Ensuring that residents acquire the knowledge and skills necessary to care for decompensating pediatric patients is a difficult and highly variable process. Traditional approaches relied upon critical care and emergency medicine rotations to impart these skills. However, residents often need these skills before completing these rotations. In order to address the skills gap in early second year residents, they were enrolled into the Pediatric Fundamentals of Critical Care Support (PFCCS) course. While this is a national curriculum, our institution has never participated, and the utility of the course for residents has not been reported. To evaluate course effectiveness, content knowledge, self-efficacy, and milestone based faculty evaluations were collected to determine resident knowledge and skills in caring for unstable children. Further, residents completed post-acute event evaluations following code events and rapid response team activations in non-PICU settings. These evaluations show resident self-efficacy significantly improved as a result of the course. Second year residents rated themselves as highly as did experienced third year residents in critical care knowledge and procedural competency following the course. While these self-ratings regressed over time, faculty evaluations rated these residents similar to their post-course self-efficacy levels. Post-acute event data indicate competent clinical skills attributed directly to the course. In conclusion, PFCCS improved resident preparedness for managing deteriorating children and their PICU rotation. This study utilizes multiple assessment methods to evaluate effectiveness of a well-recognized educational course that can effectively help develop the ability of early second year residents to care for deteriorating pediatric patients.