers may be found in the intervention, the environment to which it is being introduced, the people involved, or in the actual process of implementation.<sup>8</sup> EPA-based assessment programs have been implemented in undergraduate medical education and other GME settings.<sup>9-11</sup> Although there are a variety of publications on the development of EPAs and how they are used in assessment, there are less data about the process of implementing EPAs.<sup>9-12</sup> One recent study among pediatric residency programs elicited few barriers,<sup>13</sup> but similar studies have not been performed in pediatric subspecialty programs. Pediatric fellowship training programs differ from larger residency programs and may have unique needs surrounding implementation. Fellowships typically benefit from having smaller numbers of trainees and, hence, closer, longitudinal relationships between trainees and faculty members because fellows spend concentrated time in

specific clinical environments rather than rotating through a variety of sites. However, FPDs typically have less protected time for program administration and fewer total faculty and administrative resources from which to draw support for implementation.<sup>14</sup> Given these important differences, thoughtful and timely strategies to implement EPA-based assessment by FPDs will be a necessity.

The primary objective of our study was to identify facilitators and barriers to using EPAs to assess pediatric subspecialty fellows. Our secondary aim was to query FPDs about their current use and perceptions of the EPAs and compare them to the more widely used Milestones.

## METHODS

We conducted a cross-sectional survey of FPDs through the Association of Pediatric Program Directors Subspecialty Pediatrics Investigator Network (APPD SPIN) from August 2021 through May 2022. APPD SPIN is a medical education research network with a Steering Committee composed of representatives from the 15 pediatric subspecialties with primary certification by the ABP.<sup>15</sup> Representatives are responsible for reviewing and overseeing APPD SPIN studies, and all have experience in GME.

The survey was developed by a subgroup of the APPD SPIN Steering Committee on the basis of information obtained from a previous qualitative study.<sup>16,17</sup> In that study, FPDs who both used EPAs (users) and did not use EPAs (nonusers) identified specific barriers and potential facilitators related to the use of EPAs to assess fellows. Survey questions were guided by the Consolidated Framework for Implementation Research (CFIR), which is a framework used to study implementation processes across multiple settings. This framework defines 5 key constructs to explore, including the intervention, inner and outer settings, individuals, and implementation process.<sup>8</sup> The survey was reviewed and edited by other members of the APPD SPIN Steering Committee and then piloted among former FPDs. Feedback from both groups was used to modify the survey and develop the final version. The study was determined to be exempt by the Lundquist Institute for Biomedical Innovation at Harbor-UCLA Medical Center, and a \$5 gift card was provided to respondents to encourage survey completion.

Separate surveys were constructed for users and nonusers (Supplemental Fig 5). Neither the common nor the subspecialty EPAs were included in the survey for reference. Nonusers were FPDs who responded that they had not previously participated in any research study involving EPAs to assess fellows and were not using them in any other fashion. EPA users were asked how they were using EPAs, the amount of training provided to faculty to use the LOS scales to assess fellows, if any training

materials were needed for faculty to use the LOS scales to rate their fellows, and barriers encountered when implementing EPAs. They were also asked about the value of EPAs and their perceptions of EPAs compared with Milestones. Nonusers were asked about the barriers to using EPAs and their perceptions about Milestones. Both groups were queried about potential facilitators to encourage EPA use, the likelihood that they would use EPAs if they were not required for program accreditation or graduate certification, and whether the generation of equations to predict Milestone levels on the basis of EPA LOS would enhance implementation.

Additional information collected included demographics about the fellowship, how long the FPD had served in that role, the total number of fellows in the program, self-rating about the understanding of EPAs and EPA LOS scales (unfamiliar, basic, in-depth, expert), and how the FPD obtained information about EPAs, as applicable.

We set a goal to have at least 50% of all FPDs in each subspecialty participate. We sent the original invitation and 4 reminders by e-mail to prospective participants. APPD SPIN representatives then contacted and asked all non-responders to complete the survey. Representatives had access to FPD names and e-mail addresses, but not to the participants' responses.

We performed descriptive statistics, including frequencies, percentages, and means, with SDs.  $\chi$ -square tests were used to compare categorical variables and *t* tests were used to compare continuous variables between users and nonusers. We modeled the likelihood of respondents identifying each barrier using a logistic mixed effects regression with barrier, respondent type (user vs nonuser), and the interaction between barrier and respondent type as fixed effects predictors and respondent as a random effect. Differences were reported as odds ratios (OR) with 95% confidence intervals. We considered a 2-tailed  $\alpha$  of 0.05 to be statistically significant. Analyses were conducted in IBM SPSS Statistics version 28 (IBM Corp) and R 4.2 (R Core Team, Vienna, Austria).

## RESULTS

The overall response rate was 65.1% (575/883), with 344 (59.8%) users and 231 (40.2%) nonusers (Table 1). Of the users, 77.0% (265/344) had participated in an EPA research study and 47.4% (163/344) were currently using EPAs outside of research. There was no difference between the groups in the distribution of respondents by US region or subspecialty, and the number of fellows in the program and years as a fellowship director were similar (Table 1,  $P > .05$ ). All subspecialties exceeded the goal of having 50% of programs participate (Supplemental Table 3, range 51.4% to 90.3%).

Figure 1 contains a summary of our results in the context of the CFIR domains. Of the 163 users who were

using EPAs outside of a research study, most were doing so primarily for assessment and feedback of learners (76.1%, 124/163), to inform Milestone assessments (54.0%, 88/163), and to help determine readiness for advancement (42.3%, 69/163). When users were asked about how much time was required to train their faculty to use the EPA LOS scales, 39.2% (135/344) of respondents indicated that no training was provided, 26.5% (91/344) said it took 1 to 30 minutes, 15.4% (53/344) indicated that it took 31 to 60 minutes, 13.1% (45/344) indicated that it took 1 to 2 hours, and 5.8% (20/344) indicated that it took  $>2$  hours. Respondents provided examples of training materials that would be helpful for implementation, such as a slide deck, brief video, fact sheet, and examples of EPA use.

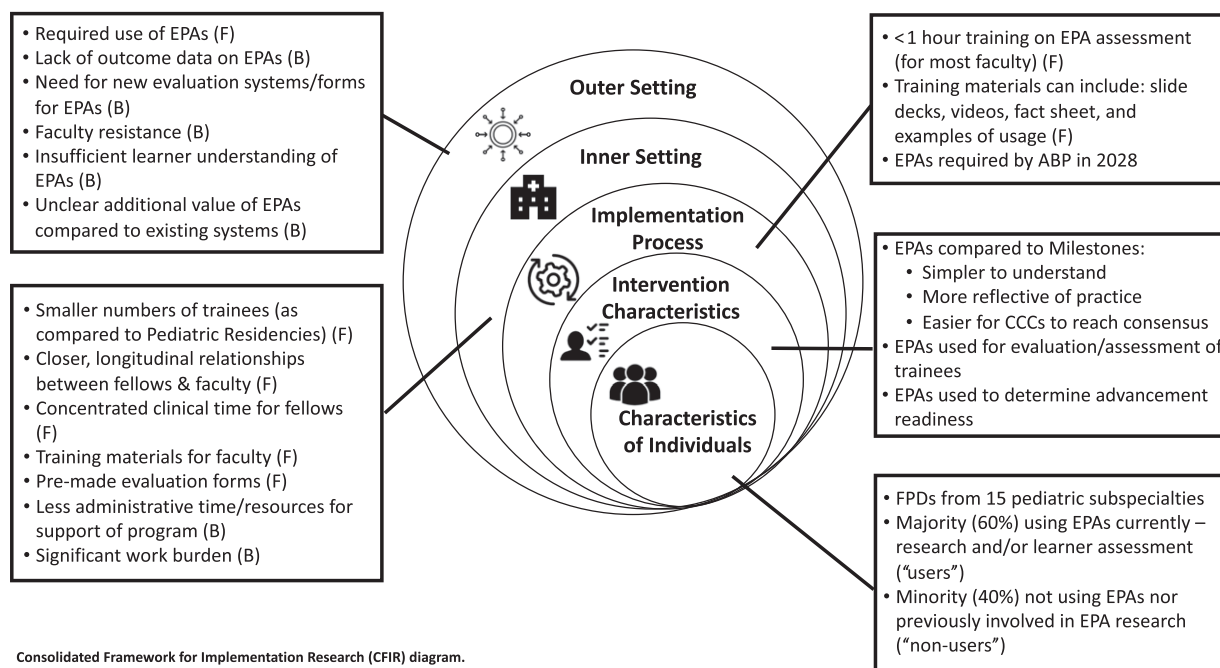
Barriers to implementing EPAs to assess fellows are shown in Fig 2. Users had lower odds of identifying a barrier (OR 0.61, 95% confidence interval [0.48–0.78]) than nonusers. A high percentage of respondents in both groups identified work burden and lack of outcome data as barriers to implementation. Compared with nonusers, users were less likely to cite a lack of consideration to use EPAs (0.44 [0.24–0.80]), faculty resistance to using EPAs (0.43 [0.24–0.77]), insufficient learner understanding of EPAs (0.27 [0.15–0.48]), lack of a rating scale for EPA assessment (0.50 [0.28–0.88]), the need to create new evaluation forms (0.55 [0.31–0.98]), and the lack of additional value over current methods (0.48 [0.27–0.86]) as barriers to implementation. More nonusers (42%) identified no barriers to implementation compared with users (30%,  $P = .004$ ). Among those who identified barriers, nonusers identified a mean (SD) of 7.0 (3.8) barriers compared with 5.8 (3.4) for users ( $P < .001$ ).

Both groups indicated training materials for faculty and premade assessment forms as the top facilitators for EPA utilization (Fig 3). Nonusers thought that information on the rationale behind EPA development would be more helpful than users did (OR 2.6 [1.5–4.5]). Compared with nonusers, users expressed a stronger likelihood of using EPAs even in the absence of a requirement ( $P = .007$ , Fig 4). Both groups thought that implementation would be enhanced if the EPA LOS ratings could automatically generate Milestone levels, although users felt more strongly about this than nonusers ( $P = .005$ , Fig 4).

When asked to compare with the Milestones, the majority of users felt that the EPAs are simpler to understand, better reflect what it means to be a practicing subspecialty physician, and that the EPA ratings are more intuitive and easier for the Clinical Competency Committee to reach a consensus (Table 2). More users strongly agreed that the subspecialty-specific EPAs were useful for monitoring fellow progression (43.3%) and setting a minimum standard for graduation (39.2%) in comparison with the common pediatric subspecialty EPAs (18.9% and 19.2%,  $P < .001$ ,

<b>TABLE 1</b> Characteristics of the Respondents and Self-Reported Knowledge About EPAs			
	<b>EPA Users</b>	<b>EPA Nonusers</b>	<b>P</b>
Number of respondents (% of all respondents)	344 (59.8)	231 (40.2)	
US region (% of users or nonusers)			.29
New England	28 (8.1)	13 (5.6)	
Middle Atlantic	52 (15.1)	54 (23.4)	
South Atlantic	56 (16.3)	42 (18.2)	
East North Central	63 (18.3)	31 (13.4)	
East South Central	19 (5.5)	14 (6.1)	
West North Central	30 (8.7)	21 (9.1)	
West South Central	29 (8.4)	19 (8.2)	
Mountain	18 (5.2)	8 (3.5)	
Pacific	49 (14.2)	29 (12.6)	
Subspecialty	(% of users)	(% of nonusers)	.33
Adolescent medicine	16 (69.6)	7 (30.4)	
Cardiology	20 (51.3)	19 (48.7)	
Child abuse	18 (64.3)	10 (35.7)	
Critical care medicine	34 (75.6)	11 (24.4)	
Development and behavioral	24 (68.6)	11 (31.4)	
Emergency medicine	39 (60.9)	25 (39.1)	
Endocrinology	22 (50.0)	22 (50.0)	
Gastroenterology	21 (58.3)	15 (41.7)	
Hematology-oncology	18 (47.4)	20 (52.6)	
Hospital medicine	15 (53.6)	13 (46.4)	
Infectious diseases	25 (71.4)	10 (28.6)	
Neonatology	38 (56.7)	29 (43.3)	
Nephrology	13 (52.0)	12 (48.0)	
Pulmonology	24 (60.0)	16 (40.0)	
Rheumatology	17 (60.7)	11 (39.3)	
Years as FPD (mean ± SD)	6.9 ± 5.8	6.3 ± 7.0	.24
No. of fellows (mean ± SD)	5.5 ± 4.3	5.0 ± 4.0	.61
Understanding of EPAs (% of users or nonusers)			<.001
Unfamiliar	2 (0.6)	28 (12.1)	
Basic	122 (35.5)	152 (65.8)	
In-depth	192 (55.8)	49 (21.2)	
Expert	28 (8.1)	2 (0.9)	
Understanding of EPA LOS scales (% of users or nonusers)			
Unfamiliar	11 (3.2)	41 (17.7)	<.001
Basic	130 (37.8)	156 (45.3)	
In-depth	176 (51.2)	33 (14.3)	
Expert	27 (7.8)	1 (0.4)	
Source of information about EPAs (% of users or nonusers) <sup>a</sup>			
Not applicable: have never received information about EPAs	3 (0.9)	25 (10.8)	<.001
Directly involved in EPA development	67 (19.6)	5 (2.4)	<.001
Subspecialty meeting(s)	219 (64.2)	120 (58.3)	.16
National conference general proceeding(s)	110 (32.3)	48 (23.3)	.03
Institutional GME office	79 (23.2)	68 (33.0)	.01
Department	62 (18.2)	30 (14.6)	.27
Self-taught from the literature	156 (45.7)	87 (42.2)	.42
From study information provided by the Subspecialty Pediatrics Investigator Network	221 (64.8)	10 (4.9)	<.001
Other	12 (3.5)	13 (5.6)	.22

<sup>a</sup> Respondents could select all that apply. Analyses corrected for multiple comparisons with Bonferroni.



**FIGURE 1**  
Relationship of results to the CFIR domains.

respectively). Among nonusers, only 4.8% strongly agreed that the Milestones reflected what it meant to be a practicing subspecialist, 5.6% strongly agreed the Milestone language was easy to understand, and 9.1% strongly agreed that the assessment scale was easy to use (Table 2). When users were asked about how they would prefer to assess fellows, 54% preferred a tool that combined elements of both EPAs and Milestones, 30% favored using EPAs alone, 5% indicated Milestones alone, and 11% would use both tools in their current form.

## DISCUSSION

Despite differences in use among FPDs, both users and nonusers report common barriers to implementing EPAs to assess pediatric fellows, as well as several facilitators that can mitigate these obstacles. To ease the implementation of EPAs in subspecialty programs, we found that FPD time constraints, a lack of faculty training materials and premade assessment tools, and the need for additional outcome data, such as quality of care or patient-oriented clinical outcomes surrounding EPA-based assessments, need to be addressed as new certification requirements are enacted.

Based on the CFIR framework,<sup>7</sup> FPDs report that EPAs, the intervention in the CFIR, have some relative advantages over isolated Milestone-based assessments. Although 52.6% of FPDs are not currently using EPAs outside of research, users perceive that EPAs are easier to use and

better reflect what it means to be a practicing physician in their subspecialty compared with Milestones. These findings are similar to the perceptions of pediatric residency program directors.<sup>13</sup> However, some FPDs feel that the EPAs are too broad in scope, lack detailed descriptions, and need a better assessment scale. These conflicting perceptions suggest the desire for a comprehensive approach to competency-based medical education implementation that includes both EPAs and Milestones. FPDs want to achieve this goal in the most efficient way possible: with a single assessment method that combines elements of both Milestones and EPAs. One way to enhance efficiency of the process is to translate EPA ratings automatically into Milestones ratings. A study by APPD SPIN revealed strong agreement between Milestone and EPA LOS scores, allowing for equations to be developed to generate Milestone scores from EPA ratings.<sup>18</sup> These equations can ease the time burden reported by FPDs and allow them flexibility in assessment methods.

Other barriers to EPA implementation for users and nonusers include a perceived lack of data on the outcomes of EPAs and the relative value of some EPAs. A large multisite longitudinal EPA study across all subspecialties was recently completed by APPD SPIN. In addition to providing more validity evidence for the EPA LOS scales, these data revealed that not all fellows are meeting expected LOS at the time of graduation, an issue that will need to be addressed.<sup>19,20</sup> Based on the current study, common subspecialty EPAs are perceived as

**Personal, faculty, learner**

- Already have too much work to do
- Never considered using EPAs
- Faculty resistance to using EPAs
- Insufficient learner understanding

**Barriers within EPAs**

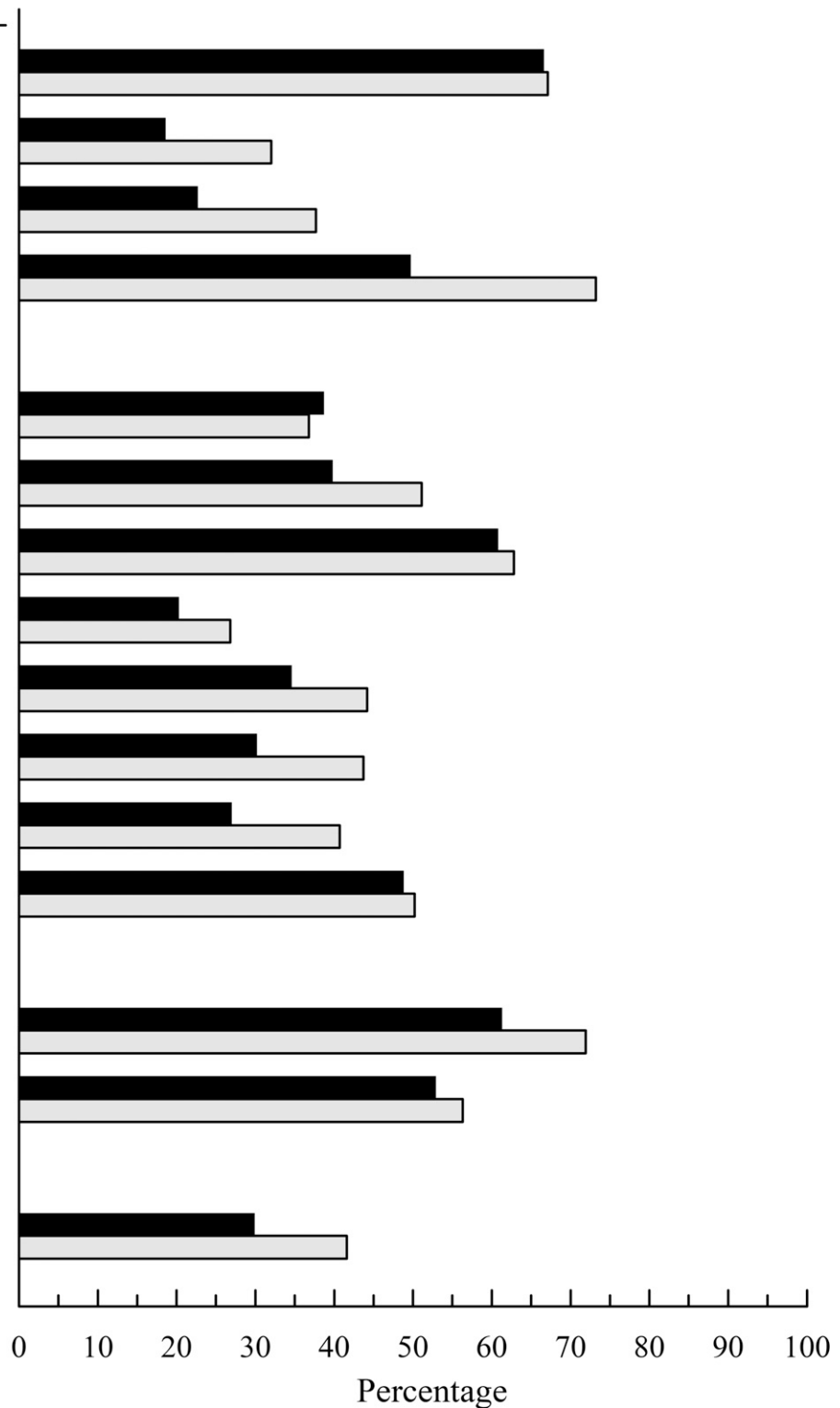
- Scope too broad
- Lack of detailed descriptions
- Lack of data on outcomes
- Not sufficiently comprehensive
- LOS scales need improvement
- Lack of rating scale
- No added value over current assessment methods
- Not required

**Support issues**

- Cumbersome to create new evaluation forms
- Lack of administrative support

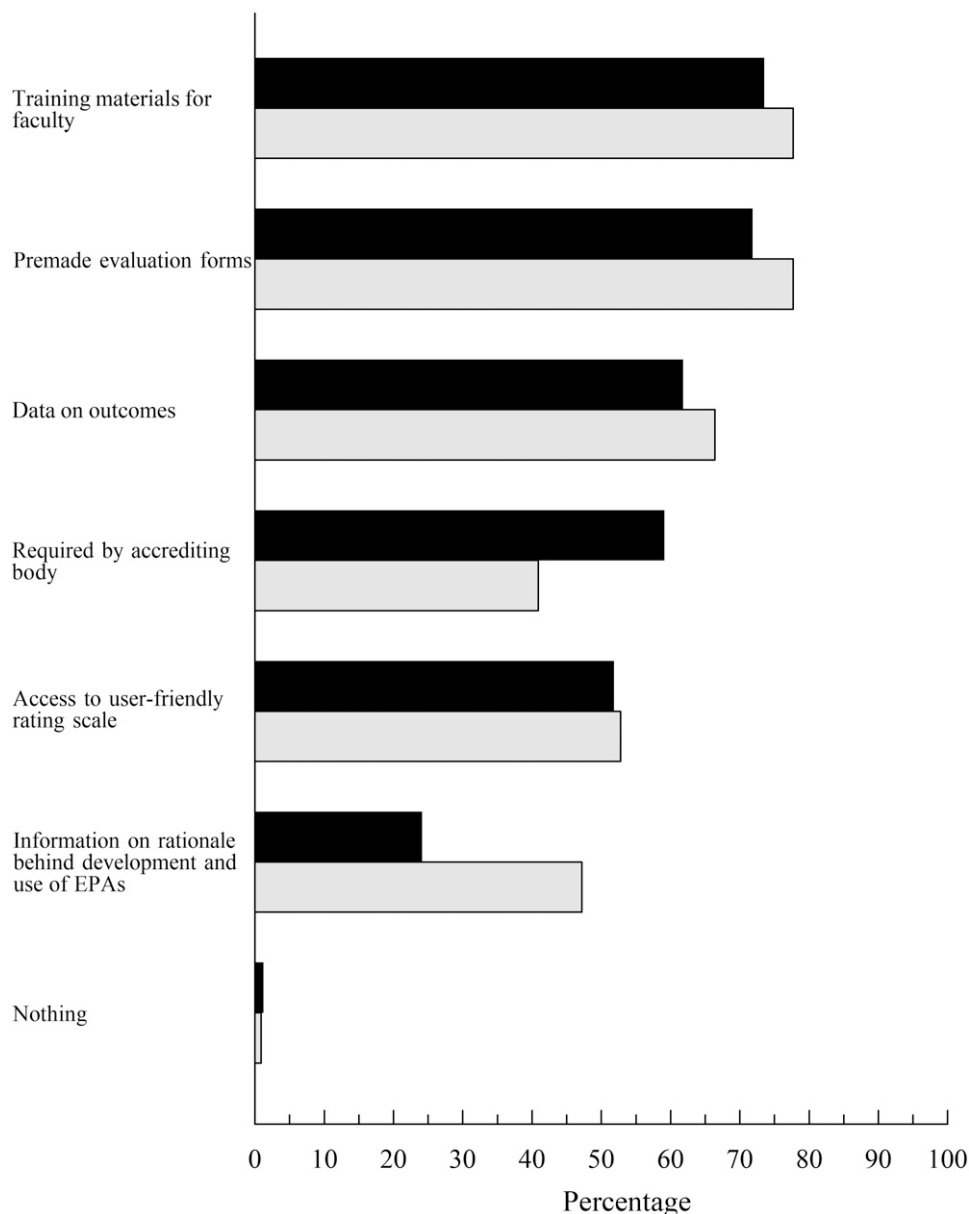
**Other**

- No perceived barriers to implementation



**FIGURE 2**

Barriers to implementation of EPAs reported by users (dark bars;  $n = 344$ ) and nonusers (light bars;  $n = 231$ ) of EPAs.



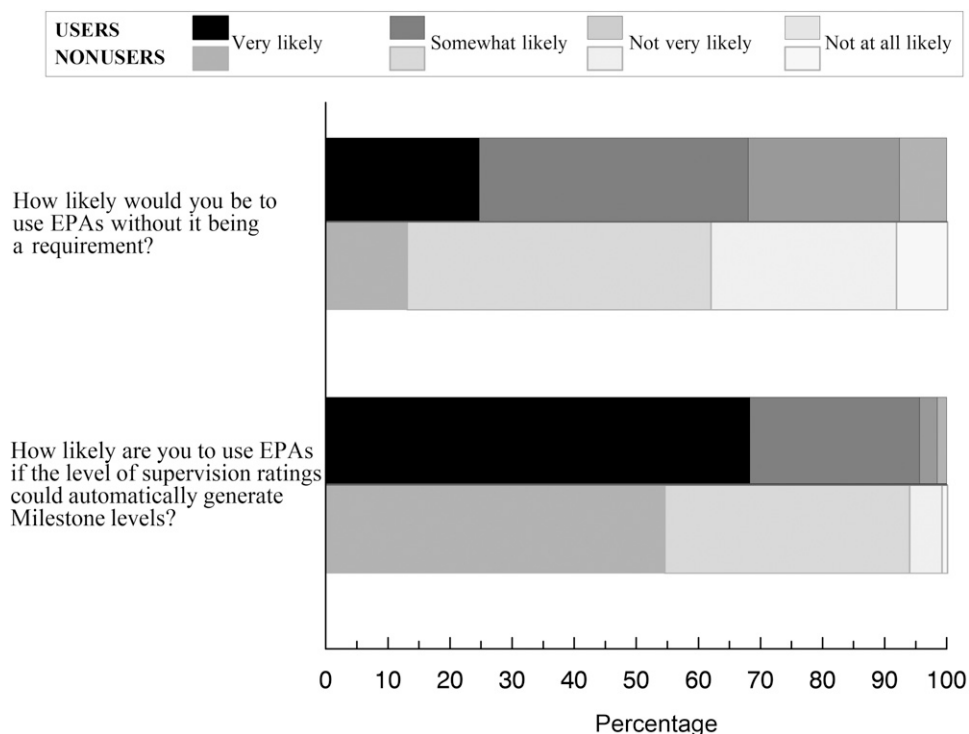
**FIGURE 3**

Potential facilitators of EPAs implementations reported by users (dark bars;  $n = 344$ ) and nonusers (light bars;  $n = 231$ ) of EPA.

less valuable than subspecialty specific EPAs among users; this mirrors data from pediatric residency program directors who feel that certain EPAs, such as those related to quality improvement, are more difficult to assess.<sup>13</sup> Work needs to be done to determine the importance of the EPAs for practice and how we integrate these into our curriculum and assessment, even if they are difficult.

Although supervisors are making real-time entrustment decisions about trainees when working clinically and LOS scales were designed to be intuitive, faculty development and instructions on EPA-based assessments are desired by >70% of FPDs. The availability of training resources

for implementation (CFIR inner setting) will need to be addressed and also needs to be considered in the context of many programs that are using EPAs with minimal to no faculty instruction. Outside of involvement in research on EPAs, a minority of FPDs in our study are currently using EPAs in their programs, and more than half rated themselves as having a basic level of understanding or being unfamiliar with EPAs. In addition, differing perceptions in how faculty make assessments (retrospective with actual supervision provided in a previous encounter vs prospective with judgement of future supervision needed) has caused confusion and can impact the



**FIGURE 4**  
Responses of users ( $n = 344$ ) and nonusers ( $n = 231$ ) of EPAs to implementation of EPAs.

reliability of EPA ratings, which are intended to be prospective and reflect future entrustment of an activity.<sup>21,22</sup> Departmental and individual faculty development around EPA use was found to be necessary in pediatric residency programs to provide a basic understanding of concepts and a shared mental model in assessment.<sup>13</sup> One example surrounds the Accreditation Council for Graduate Medical Education (ACGME) statement in the common program requirements that the attending physician is ultimately responsible for patient care.<sup>23</sup> This requirement for supervision of the trainee may conflict with the faculty members' perception that the trainee can be entrusted to perform the activity without supervision; therefore, the trainee's EPA rating may not accurately reflect the LOS that they need. FPDs requested quick reference guides, short videos, or slide decks to help train their faculty members. Faculty development efforts that foster a shared model of assessment have been highlighted as a key implementation strategy.<sup>11,12</sup> Faculty development tools have been published to help with these efforts.<sup>24</sup> Some strategies have included the use of standardized learners in simulated educational settings, coaching and feedback to individual assessors with peer reference values, the development of reference cards, or workshops and training sessions held during regularly scheduled faculty meetings.<sup>11,22,25,26</sup>

A lack of administrative support to implement EPAs and an already burdensome workload were two main barriers that reflect the inner setting of the CFIR framework and are

common themes throughout GME.<sup>13,22,25,27</sup> Our respondents desired ready-made forms and training materials to help decrease the workload of implementation. Interestingly, a requirement to use EPAs by accrediting or certifying bodies (CFIR outer setting) was not a strong driving force for FPDs to implement EPAs, who expressed a high likelihood of using EPA based assessment in the future, indicating strong self-efficacy (CFIR individuals). Providing motivation for change will vary by the individual, with some champions of EPAs needing no additional prompting, whereas other faculty members may resist the change to EPA-based assessments.<sup>25</sup> Incentive structures, dedicated time for assessment and feedback, goal-setting, friendly competition, and highlighting successes are some strategies that have been reported to improve the implementation process.<sup>22,27</sup>

Although all ACGME accredited programs must report Milestones, many specialties are now promoting the use of EPA LOS ratings for assessment with plans to use these as part of certification decisions.<sup>28,29</sup> Once EPAs are implemented, assessment of the implementation process for additional barriers and ways to improve implementation and use are important for long-term success (CFIR process).<sup>10</sup> As noted in one implementation study, unforeseen differences in user groups and high expectations can be addressed in subsequent cycles of improvement.<sup>27</sup>

Our study is not without limitations. Although we had a robust response rate across the subspecialties, our respondents



<b>TABLE 2</b> Perception of Users ( <i>n</i> = 344) About EPAs and Milestones and of Nonusers ( <i>n</i> = 231) About Milestones, % ( <i>n</i> )				
	<b>Strongly Disagree</b>	<b>Somewhat Disagree</b>	<b>Somewhat Agree</b>	<b>Strongly Agree</b>
Perceptions of users				
Compared with the Milestones, please rate your perceptions about EPAs:				
The language in the EPAs is easier to understand	1.2 (4)	9.9 (34)	43.9 (151)	45.1 (155)
The LOS scale for the EPAs is more intuitive	1.2 (4)	11.9 (41)	43.6 (150)	43.3 (149)
It is easier for the CCC to reach consensus on EPA ratings	1.5 (5)	16.0 (55)	46.8 (161)	35.8 (123)
The EPAs better reflect what it means to be a practicing physician in my subspecialty	0.6 (2)	9.0 (31)	45.6 (157)	44.8 (154)
Please rate your level of agreement with the following statements:				
The EPAs reflect what it means to be a practicing physician in my subspecialty	0.6 (2)	5.8 (20)	56.4 (194)	37.2 (128)
The common EPAs <sup>a</sup> are valuable for monitoring fellow performance progression	2.0 (7)	20.3 (70)	58.7 (202)	18.9 (65)
The common EPAs are important in setting minimum standards for fellow's graduation	2.0 (7)	20.1 (69)	58.7 (202)	19.2 (66)
The subspecialty-specific EPAs are valuable for monitoring fellow performance progression	2.0 (7)	5.8 (20)	48.8 (168)	43.3 (149)
The subspecialty-specific EPAs are important in setting minimum standards for fellow's graduation	1.7 (6)	10.5 (36)	48.5 (167)	39.2 (135)
Perceptions of nonusers				
The Milestones reflect what it means to be a practicing physician in my specialty	14.7 (34)	27.7 (64)	52.8 (122)	4.8 (11)
The language in the Milestones is easy to understand	5.2 (30)	29.9 (69)	51.5 (119)	5.6 (13)
The assessment scale for the Milestones is easy to use	10.0 (23)	27.7 (64)	53.2 (123)	9.1 (21)
It is easy for the CCC to reach consensus on Milestone assessments	2.6 (6)	17.3 (40)	63.2 (146)	16.9 (39)
CCC, clinical competency committee.				
<sup>a</sup> Common EPAs include: provide consultation to other health care providers caring for children and adolescents and refer patients requiring further consultation to other subspecialty providers if necessary; contribute to the fiscally sound, equitable, and collaborative management of a health care workplace; apply public health principles and quality improvement methods to improve population health; lead an interprofessional health care team; facilitate handovers to another health care provider either within or across settings; engage in scholarly activities through the discovery, application, and dissemination of new knowledge; lead within the subspecialty profession.				

are limited to FPDs and do not incorporate other important stakeholders, such as trainees, program coordinators, faculty members, and Clinical Competency Committees. Although the facilitators in our survey were derived from previous qualitative work, they do not fully address the numerous barriers that were also described; therefore, other mitigation strategies will likely need to be considered for successful implementation of EPAs for fellow assessment in the near future. Lastly, although we describe the implementation of EPAs for the purpose of assessment, we did not explore how EPAs may be applied to decisions around supervision and autonomy in the clinical environment.

## CONCLUSIONS

Moving toward EPA-based assessment models will require substantial investment by program and institutional

leaders who will need easily accessible guidance and resources from the ACGME, ABP, APPD, subspecialty societies, and other national organizations to make these changes. Our results can help to inform the development of materials by highlighting current barriers to use and the perceptions of pediatric FPDs who will be on the frontlines of implementation. Dashboards, faculty development materials, mobile applications, and other innovative tools have been piloted in efforts to enhance successful implementations,<sup>11,22,24–26,30</sup> and future studies evaluating their efficacy will be valuable. It will be important in future evaluation to obtain trainees' views because they are key stakeholders in the implementation process.

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## ABBREVIATIONS

ABP: American Board of Pediatrics  
ACGME: Accreditation Council for Graduate Medical Education  
APPD SPIN: Association of Pediatric Program Directors Subspecialty Pediatrics Investigator Network  
CFIR: Consolidated Framework for Implementation Research  
EPA: entrustable professional activity  
FPD: Fellowship Program Director  
GME: graduate medical education  
LOS: level of supervision  
OR: odds ratio

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