Food Insecurity

We used a two-item food insecurity screener (Hager, Quigg, Black, et al., 2010), which was developed from the 18-item U.S. Household Food Security Survey (Nord, Andrews, Carlson, 2007). The screener is scored as positive if either of the two questions, both with 12-month recall periods, are affirmatively endorsed (often true or sometimes true); we worried whether our food would run out OR the food we bought just didn’t last (Hager, et al., 2010). Children living in food-insecure families report poorer health (Cutts, Meyers, Black, et al., 2011; Hager, et al., 2010) and more hospitalizations (Hager, et al., 2010) than their counterparts.


Housing Insecurity

Housing insecurity was assessed with a single item based on work by Kushel and colleagues who found that self-reported problems paying rent, mortgage, or utility bills in the past year was associated with lack of access to primary care, poorer medication adherence, more use of the emergency department, and increased risk for hospitalization (Kushel, Gupta, Gee, et al., 2006).


Asthma Control Test

The asthma control test (ACT) is a self-administered questionnaire for patients 12 years of age and older. There are five items, each with a 4-week recall period; the items measure shortness of breath, nighttime awakenings, limitations of daily activities, rescue medication use, and rating of asthma control (Nathan, Sorkness, Kosinski, et al., 2004). Items are scored from 1 to 5 (range 5–25); higher scores indicate better asthma control. The ACT correlates well with specialists’ ratings of asthma control and spirometry (Lenoir, Williamson, Stanford, et al., 2006; Nathan, et al., 2004; Schatz, Sorkness, Li, et al., 2006). A score of 15 or less corresponds to very poorly controlled asthma, 16-19 uncontrolled asthma, and 20 or higher well-controlled asthma (Nathan 2004; Schatz, et al., 2006; Schatz, Mosen, Kosinski, et al., 2007). From a study that contrasted the ACT with a measure of asthma-related quality of life, the minimal important difference among adolescents was estimated to be 2 points (Voorend-van Bergen, Vaessen-Verberne, Landstra, et al., 2013).


Childhood Asthma Control Test

The Childhood Asthma Control Test (C-ACT) was used for children ages 5-11 years. It is a seven-item scale that includes four child-report and three parent-report items (Liu, Zeiger, Sorkness, et al., 2007). Child-report items (scored 0-3) have no recall period and address overall assessments of asthma control, interference with exercise, cough, and nighttime awakenings, while parent-report items (scored 0 to 5) use a 4-week recall period and cover daytime asthma symptoms, wheezing, and nighttime awakenings (Liu, et al., 2007). The range of the measure is 0 (poorest asthma control) to 27 (best asthma control). Scores of 0-12 indicate very poorly controlled asthma (Liu, Zeiger, Sorkness, et al., 2010), 13-19 poorly controlled asthma (Liu, et al., 2007; 2010), and scores 20-24 well-controlled asthma (Liu, et al., 2007; Voorend-van Bergen, Vaessen-Verberne, Landstra, et al., 2013). From a study that contrasted the C-ACT with a measure of asthma health-related quality of life, the minimal important difference among adolescents was estimated to be 2 points (Voorend-van Bergen, 2014).


**Asthma Severity**

During the baseline visit in the emergency department and at primary care follow-up visits, clinicians assessed the patient’s asthma severity (NHLBI 2007) and recorded this in the electronic health record (EHR).


**PROMIS Pediatric Asthma Impact Scale**


**PROMIS Pediatric Psychological Stress Scale**


**PROMIS Pediatric Physical Activity Scale**


**Healthy Pathways Student Engagement and Academic Performance Scales**

The student engagement and academic performance scales were developed and psychometrically evaluated as part of Project Healthy Pathways, a longitudinal study of the associations between children’s health and school performance (Forrest, Bevans, Riley, 2013). Student engagement declines with advancing grade in school and pubertal development, while it is positively associated with feelings of comfort and subjective well-being (Forrest, et al., 2013).

Parents rate their child’s academic performance lower than the children rate themselves, with an intraclass correlation coefficient of agreement of 0.56 (Bevans, Riley, Forrest, 2012).


**PROMIS Pediatric Global Health Scale (PGH-7)**

The PROMIS Pediatric Global Health Scale measures a person’s overall health across physical, mental, and social dimensions (Forrest, Bevans, Pratiwadi, et al., 2014). It is based on the same conceptual framework as its adult counterpart (Hayes, Bjorner, Revicki, et al., 2009). Children with asthma report global health that is 0.56 standard deviation units lower than the general population (Forrest, Tucker, Ravens-Sieberer, et al., 2016).


**Change in Global Health Scale**

One of our objectives was to determine the numerical change in PGH-7 score associated with a perceptible change in global health as rated by the child or the parent using an independent measure. We therefore modified the subjective significance questionnaire developed by Osaba and colleagues (Osaba, Rodrigues, Myles, et al., 1998). During the first follow-up wave, children and their parents were asked if their “health in general is better, the same, or worse” since they enrolled in the study. Those responding “better” were then asked if it was a little better, somewhat better, or a lot better, and those responding “worse” were asked if their health was a little, somewhat, or a lot worse. The same questions were used in the third wave, but the first question was indexed to their completion of “the second survey.”