Variability in Diagnosed Asthma in Young Children in a Large Pediatric Primary Care Network

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Our objectives were to 1) quantify the frequency of wheezing episodes and asthma diagnosis in young children in a large pediatric primary care network and 2) assess the variability in practice-level asthma diagnosis, accounting for common asthma risk factors and comorbidities. We hypothesized that significant variability in practice-level asthma diagnosis rates would remain after adjusting for associated predictors. We generated a retrospective longitudinal birth cohort of children who visited 1 of 31 pediatric primary care practices within the first 6 months of life from 1/2005 to 12/2016. Children were observed for up to 8 years or until the end of the observation window. We used multivariable discrete time survival models to evaluate predictors of asthma diagnosis by 3-month age intervals. We compared unadjusted and adjusted proportions of children diagnosed with asthma by practice. Of the 161,502 children in the cohort, 34,578 children (21%) received at least 1 asthma diagnosis. In multivariable modeling, male gender, minority race/ethnicity, gestational age <34 weeks, allergic rhinitis, food allergy, and prior wheezing episodes were associated with asthma diagnosis. After adjusting for variation in these predictors across practices, the cumulative incidence of asthma diagnosis by practice by age 6 years ranged from 11% to 47% (interquartile range: 24%-29%). Across pediatric primary care practices, adjusted incidence of asthma diagnosis by age 6 years ranged widely, though variation gauged by the interquartile range was more modest. Potential sources of practice-level variation, such as differing diagnosis thresholds and labeling of different wheezing phenotypes as "asthma," should be further investigated.

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