

# STRONG CHILDREN'S RESEARCH CENTER

## Summer 2013 Research Scholar

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### ABSTRACT

**Title:** Inter-observer reliability between attending physicians and bedside nurses when using a respiratory score

**Background:** As a leading cause of pediatric hospitalization, childhood asthma continues to be a key area of concern within the medical community. At the Golisano Children's Hospital at Strong, an asthma clinical care pathway has recently been implemented in hopes of delivering standardized, evidence-based, and efficient care while maintaining or improving patient outcomes. Vital to the pathway's success is intraprofessional collaboration and management.

Clinical care pathways have historically encountered resistance because they assign significant evaluation and care responsibilities to providers other than physicians. This specific asthma clinical care pathway necessitates that pediatric nurses (RN) use a Pediatric Asthma Score (PAS) to evaluate each child prior to administration of albuterol. Depending on the assigned score, the RN will perform various tasks including spacing out the frequency of albuterol treatments, continuing the current frequency of treatments, or calling an attending physician (MD) for further orders. Prior to implementation of the full pathway, however, RNs had to have been able to use the score reliably albeit with cases not limited to diagnoses of asthma. While the PAS system has been used as part of asthma clinical care pathways at other institutions, its inter-observer reliability has never been specifically addressed in previous literature.

**Objective:** To determine inter-observer reliability between attending physicians and bedside nurses when using a respiratory clinical score.

**Results:** Data were collected as part of a training period conducted to prepare MDs and RNs for the implementation of the asthma clinical care pathway. MD-RN pairs independently evaluated each patient's disease severity using the PAS. There were 20 patient evaluations and 71 MD-RN comparisons using the score. Total scores were compared as dichotomous data, placed into one of three categories that were clinically relevant in accordance with the pathway; components of the scores were compared as continuous data. Kappa statistics measured agreement beyond chance alone. Overall inter-observer reliability had an unweighted kappa of 0.82 (95% CI, 0.75, 0.89) and a weighted kappa of 0.95 (95% CI, 0.92, 0.96), indicating substantial agreement. Individual parameters had unweighted kappas ranging from 0.58 (wheezing; 95% CI, 0.50, 0.66) to 1.00 (O<sub>2</sub> requirement; 95% CI, 1.00, 1.00). Both children aged two years or greater (unweighted kappa of 0.85; 95% CI, 0.77, 0.93) and children under two years of age (unweighted kappa of 0.77; 95% CI, 0.64, 0.88) had substantial agreement between both providers. Similarly strong agreements by primary diagnosis were found.

**Conclusion:** Substantial agreement between attending physicians and bedside nurses using a respiratory score on children of all ages hospitalized with asthma and bronchiolitis was found. Because there was a high likelihood of the total scores agreeing with one another, the substantial degree of agreement beyond mere chance was noteworthy. The lowest agreements were found for wheezing and dyspnea, which have some subjective component, but they still notably indicated moderate agreements, thus not significantly weakening the strength of agreement in the overall score. Such high agreement justifies the capability of nurses suitably advancing therapy through the new pediatric asthma clinical care pathway.