

# THE HUNGER VITAL SIGN™:

A NEW STANDARD OF CARE FOR PREVENTIVE HEALTH

Early childhood health depends on consistent access to an adequate and nutritious diet. Unfortunately, one in five U.S. families with children under age six struggles to provide enough food to lead active, healthy lives (are **food insecure**).<sup>1</sup> Research from Children's HealthWatch has shown that young children under age four in food insecure households are at increased risk for hospitalizations, at risk of developmental delays, iron deficiency, and poor health. Among other interventions, governmental nutrition assistance programs, emergency food assistance networks, and hospital-based food pantries can help food-insecure families with young children obtain the food they need.

To identify young children living in households at risk for food insecurity, Children's HealthWatch validated the **Hunger Vital Sign™**, a 2-question food insecurity screening tool based on the US Household Food Security Scale. The Hunger Vital Sign™ measures families' concerns about and access to food, much the way health care providers check other key vital signs, such as pulse and blood pressure. Healthcare providers, social service providers, community-based outreach workers, teachers, and anyone who works with young children can use the Hunger Vital Sign™ to identify young children and families who may need assistance.

## The Children's HealthWatch Hunger Vital Sign™

Drs. Erin Hager and Anna Quigg and the Children's HealthWatch team validated the Hunger Vital Sign™, a 2-question screening tool, suitable for clinical or community outreach use, that identifies families with young children as being at risk for food insecurity if they answer that either or both of the following two statements<sup>3</sup> is 'often true' or 'sometimes true' (vs. 'never true'):

- "Within the past 12 months we worried whether our food would run out before we got money to buy more."
- "Within the past 12 months the food we bought just didn't last and we didn't have money to get more."

\* These two statements are the first two items in the US Food Security Scale.<sup>2</sup>

## Research Summary

Children's HealthWatch has developed the **Hunger Vital Sign™**, a 2-question screening tool to identify young children in households at risk of food insecurity.

Compared to young children in food-secure households, young children in families at risk of food insecurity are more likely to:

- Be in fair or poor health
- Have been hospitalized
- Be at risk for developmental delays

Compared to food-secure mothers, mothers of young children who are at risk of food insecurity are more likely to:

- Be in fair or poor health
- Report depressive symptoms

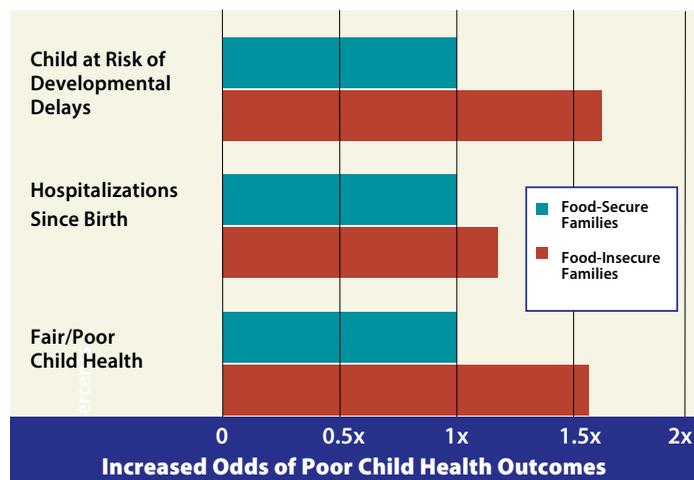
The Hunger Vital Sign™ identified young children and mothers at high risk of food insecurity in order to help them obtain assistance if needed.



[www.childrenshealthwatch.org](http://www.childrenshealthwatch.org)

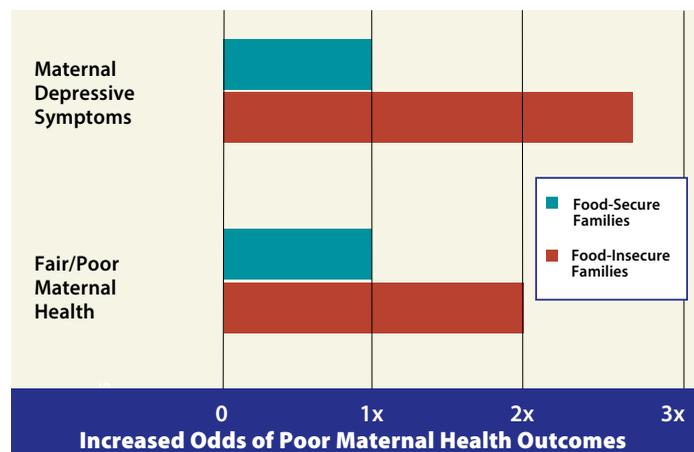
*Children's HealthWatch is a nonpartisan network of pediatricians, public health researchers, and policy and child health experts that conduct primary research to inform public policies that impact children's health.*

**Figure 1:**  
Children at risk of food insecurity had worse health outcomes.



Source: Children's HealthWatch Data, 1998-2005. All increases statistically significant at  $p < 0.05$ .

**Figure 2:**  
Mothers at risk of food insecurity were in worse mental and physical health.



Source: Children's HealthWatch Data, 1998-2005. All increases statistically significant at  $p < 0.05$ .

**How Does the Hunger Vital Sign™ Work?**

The US Household Food Security Scale (HFSS) serves as the 'gold standard' in assessment and identification of food security. The Hunger Vital Sign™ is based on two questions from the HFSS. The Hunger Vital Sign™ was validated with a sample of 30,000 caregivers who sought pediatric care for their young children at one of five urban hospitals. It has a sensitivity of 97% (meaning that 97% of families identified as food insecure using the Hunger Vital Sign™ were identified as food insecure using the HFSS) and a specificity of 83% (meaning that 83% of families identified as food secure using the Hunger Vital Sign™ were identified as food secure using the HFSS). These rates of sensitivity and specificity are considered excellent in scientific publications.

**What Does the Hunger Vital Sign™ Tell Us?**

When compared to children under the age of four who screened as food secure using the Hunger Vital Sign™, young children screening as at risk of food insecurity using the Hunger Vital Sign™ were:

- 56 percent more likely to be in fair or poor health
- 17 percent more likely to have been hospitalized
- 60 percent more likely to be at risk for developmental delays

Compared to mothers screened as food-secure, mothers screening as at risk of food insecurity were:

- Almost twice as likely to be in fair or poor health
- Almost three times as likely to report depressive symptoms

Apart from the harm to mothers themselves, poor maternal mental health affects mothers' ability to provide care for their children, and can impede children's development.<sup>3</sup>

**Putting the Hunger Vital Sign™ Into Action – Health Care Settings and Beyond**

Health care providers can use the Hunger Vital Sign™ during routine primary or acute care visits as well as visits to the emergency room, treating food security as a vital sign just like temperature, blood pressure or pulse, all essential measurements for understanding a child's health and prognosis. The screening tool is also very useful when incorporated into electronic medical records, so that it becomes part of the child's medical history. The Hunger Vital Sign™ may also be used by emergency food assistance programs, community outreach workers, advocates, and social workers, among others.

Hospitals and other health care institutions can improve the food security, and ultimately the health, of the children they serve through a variety of interventions, including:

- Referring families to nutrition assistance programs, such as the Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC)
- Some hospitals provide application assistance through their financial assistance departments (or the departments where patients register for health insurance)
- Collaborating with partner food pantries to provide onsite food pantries and/or WIC offices in health care facilities
- Using hospital facilities as sites for community-based summer and after-school feeding programs

### Conclusion

The validated Children’s HealthWatch Hunger Vital Sign™ is a 2-item screening tool that provides a straightforward means of identifying families who struggle to access food and whose children are therefore at greater risk of fair or poor health, hospitalizations and developmental delays, and whose mothers are at greater risk of fair or poor health and depression. By routinely screening for food insecurity as a vital sign, healthcare providers and others who work directly with families of young children can connect families at risk of food insecurity with effective resources to sustain and improve their mental and physical health, reducing health care costs for the families and society as a whole.

## Using the Hunger Vital Sign™ to Address Hunger: Examples from the Field

- The Minnesota Department of Health Family Home Visiting Program has incorporated the Hunger Vital Sign™ into their protocol along with referrals to financial and food resources.<sup>3</sup>
- The Baltimore City Health Department has advocated for widespread use of the Hunger Vital Sign™ and developed a website that provides information on its usage as well as identifying available resources for those who are food insecure.<sup>4</sup>
- In Vermont, the Hunger Vital Sign™ is now part of intake forms at the Community Health Center of Burlington and pediatric admissions at Fletcher Allen Health Care.<sup>5</sup> Hunger-Free Vermont has also created an online tutorial on childhood hunger for health professionals which teaches them how to identify hunger, talk about it with patients and parents, and connect families with nutrition resources. The tutorial, which is accredited for continuing medical education credits, includes instruction on the use of the Hunger Vital Sign™.<sup>6</sup>
- Boston Medical Center has educated healthcare providers about the Hunger Vital Sign™ and uses its electronic health records to provide food assistance resources by renewable prescription through the Nutrition Resource Center, which hosts the Preventive Food Pantry and Demonstration Kitchen, and an onsite WIC office
- In coordination with Addison Gilbert and Beverly Hospitals, from Lahey Health, The Open Door and Beverly Bootstraps food pantries in Massachusetts offer a Prescription Food Bag program, which screens emergency room patients for food insecurity. Patients who have been identified as food insecure are given a bag of carefully-selected nutritious foods along with details on how to access SNAP benefits and food pantry services.<sup>7</sup>
- Orange County, California’s Health Officer has developed a set of three standard practices for community clinics to address the issue of food insecurity: screen patients for food insecurity (using the Hunger Vital Sign™), connect patients with resources to address hunger, and provide on-site emergency food for food insecure clients.<sup>8</sup>
- Massachusetts General Hospital (MGH) screens its senior and youth patients for food insecurity, and helps sign qualified individuals up for SNAP and WIC. Clinicians also screen all patients for food insecurity at the MGH primary care clinics in Revere and Chelsea; the Chelsea clinic also has a food pantry and offers a healthy cooking course. (MGH uses a different screening tool that captures more severe food insecurity.)

Children's HealthWatch would like to thank Erin Hager, PhD, of the University of Maryland School of Medicine; Dorigen Keeney, MS, RD, of Hunger Free Vermont; Sarah Grow of The Open Door; and Allison Bovell, M.Div, and Justin Pasquariello, MBA, MPA, of Children's HealthWatch for their thoughtful and careful review of this work.

Authors: Nathan Goldman, Policy Intern; Richard Sheward, MPP, Senior Policy Analyst; Stephanie Ettinger de Cuba, MPH, Research and Policy Director; Maureen M. Black, PhD, Principal Investigator; Megan Sandel, MD, MPH, Principal Investigator; John Cook, PhD, MAEd, Principal Investigator; and Sharon Coleman, MS, MPH, Statistical Analyst.

**For Additional information, please contact:**  
**Stephanie Ettinger de Cuba, MPH, Research and Policy Director**  
**Tel: (617) 638-5850 / Email: sedc@bu.edu.**

- 
- <sup>1</sup> Coleman-Jensen, A., Nord, M., Andrews, M., and Carlson, S. (2012). Household food security in the United States in 2011. Economic Research Report no. 141. U.S. Department of Agriculture.
  - <sup>2</sup> Hamilton WL, Cook JT, et al. "Household Food Security in the United States in 1995: Technical Report." A report provided to USDA/FCS under Contract No. 53-3198-5-028 by Abt Associates Inc., Alexandria, VA, September 1997.
  - <sup>3</sup> Hager, E. R., Quigg, A. M., Black, M. M., Coleman, S. M., Heeren, T., Rose-Jacobs, R., & Frank, D. A. (2010). Development and validity of a 2-item screen to identify families at risk for food insecurity. *Pediatrics*, 126(1), e26-e32.
  - <sup>4</sup> Kiernan, K. E., & Huerta, M. C. (2008). Economic deprivation, maternal depression, parenting and children's cognitive and emotional development in early childhood. *The British Journal of Sociology*, 59(4), 783-806.
  - <sup>5</sup> Fahy, J. (2012). Course Teaches How to Screen for Hunger. Retrieved from: <http://www.pedsources.com/hunger-class-online>.
  - <sup>6</sup> Hunger Free Vermont. (2013). Hunger Education for Health Professionals. Retrieved from: <http://www.hungerfreevt.org/what/hunger-education-for-health-professionals>.
  - <sup>7</sup> The Open Door. (2010). Prescription Food Bag Program. Retrieved from: [http://www.foodpantry.org/01\\_About\\_Us/Downloads/Fall\\_Winter\\_10.pdf](http://www.foodpantry.org/01_About_Us/Downloads/Fall_Winter_10.pdf).
  - <sup>8</sup> Waste Not OC Coalition. (2014). Standard Practices for Clinics. Retrieved from: <http://www.wastenotoc.org/#!clinic-partnerships/c10gu>.

