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ORIGINAL ARTICLE

Comparisons between Full-time and Part-time Pediatric Emergency Physicians in Pediatric Emergency Department

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Key Words
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Background: Pediatric emergency medicine is a young field that has established itself in recent decades. Many unanswered questions remain regarding how to deliver better pediatric emergency care. The implementation of full-time pediatric emergency physicians is a quality improvement strategy for child care in Taiwan. The aim of this study is to evaluate the quality of care under different physician coverage models in the pediatric emergency department (ED).
Methods: The medical records of 132,398 patients visiting the pediatric ED of a tertiary care university hospital during January 2004 to December 2006 were retrospectively reviewed. Full-time pediatric emergency physicians are the group specializing in the pediatric emergency medicine, and they only work in the pediatric ED. Part-time pediatricians specializing in other subspecialties also can work an extra shift in the pediatric ED, with the majority working in their inpatient and outpatient services. We compared quality performance indicators, including: mortality rate, the 72-hour return visit rate, length of stay, admission rate, and the rate of being kept for observation between full-time and part-time pediatric emergency physicians.
Results: An average of 3678 ± 125 [mean ± standard error (SE)] visits per month (with a range of 2487–6646) were observed. The trends in quality of care, observed monthly, indicated that the

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72-hour return rate was 2—6% and length of stay in the ED decreased from 11.5 hours to 3.2 hours over the study period. The annual mortality rate within 48 hours of admission to the ED increased from 0.04% to 0.05% and then decreased to 0.02%, and the overall mortality rate dropped from 0.13% to 0.07%. Multivariate analyses indicated that there was no change in the 72-hour return visit rate for full-time pediatric emergency physicians; they were more likely to admit and keep patients for observation [odds ratio = 1.43 and odds ratio = 1.71, respectively], and these results were similar to those of senior physicians.
Conclusion: Full-time pediatric emergency physicians in the pediatric ED decreased the mortality rate and length of stay in the ED, but had no change in the 72-hour return visit rate. This pilot study shows that the quality of care in pediatric ED after the implementation of full-time pediatric emergency physicians needs further evaluation.

1. Introduction

Quality of care is important in all health care services, including pediatric emergency care. Pediatric care has its own unique characteristic needs as the risk of medication errors can especially increase harm to patients in the pediatric emergency department (ED).[1] In the past, most pediatric ED patients were seen by a resident and a physician not specializing in pediatric emergency medicine. Leadership is a critical factor in implementing change and quality improvement initiatives.[2] The late chair of our board commented: "How can we treat the most seriously ill patients with inexperienced physicians?" In July 2003, the ED scheduled full-time pediatric emergency physicians and moved to total coverage in the subsequent 3 years. Instead of implementing extra ED rotating shifts with other pediatric subspecialists, the implementation of full-time pediatric emergency subspecialists is a quality improvement strategy in pediatric ED. In developed countries such as Canada and the United States, most pediatric EDs are staffed by full-time pediatric ED-trained and credentialed attending physicians.[3] Previous studies focusing on legal issues reported a decrease in malpractice claims and disbursements in a pediatric ED with full-time attending physician coverage;[4] most studies of the quality of pediatric ED care have examined differences between residents and attending physicians or between emergency and pediatric physicians.[5—9]

The aim of quality in health care is "the degree to which health care services for individuals and populations increase the likelihood of desired health care outcomes and are consistent with current professional knowledge" as defined by the Institute of Medicine.[10] The six dimensions of quality are care that is effective, safe, efficient, timely, equitable, and patient-centered.[10] We expect the implementation of full-time pediatric emergency physicians to have better professionalism in patient- and family-centered care in order to reduce practice variations, and to provide the right care in the right place at the right time in an efficient and timely way.[11]

The aim of this study was to evaluate the quality of care in a pediatric ED with pediatric emergency physicians.

2. Methods

2.1. Study design

The present study was a retrospective cohort study.

2.2. Setting

The patients were drawn from a pediatric ED affiliated with a tertiary care university hospital. The 24-hour pediatric ED has approximately 45,000 visits annually. The hospital has a total of 360 inpatient beds, including 200 ward beds, 30 pediatric intensive care unit beds, and 130 neonatal intensive care unit beds.

2.3. Selection of participants

The computerized medical records of all pediatric patients aged ≤ 17 years, with the exception of trauma cases, visiting the ED between January 2004 and December 2006 were reviewed. The physicians included in this study analysis were all credentialed attending physicians working in pediatrics. The full-time pediatric emergency physicians' group means physicians who work in the pediatric ED for 120—156 hours a month without inpatient and outpatient duties, and have 1—8 years of experience in pediatric emergency medicine. By contrast, the part-time pediatricians' group means physicians who work an extra shift in the pediatrics ED for 12—36 hours a month, in addition to providing routine inpatient and outpatient services in their subspecialty. Part-time pediatricians do not specialize in pediatric emergency medicine and have 1—2 years of pediatric emergency experience. During the study period, one attending physician together with one resident treated patients in a 12-hour shift; the attending physicians supervised the residents, assessed and managed patients with complicated medical conditions, and assumed responsibility for the management and the final placement of the patients.

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