Journal of the Association for Vascular Access | The Use of Optical Detection for Continuous Monitoring of Pediatric IV Sites

ivWatch Study ID: IVW-CLR-CS09-400

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CCCHMC IRB ID: 2015-0896

Number of subjects: 243

Number of IV sites: 243

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Abstract/Informational Paragraph:

Background: Infiltration is a common complication with peripheral intravenous (IV) catheters, and pediatric patients are a high-risk population. Frequent IV site assessments by the clinician are necessary to detect early symptoms of IV infiltration.

Methods: Data were collected on pediatric patients to 17 years of age who had a new IV in the hand or forearm and were receiving a continuous infusion from 2.5 kg. A sensor was placed in close proximity to the IV site. The IV site was routinely assessed by the bedside clinician. The device continuously monitored the IV. The study included a pilot group, a nonalarming group, and an alarming group. Data were collected and analyzed.

Results: There were 156 subjects enrolled in the nonalarming group and 57 subjects enrolled in the alarming group. In the nonalarming group, 23 clinician-confirmed infiltrations occurred (14.7%). In the alarming group, 15 clinician-confirmed infiltrations (26.3%) occurred.

Conclusions: The device demonstrated 80% sensitivity in detecting IV infiltration events and is capable of issuing notifications for infiltration before the clinician detects it.