

Entrustable professional activities: report on the implementation experience in a pediatric emergency medicine fellowship program

Atividades profissionais confiabilizadoras: relato de experiência de implementação na residência médica em emergência pediátrica

GABRIEL GOUVEIA DE AGUIAR¹, ALINE BERTONI DA SILVA JORGE¹, CLARISSE ANGELIM SOARES CARDOSO¹, LUISA ANDRADE GOMES¹, PATRICIA QUINA ALBERT¹, EDSON DETREGIACHI NETO²

¹ Hospital Infantil João Paulo II – Fundação Hospitalar do Estado de Minas Gerais, Belo Horizonte, MG, Brazil.

² Hospital Alemão Oswaldo Cruz, via Programa de Apoio ao Desenvolvimento Institucional do Sistema Único de Saúde, São Paulo, SP, Brazil.

The Competency-Based Curriculum (CBC) for medical education is a proposition by the World Health Organization in 1978, aiming at a learning approach focused on what physicians are capable to do in each of their specialties.¹ While there is no consensus on the definition of competencies, one of the most widely accepted concepts is Perrenoud's, wherein competence is the ability to mobilize cognitive resources to solve a series of situations with relevance and effectiveness.² The CBC contrasts with knowledge acquisition-based curricular models, particularly those in medical residency programs (MRPs), which rely mainly on exposure time to practice scenarios.³ The definition of competencies should serve as the foundation for determining what professionals should be capable to do and their respective assessments. Consequently, it became necessary to identify these competencies and their "development milestones".

In the 2000s, Canadian and American entities initiated their respective curriculum

implementation projects by developing competency milestones essential for autonomous and accountable medical practice.^{4,5} These milestones could be specific to certain activities or cut across the entire training process, making them intricate and necessitating extensive monitoring and evaluation models and tools.

Subsequently, the respective CBCs progressed to a new phase involving the creation of "entrustable professional activities" (EPA) as a unit for both guiding training objectives and evaluations.⁶

Entrustable professional activity is an emerging concept in competency-based medical education implementation.⁶ An EPA is a unit of professional practice entrusted to a trained or trainee professional deemed sufficiently competent.⁷ It must be observable, measurable, have a defined time for completion, be directly related to patient care by a trained professional, and be suitable for deciding whether to authorize autonomous practice through workplace observation.⁶

Received on: Mar 12, 2024 • Accepted on: Dec 11, 2024

Corresponding author:

Gabriel Gouveia de Aguiar
E-mail: gabrielgouveia@gmail.com

Source of financing: none.

Conflicts of interest: there are no conflicts of interest.

How to cite: Aguiar GG, Jorge AB, Cardoso CA, Gomes LA, Albert PQ, Detregiachi Neto E. Entrustable professional activities: report on the implementation experience in a pediatric emergency medicine fellowship program. JBMEDE. 2024;4(4):e24030.

Gabriel Gouveia de Aguiar: <https://orcid.org/0000-0002-6638-7979> • Aline Bertoni da Silva Jorge: <https://orcid.org/0009-0001-3276-0843> • Clarisse Angelim Soares Cardoso: <https://orcid.org/0000-0003-3029-3791> • Luisa Andrade Gomes: <https://orcid.org/0009-0004-1462-0291> • Patricia Quina Albert: <https://orcid.org/0009-0001-1374-9817> • Edson Detregiachi Neto: <https://orcid.org/0000-0002-6565-0405>

DOI: 10.54143/jbmede.v4i4.182

2763-776X © 2022 Associação Brasileira de Medicina de Emergência (ABRAMEDE). This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original article is properly cited (CC BY).



Proficiency in multiple competencies simultaneously within a specific context is necessary to execute an EPA. This approach may be more suitable for assessment than evaluating isolated competencies abstracted from their context, as its observation is more concrete, and assessment is more reproducible.⁸ Assessment based on EPA is conducted through summative decisions determining the level of supervision the training professional requires to act in each specific context. The main objective is to attest to the ability to perform a particular task autonomously.⁹ Using this conceptualization, one can argue that the specialist's role is defined by the specific set of EPA expected to be performed without supervision.

In Brazil, the development of EPA is still in its early stages.¹⁰ However, there is a national effort to update the competency matrix of various MRPs, encouraged by the *Comissão Nacional de Residência Médica*.¹¹ While there is no official proposal for EPA in pediatric emergency nationally in Brazil, these activities have already been mapped and developed in North America by societies of specialists in collaboration with emergency medicine and pediatrics experts.¹²

This study aims to report the experience of implementing a CBC based on EPA for a Pediatric Emergency Fellowship Program in Brazil.

EXPERIENCE REPORT

A group of five preceptors from a Brazilian Pediatric Emergency Fellowship Program, board certified in this respective field, collaboratively developed an assessment structure for residents based on EPA. This process involved face-to-face meetings and online voting.

The initial step involved conducting an informative meeting on EPA in September 2019. During this session, the history of the CBC, fundamental concepts of EPA, competencies deemed essential for pediatric emergency physicians¹³ and the proposal and approval of a work plan for developing local EPA were discussed. The chosen construction method was an adaptation of the normative Delphi method.¹⁴

In the first round, an online survey was conducted using the EPA proposed by the American Board of Pediatrics (ABP) as a basis for local adaptation.¹² The aim was to assess whether each EPA could be suitable for the Brazilian context, accurately describing what a pediatric emergency physician can perform. In case of disagreement, the survey also provided the option of selecting other EPA related to emergency care from pediatric and emergency medicine programs. Participants had the option to seek clarification before casting their votes.

In this initial round, after two clarification requests, there was 100% agreement with the six EPA proposed by the ABP. Following feedback from the program supervisor, a consensus was reached that all EPA related to pediatric or emergency medicine were adequately covered in the pediatric emergency EPA. As a result, no further rounds were deemed necessary for this decision.

Face-to-face meetings were conducted to develop each voted EPA using a structured model (see **Appendix 1**). The primary focus was on determining the best title for each EPA, outlining the steps for its execution, and deciding the frequency of assessment (monthly or on a case-by-case basis).

For the EPA related to medical procedures, a new round of the Delphi method was initiated to choose which procedures would be considered essential, optional, requiring prior knowledge, or dispensable for evaluation. During the voting process, preceptors were instructed to consider recommendations from national and international specialty societies for pediatric emergency and prerequisite specialties, as well as procedures commonly performed in the service. Consensus was deemed achieved when 60% of preceptors chose the same qualifier for a procedure, with the remaining 40% holding differing opinions. Procedures with less than 60% agreement or those with 60% agreement, but the remaining 40% having a shared perspective, would undergo another round of voting after discussion.

Out of the 30 listed procedures, 17 reached a consensus of 60% or more and were defined.

Eleven procedures were listed for a new vote, of which seven had 60% agreement but with 40% agreement in another option, and four received 40% or less agreement. After the third round, three procedures remained for in-person discussion, after which the procedures for EPA number 3 were finalized (**Appendix 2**).

Following this process, considering the training time and the unavailability of preceptors specializing in emergency department management, the preceptors chose to merge EPA 5 and 6 into one, resulting in five EPA for the Pediatric Emergency Fellowship Program (**Table 1**). Additionally, they developed a guide for fellows (**Appendix 3**) and established an online portfolio for assessment records. These records are compiled every three months by the program supervisor, discussed in a Competence Committee involving other preceptors, assigned autonomy levels for each EPA based on the Ten Cate scale,¹⁵ and feedback is provided to each fellow.

DISCUSSION

The developed EPA are still heavily based on international proposals, leaving room for further adaptations. One limitation we face is that we created EPA for an area of practice analogous to a subspecialty without nationally defining the EPA for its prerequisite specialties and undergraduate education. This may result in gaps in the progression of competencies that each trainee may present, depending on their prior training foundation.

Another limitation was formulating the EPA without a similar national reference in collaboration with the respective specialist societies. Having

such a collaboration would provide more consistency and generalizability to the proposed activities.

On the other hand, considering that we were at the beginning of the experience with the program's provisional Accreditation process, we believed that launching the program with a curriculum aligned with our training concepts was a unique opportunity. We anticipated that if new EPA are developed at the national level in the future, our program can incorporate them more seamlessly and naturally because our preceptors will already be familiar with the process.

The following years are being used for the evaluation and calibration of instruments and continuous training of preceptors. During the use of the created tools, we realized that some essential procedures would be challenging to assess due to low frequency. In one of the Competency Committee meetings, we decided to subdivide these procedures into "mandatory practical", which will be evaluated in real scenarios, and "mandatory low-exposure," which may require simulation-based assessment.

The "sedation for procedures" procedure was eliminated as we later assessed that it would be a step in EPA 3 rather than a distinct procedure. For the same reason, we changed the name of the "rapid sequence intubation" procedure to "endotracheal intubation" because the preparation method for the procedure can vary based on patient's clinical situation.

An updated competency matrix was published in 2021¹⁶ in accordance with the requirements of the National Medical Residency Commission, listing 20 essential competencies for the training of pediatric

Table 1. Entrustable professional activities of Pediatric Emergency Medicine Fellowship Program

Number	Title
EPA 1	Recognize and provide care for acutely ill/injured pediatric patients
EPA 2	Recognize and provide care for pediatric patients with medical complexity in the emergency department
EPA 3	Perform common procedures associated with pediatric emergency medicine practice
EPA 4	Perform identification, resuscitation, and stabilization of critically ill patients
EPA 5	Lead the emergency department to optimize patient care

EPA: entrustable professional activity.

emergency physicians in Brazil. We reviewed our EPA following this publication and concluded that they remain current, with all the competencies adequately addressed within the curriculum.

In conclusion, the CBC is a more objective and effective proposal for medical education assessment, but it is still in its early stages in Brazil. The account of our experience can serve as a foundation to guide a path for discussion in other programs and for the development of future competency matrices in the field of the subspecialty.

REFERENCES

1. McGaghie WC, Miller GE, Sajid AW, Telder T. Competency-based curriculum development on medical education: an introduction. *Public Health Pap.* 1978;(68):11-91.
2. Perrenoud P. Construir as Competências Desde a Escola. Porto Alegre: ArtMed; 1999.
3. Frank JR, Mungroo R, Ahmad Y, Wang M, de Rossi S, Horsley T. Toward a definition of competency-based education in medicine: a systematic review of published definitions. *Med Teach.* 2010;32(8):631-7.
4. Frank JR, Snell L, Sherbino J, editors. *CanMEDS 2015 Physician Competency Framework*. Ottawa: The Royal College of Physicians and Surgeons of Canada; 2015.
5. Swing SR. The ACGME outcome project: retrospective and prospective. 2009;29(7):64854.
6. Ten Cate O, Chen HC, Hoff RG, Peters H, Bok H, van der Schaaf M. Curriculum development for the workplace using Entrustable Professional Activities (EPAs): AMEE Guide No. 99. *Med Teach.* 2015;37(11):983-1002.
7. Ten Cate O. Entrustability of professional activities and competency-based training. *Med Educ.* 2005 Dec;39(12):1176-7.
8. Malone K, Supri S. A critical time for medical education: the perils of competence-based reform of the curriculum. *Advances in Health Sciences Education.* 2012;17(2):241-6.
9. Ten Cate O. Nuts and Bolts of Entrustable Professional Activities. *J Grad Med Educ.* 2013;5(1):157-8.
10. Francischetti I, Holzhausen Y, Peters H. Tempo do Brasil traduzir para a prática o currículo Médico Baseado em Competência por meio de Atividades Profissionais Confiáveis (APCs). *Interface - Comunicação, Saúde, Educação.* 2020;24.
11. Brasil. Ministério da Educação. Matrizes de Competências Aprovadas pela CNRM. Brasília, DF: Ministério da Educação; [citado 2024 Nov. 12]. Disponível em: <http://portal.mec.gov.br/publicacoes-para-professores/30000-uncategorised/71531-matrizes-de-competencias-aprovadas-pela-cnrm>
12. Hsu D, Nypaver M, Fein DM, McAneney C, Santen S, Nagler J, et al. Essentials of PEM Fellowship Part 2: The Profession in Entrustable Professional Activities. *Pediatr Emerg Care.* 2016;32(6):410-8.
13. Piva JP, Lago PM, Garcia PCR. Pediatric emergency in Brazil: the consolidation of an area in the pediatric field. *J Pediatr (Rio J).* 2017;93:68-74.
14. Brás J, Marques V, de Freitas D. Método DELPHI: caracterização e potencialidades na pesquisa em Educação. *Pro-Posições.* 2018;29(2):389-415.
15. Ten Cate O. Guia Atualizado sobre Atividades Profissionais Confiáveis (APCs). *Rev Bras Educ Med.* 2020;43(1 suppl 1):712-20.
16. Brasil. Ministério da Educação. Resolução CNRM no 39, de 2 de setembro de 2021. Brasília, DF: Diário Oficial da União; 2021 [citado 2024 Nov. 12]. Disponível em: <https://www.gov.br/mec/pt-br/residencia-medica/resolucao/residenciamedica#:~:text=Resolu%C3%A7%C3%A3o%20CNRM%20N%C3%9C%20de,em%20Emerg%C3%ancia%20Pedi%C3%A1trica%20no%20Brasil>

1. Título da EPA

Reflete o trabalho a ser feito no serviço de saúde. Pode ser acompanhada de uma breve descrição geral da atividade.

2. Especificações da EPA

- a. Descrição do que está incluído na atividade - a EPA deve ser decomposta em conhecimentos, habilidades e atitudes necessárias (no máximo 7 itens). Os instrumentos de avaliação de cada EPA serão baseados principalmente nestes itens de forma que cada item deve ser avaliado de forma binária (faz ou não faz) ou de forma qualitativa (de acordo com o nível de autonomia que o residente apresenta ou apresentou) de acordo com o tipo de EPA.
- b. Há algum pré-requisito para a certificação desta EPA (p.e. cursos, certificações externas ou ter sido confiado à uma EPA prévia)?

3. Riscos em potenciais de casos de falhas

- a. Danos aos pacientes, custos indevidos/desperdício de recursos, danos psicológicos à equipe etc).

4. Domínios mais relevantes de competências envolvidos na execução da EPA

- a. Marque 2 a 4 competências
 - i. Expertise médica
 - ii. Colaboração
 - iii. Comunicação
 - iv. Profissionalismo
 - v. Autogestão do aprendizado
 - vi. Responsabilidade social
 - vii. Liderança
- b. Cada avaliação deve explicitar em que competência o residente deve melhorar. Estes são os campos de competência que irão orientar os planos de melhoria.

5. Conhecimentos, habilidades, atitudes e experiências requeridos

- a. Há conhecimentos, habilidades e atitudes que são esperado antes que o residente possa ser confiável (p.e. ter passado por algum treinamento/aula direcionado, número de procedimentos ou atendimentos, tempo de exposição a um cenário etc).

6. Avaliações que serão fonte de informações para avaliação do progresso

- a. Que base de informação deve ser utilizada para determinar o progresso e fundamentar a decisão de certificação da EPA? Há uma quantidade mínima de observações?
- b. Exemplos
 - i. Feedbacks diários (não estruturados)
 - ii. Feedbacks pontuais estruturados
 - iii. Avaliação somativa mensal
 - iv. Observação direta
 - v. Testes
 - vi. Apresentações teóricas
 - vii. Learning logs
 - viii. Trabalho de conclusão de curso

7. Níveis de confiança esperado por fase do treinamento

- a. Quando é esperado que os residentes atinjam os níveis 3 e 4 para esta EPA

8. Comentários do plano de melhoria construído com o residente

- a. Campo em aberto, opcional e complementar ao campo 5.

9. Data da expiração da EPA

- a. Quando o credenciamento será revogado se não houver manutenção da competência.

Exemplo:

Adaptado de <https://www.justintimemedicine.com/sdc/assessments/preview/203?termId=31>

Trata-se de uma EPA esperada ao fim da graduação.

Título da EPA	História e exame físico: o estudante colhe uma história e realiza um exame físico
Especificações da EPA (Para cada ponto descrever o nível de confiança que o aluno apresenta) 1. Não autorizado a praticar EPA 2. Permitido praticar o EPA somente sob supervisão proativa e total 3. Permitido praticar EPA somente sob supervisão reativa 4. Permitido praticar EPA sem supervisão 5. Permitido supervisionar outros na prática de EPA	A. Utiliza habilidades de entrevista centrada no paciente B. Realiza perguntas direcionadas pelas hipóteses diagnósticas C. Faz perguntas de forma organizada D. Realiza exame físico direcionado pelas hipóteses diagnósticas E. Obtém informação completa e acurada
Riscos em potenciais de casos de falhas	Atraso diagnóstico e terapêutico, uso de exames e interconsultas desnecessários.
Domínios mais relevantes de competências envolvidos na execução da EPA	☐ Expertise médica ☐ Comunicação ☐ Colaboração ☐ Profissionalismo ☐ Defensor da saúde ☐ Autogestão do aprendizado ☐ Liderança
Conhecimentos, habilidades, atitudes e experiências requeridos (Assinalar os pontos em que o aluno deve priorizar nas próximas semanas ou no próximo estágio - marcar no máximo 3).	Conhecimentos: ☐ Acurácia dos principais achados da anamnese e exame físico para as principais doenças. Habilidades: ☐ Reúne informações essenciais e precisas sobre os pacientes e suas condições por meio de anamnese, exame físico e uso de dados laboratoriais, exames de imagem e outros exames. ☐ Comunica-se eficazmente com pacientes, famílias e o público, conforme apropriado, ao longo de um leque de contextos socioeconômicos e culturais Atitudes: ☐ Demonstra uma abordagem investigativa e analítica para situações clínicas ☐ Demonstra percepção e compreensão sobre emoções e respostas humanas às emoções que permitem desenvolver e gerenciar interações interpessoais ☐ Demonstrar compaixão, integridade e respeito pelos outros ☐ Demonstrar respeito pela privacidade e autonomia do paciente ☐ Demonstrar sensibilidade e capacidade de resposta a uma população diversificada de pacientes, incluindo, entre outros, diversidade de gênero, idade, cultura, raça, religião, deficiências e orientação sexual Experiências requeridas:
Avaliações que serão fonte de informações para avaliação do progresso	Mini CEx (Mini exercício clínico avaliativo). Avaliação intermediária ao fim do estágio. Avaliação somativa ao fim do estágio.
Níveis de confiança esperado por fase do treinamento	Nível 3 na metade do internato Nível 4 ao fim do internato
Plano de melhoria	
Data da expiração da EPA	Não se aplica

Título da EPA	EPA :
Especificações da EPA (Para cada ponto descrever o nível de confiança que o aluno apresenta) 1. Não autorizado a praticar EPA 2. Permitido praticar o EPA somente sob supervisão proativa e total 3. Permitido praticar EPA somente sob supervisão reativa 4. Permitido praticar EPA sem supervisão 5. Permitido supervisionar outros na prática de EPA	
Riscos em potenciais de casos de falhas	
Domínios mais relevantes de competências envolvidos na execução da EPA	☐ Expertise médica ☐ Comunicação ☐ Colaboração ☐ Profissionalismo ☐ Defensor da saúde ☐ Autogestão do aprendizado ☐ Liderança
Conhecimentos, habilidades, atitudes e experiências requeridos (Assinalar os pontos em que o aluno deve priorizar nas próximas semanas ou no próximo estágio - marcar no máximo 3).	Conhecimentos: ☐ ☐ ☐ ☐ Habilidades: ☐ ☐ ☐ ☐ ☐ ☐ ☐ Atitudes: ☐ ☐ Experiências requeridas:
Avaliações que serão fonte de informações para avaliação do progresso	☐ Formulário de avaliação pontual após atendimento. ☐ Portfólio ☐ Avaliação somativa ao fim do estágio ☐ Outros: _____
Níveis de confiança esperado por fase do treinamento	Nível 3: Nível 4:
Plano de melhoria	
Data da expiração da EPA	