



**Oluwakemi Badaki, MD**  
**Recipient of the Ken Graff Investigator Research Award**  
**American Academy of Pediatrics**  
**2007 National Conference & Exhibition**

***IMPROVING THE PERFORMANCE OF CHEST COMPRESSIONS IN PEDIATRIC RESUSCITATIONS – Rescuer Fatigue and Chest Compression Effectiveness in Pediatric Models***

Oluwakemi Badaki MD CM, Frances M. Nadel MD, MSCE, Vinay Nadkarni MD, MS, Aaron Donoghue MD, MSCE  
Division of Emergency Medicine and Department of Anesthesia and Critical Care  
The Children’s Hospital of Philadelphia

**ABSTRACT**

Context:

Pediatric cardiac arrests result in poor outcomes. Effective chest compressions improve survival in such patients. Unfortunately, compressions are generally inadequately performed and the quality of compressions given deteriorates rapidly with time. Current American Heart Association (AHA) guidelines call for faster and deeper chest compressions with minimization of interruptions. The effect of fatigue on operational performance while adhering strictly to these AHA guidelines is unknown. In addition, there is little pediatric data on rescuer fatigue and chest compression deterioration.

Objectives:

To determine whether physiologically effective chest compressions can be performed for a longer duration of time in pediatric versus adult models. To determine the relationship between physiologic/metabolic markers of work in rescuers and chest compression deterioration.

Study Design/Setting/Participants:

This prospective, randomized experimental trial will be performed at the Children’s Hospital of Philadelphia. Participants will be healthcare practitioners who routinely provide chest compressions in the course of their work. Lay practitioners will be excluded.

Study Measures & Analysis:

Participants will be asked to perform continuous chest compressions on infant, pediatric and adult sized manikins. Compression rate, depth, applied force as well as participant physiologic work efficiency and anaerobic threshold will be recorded. Statistical analysis of these data using descriptive measures, ANOVA, and regression will be performed.