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Implementation and assessment of a training course for residents in neonatology and pediatric emergency medicine

Mise en place et évaluation d'un programme d'enseignement aux urgences pédiatriques et néonatales à destination des internes de pédiatrie

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Summary

Background and aims. Residents must balance patient care and the ongoing acquisition of medical knowledge. With increasing clinical responsibilities and patient overload, medical training is often left aside. In 2010, we designed and implemented a training course in neonatology and pediatric emergency medicine for residents in pediatrics, in order to improve their medical education. The course was made of didactic sessions and several simulation-based seminars for each year of residency. We conducted this study to assess the impact of our program on residents' satisfaction and self-assessed clinical skills.

Methods. A survey was conducted at the end of each seminar. The students were asked to complete a form on a five-point rating scale to evaluate the courses and their impact on their satisfaction and self-assessed clinical skills, following the French National Health Institute's adapted Kirkpatrick model.

Results. Sixty-four (84%) of the 76 residents who attended the courses completed the form. The mean satisfaction score for the entire course was 4.78 ± 0.42 . Over 80% of the students felt that their clinical skills had improved.

Conclusion. Medical education is an important part of residency training. Our training course responded to the perceived needs of the

Résumé

L'interne a le devoir de soigner les patients et le droit de prétendre à une formation théorique. La charge de travail liée à l'activité de soin a considérablement réduit la place de l'enseignement. Afin de palier cela, un programme de formation au service des urgences néonatales et pédiatriques médico-chirurgicales à destination des internes du diplôme d'études spécialisées (DES) de pédiatrie a été mis en place en 2010 au centre hospitalier universitaire de Caen. Ce programme comprenait plusieurs séminaires adaptés à chaque promotion et incorporait des séances de simulation. Nous avons souhaité évaluer la satisfaction des étudiants dans le but d'une amélioration continue du programme. À l'issue de chaque formation, les participants ont reçu un questionnaire visant à évaluer l'impact de l'enseignement en matière de satisfaction et d'auto-évaluation des compétences (niveaux 1 et 2a du modèle modifié de Kirkpatrick adopté par la Haute Autorité de santé) à l'aide d'échelles numériques sur 5 points. Soixante-quatre (84 %) des 76 internes ayant participé aux formations ont complété le questionnaire. La moyenne des notes d'évaluation globale était de $4,78 \pm 0,42$. Plus de 80 % des étudiants ont estimé avoir amélioré leurs compétences. Ce programme semble avoir répondu aux attentes des internes du DES de pédiatrie bas-normands. Cette évaluation a pour limite de ne pas avoir apprécié le

* Some of the results have already been partially presented in European medical congresses: Brossier D, Bellot A, Roumeliotis N, et al. Assessment of a simulation-based training course for interns in neonatology and pediatric emergency medicine. Arch Dis Child 2014;99(Suppl. 2):A92. Congrès de l'European Academy of Paediatric Societies. Barcelone, 2014; Brossier D, Jarrige O, Bellot A, et al. Mise en place et évaluation d'un programme de formation aux urgences néonatales et pédiatriques basé sur la simulation à destination des

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students with consistently satisfactory evaluations. Before the evaluation of the impact of the course on patient care, further studies are needed to assess the acquisition of knowledge and skills through objective evaluations.

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1. Introduction

According to the French National Health Institute, residents are physicians in training [1]. They must balance patient care and the ongoing acquisition of medical knowledge. Their clinical requirements are 10 half-days per week, two of which are dedicated to medical training and one should be organized by their institution [1]. This definition allows residents to follow a specialized curriculum, adjusted to their needs, expectations, and area of medical specialization. Although compulsory, these teaching obligations are rarely met [2–4]. The lack of formal theoretical training during residency appears even more problematic when it concerns an area of medical specialization such as pediatrics, which is less taught during the previous years of the medical curriculum [5–7]. A simulation study from Drummond et al. showed that French 1st-year residents were not able to conduct a pediatric resuscitation properly [6]. Given the lack of coursework in pediatrics, students undertake alternative medical courses, both expensive and provided away from their clinical institution [2,3,7]. The main limitations for implementation and access to formal teaching programs seems to be the lack of time [8]. Furthermore, due to increasing clinical responsibilities and patient overload, medical training is often left out [9–11] and estrangement and financial aspects add to the lack of formal training [3,8,10]. To improve the medical education in our university hospital, we designed and implemented a training course for residents in neonatology and pediatric emergency medicine. We conducted a study to assess the impact of our program on residents' self-assessed clinical skills and satisfaction, intending to contribute to its ongoing adaptation and improvement [12].

2. Methods

2.1. Institution and population

This program was implemented in the pediatric department of the university hospital of Caen, in the Normandy region of France. The Caen University Hospital is a tertiary care center. The pediatrics department hosts eight to 12 new pediatrics residents every year. In France, the pediatric residency lasts four years. In 2010, in lower Normandy, the pediatrics residents were dispatched in the university hospital and five general hospitals around the region. All residents were expected to attend at least one of the seminars of this training

bénéfice pour les patients. De plus, il serait intéressant à l'avenir de réaliser d'autres études pour évaluer de manière objective l'apport de telles formations sur les compétences et les connaissances des étudiants.

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program per year, depending on their level of training. They were supposed to be freed of any clinical responsibilities and all the courses took place at the university hospital, even for the residents who practiced in one of the region's general hospitals.

2.2. Description of the courses

The purpose of the program was to acquire the knowledge needed to optimize care in neonatal and pediatric emergency practice. This program was developed and implemented on residents' ideas and requests and was planned and organized by a resident with the help of pediatric and neonatal attending physicians. Each course and its content were determined by pediatrics professors, attendings, and residents and was intended to respond to residents' expectations and needs. Depending on the residents' medical training level, the courses were designed according to the pedagogic objectives established by the National College of Pediatric Instructors. This program was based on several teaching techniques, including high-fidelity simulation [13–15], and was inspired both by several theoretical courses and previously published experience from other pedagogical teams [13,15]. To improve interactions between students and teachers, small group seminars were encouraged [11,16,17].

In November 2010, the first course in pediatric emergency medicine was implemented for 1st-year residents. This course took place over two sessions lasting 2 days during the 1st month of residency. This seminar was based on formal courses approximately 2 h long. Each class was led by one of the hospital's pediatricians specialized in the chosen topic. The specific aim of this seminar was to provide the 1st-year residents with the theoretical and practical knowledge needed to treat patients in the pediatric emergency department. In September 2012, a more developed program, covering a wider spectrum of neonatal and pediatric emergency medicine topics, was added. This program comprised four independent seminars for each residency year (Table 1). Each seminar took place over 2 days, with the 1st day corresponding to formal courses and the 2nd day involving practical sessions using high-fidelity simulation, elaborated as recommended by the French National Health Institute [18]. The seminars were conducted by well-trained, experienced pediatric or neonatal simulation and/or European Pediatric Life Support (EPLS) instructors.

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