Children's Sentinel Nutrition Assessment Program (C-SNAP) in collaboration with Citizens Energy Corporation

Fuel for Our Future

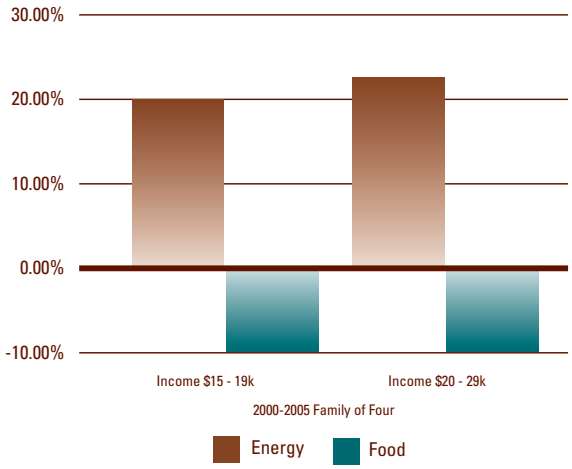
Impacts of Energy Insecurity on Children's Health, Nutrition, and Learning

September 2007

Increasing Energy Costs Threaten Children's Health

Rising energy prices affect all households, yet the impact is greatest on low-income families. The lower a family's income, the higher the percentage of their total income they must spend for energy. A dramatic price increase of 42.1% between 2000 and 2005 coupled with low-income families' tight budgets poses serious threats to children's health and well-being.[i] Compounding the problem, incomes have stagnated or decreased for nearly all but the wealthiest families. [ii] [iii]

As Energy Expenditures Increase, Food Expenditures Decrease



Source: US Department of Labor, Bureau of Labor Statistics

Doctor's Orders: Prevention and Treatment

Low-income families need a strong and comprehensive safety net in order to ensure the health of their children. This requires:

1. **Funding the Low Income Home Energy Assistance Program (LIHEAP)**, the best available way of preventing and treating energy insecurity, at the maximum authorized level to allow the program to meet the yearly need from more eligible households.
2. Continuing to **support consumer shut-off protections** that protect the most vulnerable—the disabled, the elderly, the sick, and young children—from extreme weather conditions and high energy prices.
3. Supporting the comprehensive safety-net through **adequate food and energy assistance programs**. Policy trade-offs force dangerous household trade-offs which compromise the health of children in low-income families.
4. Helping low-income families **improve the energy-efficiency of their homes** by providing more funds for home weatherization programs and rebates for energy efficient appliances and products. The less low-income families spend on energy due to improved efficiency, the farther their LIHEAP assistance dollars will stretch.
5. **Collecting energy insecurity data** in the same uniform, annual manner currently used to track food insecurity. Proper data collection is a critical prerequisite for correctly-targeted programs and evidence-based policymaking.

Until both nutrition assistance and energy assistance are adequately supported, our society can expect accelerating disparities in the health and future prospects between children from low-income families and their higher-income peers. Not only are these assistance programs good social policy, they also make economic sense, enabling the proper growth and learning that will allow today's children to enter the productive workforce of tomorrow's America.

An Epidemic of Energy Insecurity

The majority of energy use in American homes is for heating and cooling. For households in northern states, where winters can be long and intensely cold, home heating is essential for protecting health. In the South and Southwest, cooling can be just as critical for health, requiring large expenditures for air conditioning and fans.

Energy costs represent only a portion of a household's monthly expenses, which also include food, housing, transportation, telephone, medical, and other important expenses. Given the budget squeeze that low-income families feel with rising prices, this home energy burden contributed to a record number of utility shut-offs that have occurred in 2007. From March to May 2007 alone, electricity and natural gas service to an estimated 1.2 million households was disconnected due to overdue winter energy bills. [iv]

FAQ: Home Energy Burden

A family's home energy burden is defined as the percentage of total household income that is required to meet energy costs.

$$\text{Energy Burden} = \frac{\text{Home energy expenditures}}{\text{Total household income}} = \text{percentage of household income spent on energy}$$

Balancing Survival Needs

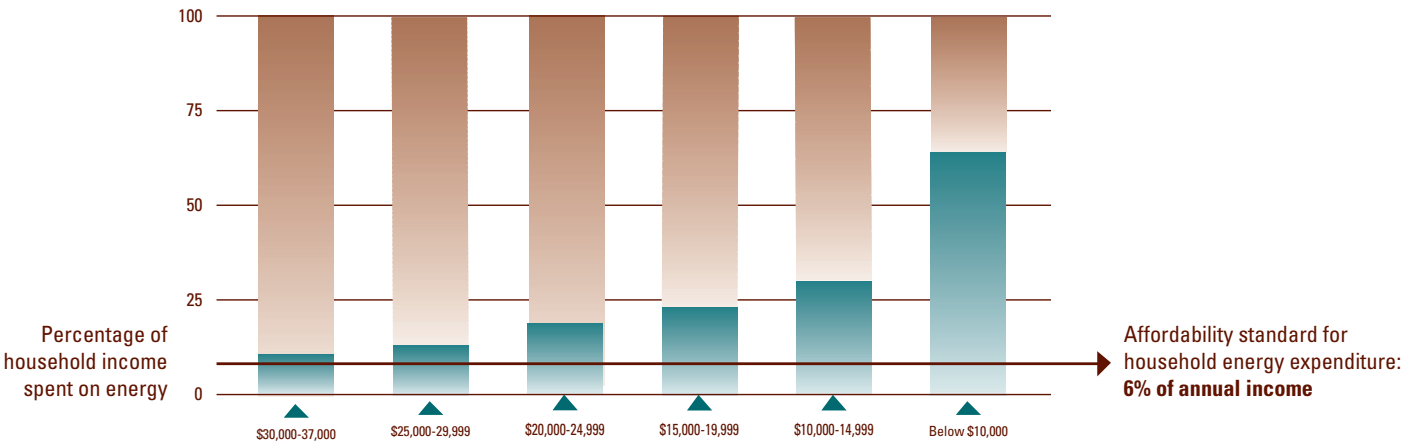
When most of us think about poverty and hunger, our minds direct us to the bare kitchen table or the empty refrigerator. Few of us would also imagine the thermostat turned to 'off' or the electricity shut-off notice arriving in the mail. The reality is that America's low-income families must struggle constantly to protect their children from multiple threats to their health and growth, of which energy insecurity may be the most immediately life-threatening.

Energy costs rise when temperatures increase in the summer and fall in the winter. Even families with a stable but low income are often unable to meet the demands of the higher-cost months. For poor or near-poor families, saving for colder or hotter months is simply not possible. As a result, the increased heating or cooling costs incurred during extreme weather months can place severe strains on household budgets leading to unavoidable trade-offs, often between food and energy.

In "heat or eat" situations, families strive in vain for a safe balance between paying for food and paying for energy. Some resort to alternative heat sources, like using their kitchen ovens, thereby jeopardizing their children's health and safety by increasing risk of fires, burns, and carbon monoxide poisoning.[ix] Even if families avoid these catastrophic outcomes, children suffer from extreme temperatures, poor ventilation, and unsafe food due to inadequate refrigeration and lack of energy for cooking. In efforts to pay for energy, parents buy less food since food is usually the only elective part of a poor family's budget. This unavoidable survival strategy may entail long-term negative side effects. When parents are financially forced to limit food, children's growth and development suffers. For many families, chronic shortage of both energy and food is often inevitable.

As Income Decreases Family Budgets Stretched to Breaking Point by Energy Costs

While 6% of income for energy is considered affordable, low-income families pay far more. Low-income families must spend a greater percentage of their income on home energy costs, leaving less money available for food and other necessities.



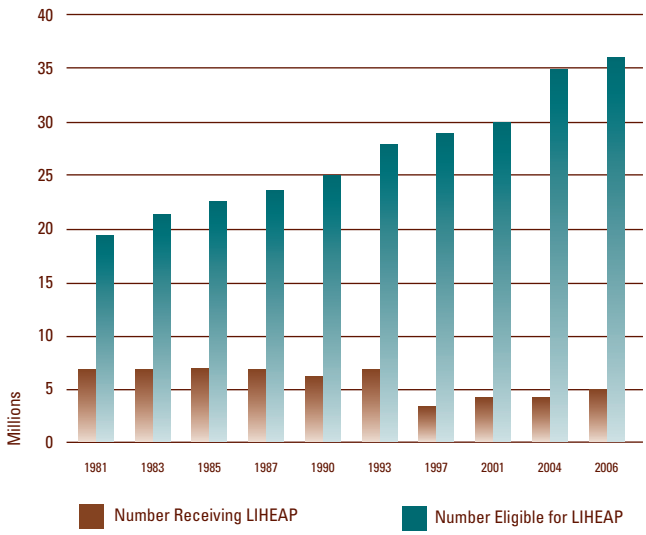
Source: www.homeenergyaffordabilitygap.com/index.html, 2006 Massachusetts data

Effective Medicine Exists but Underprescribed and Dose Too Low

The primary federal government program for assisting low-income families in paying their energy bills is the Low Income Home Energy Assistance Program (LIHEAP). LIHEAP provides states with annual grants to help low-income families pay their heating and cooling bills.

For individuals and families receiving assistance, LIHEAP is very effective at keeping them safe and healthy. However, in 2006, only 16.1% of eligible households received LIHEAP.[v] Federal and state budgets currently provide only a fraction of the money needed and most years Congress appropriates less than half of the annual funding for which LIHEAP is authorized. Annual LIHEAP funding of $2 to $3 billion pales in comparison to the estimated $64 billion spent by low- and moderate-income families annually on their energy bills.[vi] Households received an average of $427.81 in FY 2005 and received an estimated $370 in FY 2007.[vii] As the amount of federal money allocated to households remains flat or decreases, increasing numbers of families are falling behind in their struggle to shield their children from cold and heat stress.

The Gap Between Number of Households Eligible for LIHEAP and the Number Receiving LIHEAP Continues to Widen



Source: LIHEAP Home Energy Notebook. US Dept of Health & Human Services, June 2006. Data for 2006 estimated on NEADA data and trend in eligible households.

Energy Security:

Ability to afford sufficient energy to sustain a healthy and safe life in the geographic area where a household is located. An energy-secure household's members are able to obtain the energy needed to heat/cool their home, operate lighting, refrigeration and appliances while maintaining expenditures for other necessities (e.g., rent, food, clothing, transportation, child care, medical care, etc.)

Why Energy Matters for Children's Health: The Medical Research

C-SNAP research over the last ten years shows that LIHEAP is a crucial resource for protecting the health of America's youngest and most vulnerable children. When low-income families do not receive energy support, they are often forced to make stark choices. The health consequences of trade-offs in spending can be serious, especially for the youngest children.

The first three years of life are a uniquely sensitive period of extraordinary brain and body growth; the cognitive and physical development that takes place at this stage will never occur to the same degree again.[xi] Young children in this phase are especially vulnerable to any deficiencies in family resources or well-being. **Babies and toddlers who live in energy insecure households are more likely to:**

- **be in poor health;**
- **have a history of hospitalizations;**
- **be at risk for developmental problems, and;**
- **be food insecure.[xii]**

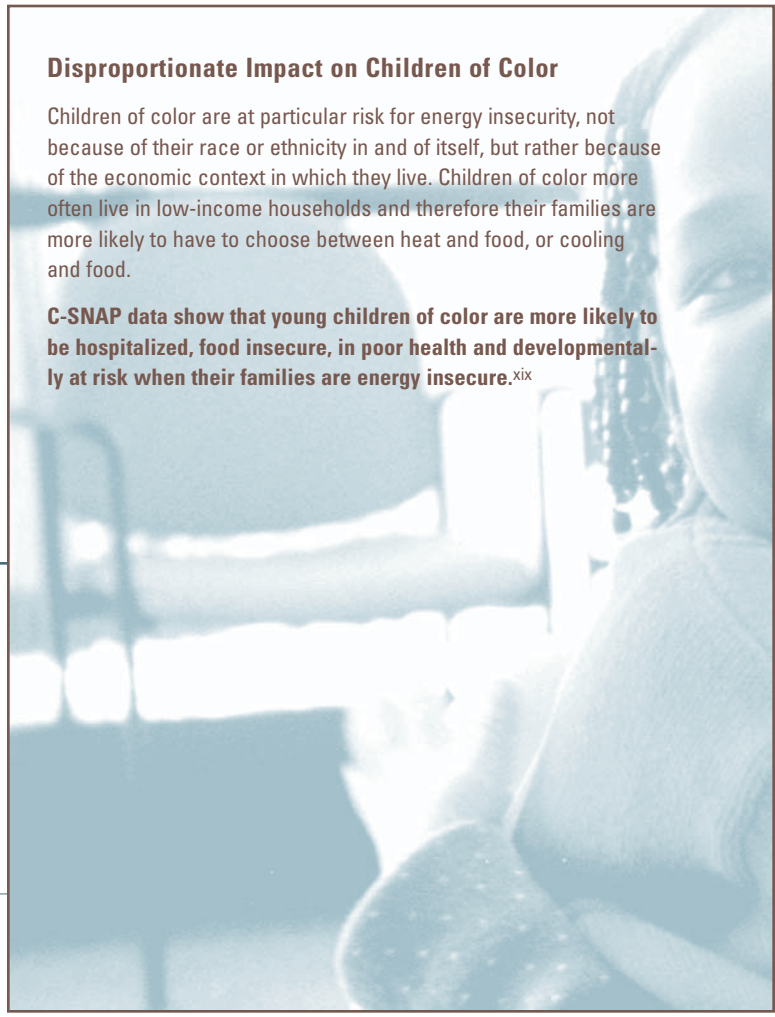
Food insecurity itself is associated with:

- **more hospitalizations,**
- **poor health,**
- **iron deficiency anemia,**
- **problems with cognitive development, and;**
- **behavioral and emotional problems.[xiii]**

Disproportionate Impact on Children of Color

Children of color are at particular risk for energy insecurity, not because of their race or ethnicity in and of itself, but rather because of the economic context in which they live. Children of color more often live in low-income households and therefore their families are more likely to have to choose between heat and food, or cooling and food.

C-SNAP data show that young children of color are more likely to be hospitalized, food insecure, in poor health and developmentally at risk when their families are energy insecure.[xix]



Doctors see the impact of energy insecurity written on the bodies of young children. The youngest children are more likely to get sick from extreme temperatures because their small size makes it difficult to maintain their body heat.[xiv] Research conducted at the former Boston City Hospital found that children aged 6-24 months receiving acute emergency care within three months of the coldest month of the year had significantly lower weight-for-age than children needing care the rest of the year.[xv xvi] Moreover, C-SNAP research shows that compared to babies and toddlers whose families receive LIHEAP, **babies and toddlers in income-eligible families who do not receive LIHEAP benefits are:**

- **significantly more likely to be underweight,**
- **32% more likely to be admitted to the hospital on the day of the C-SNAP interview.[xvii]**

Since young children of all ethnicities from poor and near-poor families are not yet in formal educational settings, they are largely invisible to policymakers and other responsible adults, except to their parents, health and child care providers. These "invisible" children are the most vulnerable to the insults to growth and development caused by energy and food insecurity. Food insecure children are less likely to have the social and cognitive skills and abilities that help them to do well in school. [xviii]

The Children's Sentinel Nutrition Assessment Program (C-SNAP):

A national research center of pediatricians and public health experts whose original, clinical research informs the development of public policies affecting the health and well-being of children ages 0 to 3 years old.

Food Insecurity:

A technical term many frontline workers call hunger, food insecurity refers to limited or uncertain access to enough nutritious food for all household members to lead an active and healthy life.

Child Food Insecurity:

This is the most severe form of food insecurity, meaning that the supply of food is so short that the parents can no longer buffer their children from the lack of food. Essentially, this is child hunger.

US Department of Agriculture, Household Food Insecurity in the United States, 2005.

Young Black Children

- Black babies and toddlers whose families experienced moderate energy insecurity were *38% more likely to be admitted* to the hospital on the day that their parents sought care for them in an emergency room.
- Black babies and toddlers whose families experienced severe energy insecurity were *183% more likely to be in a food insecure household.*
- Black babies and toddlers whose families experienced severe energy insecurity were almost *200% more likely to have child food insecurity.*
- Black babies and toddlers whose families experienced severe energy insecurity were *43% more likely to be in fair or poor health.*
- Black babies and toddlers whose families experienced severe energy insecurity were *82% more likely to be developmentally at risk.*

Young Latino Children

- Latino babies and toddlers whose families experienced moderate energy insecurity were *45% more likely to have had a past hospitalization.*
- Latino babies and toddlers whose families experienced severe energy insecurity were *more than 200% more likely to be in a food insecure household.*
- Latino babies and toddlers whose families experienced severe energy insecurity were nearly 2*00% more likely to experience child food insecurity.*
- Latino babies and toddlers whose families experienced severe energy insecurity were *93% more likely to be developmentally at risk.*

The children described are compared to young Black or Latino children, respectively, in low-income, energy secure families after taking into account background factors

Why Worry?

If families of color, or of any ethnicity, are better able to manage their energy bills, they are likely to have more money to feed their children. Children who eat well are more likely to grow and develop normally and less likely to get sick and need extra doctor visits, which could mean fewer health care expenses. Additionally, healthy children are less likely to miss school and more able to perform well in school, so that they will be able to contribute to America's skilled workforce.

Authors

This report was prepared by Stephanie Ettinger de Cuba, MPH, C-SNAP Research and Policy Director, Boston, MA, John Cook, PhD, MAEd, C-SNAP Co-Principal Investigator at Boston Medical Center in Boston, MA; and Deborah A. Frank, MD, C-SNAP Principal Investigator at Boston Medical Center in Boston, MA, in collaboration with other C-SNAP Principal Investigators:

- Maureen Black, PhD, Co-Principal Investigator, University of Maryland School of Medicine, Baltimore, MD;
- Patrick Casey, MD, Co-Principal Investigator, University of Arkansas for Medical Sciences, Little Rock, AR
- Mariana Chilton, PhD, MPH, Co-Principal Investigator, Drexel University School of Public Health & St. Christopher's Hospital for Children, Philadelphia, PA
- Diana Cutts, MD, Co-Principal Investigator, Hennepin County Medical Center, Minneapolis, MN;
- Alan Meyers, MD, MPH, Co-Principal Investigator, Boston Medical Center, Boston, MA;

Data management, analysis, and interpretation were completed by the C-SNAP data coordinating team at the Boston University School of Public Health Data Coordinating Center:

- Danielle Appugliese, MPH
- Timothy Heeren, PhD
- Zhaoyan Yang, MS

Acknowledgements

The development of this report was made possible by Citizens Energy Corporation. Additional funding and program support by National Fuel Funds Network. Original research was supported by the Joint Center for Political and Economic Studies.

We would like to thank Mindy Ju, C-SNAP summer intern for her assistance in compiling the background research for this report and Carolyn Murphy, Princeton Project 55 Fellow, for her assistance with graphics.

C-SNAP operations and analyses have been supported by: Abell Foundation, Annie E. Casey Foundation, Anonymous Donor, Anthony Spinazzola Foundation, Candle Foundation, Citizens Energy Corporation, Claneil Foundation, Daniel Pitino Foundation, EOS Foundation, Gold Foundation, Gryphon Fund, Hartford Foundation for Public Giving, Jennifer Kaminsky, Joint Center for Political & Economic Studies, The Larson Family Foundation, MAZON: A Jewish Response to Hunger, Minneapolis Foundation, New Hampshire Charitable Foundation, Project Bread: The Walk for Hunger, Sandpiper Philanthropic Foundation, Schaffer Foundation, Susan P. Davies and Richard W. Talkov, Susan Schiro and Peter Manus, Thomas Wilson Sanitarium for Children of Baltimore City, United States Department of Agriculture, Vitamin Litigation Funding, with major funding from the W.K. Kellogg Foundation.

Design: Communication via Design, Ltd., Boston, MA
Photography: Gail Rothenburg

References

i Department of Labor, Bureau of Labor Statistics. Reported in the Economic Report of the President, 2007

ii US Census Bureau. Income, Poverty and Health Insurance Coverage in the United States: 2006 http://www.census.gov/hhes/www/poverty/poverty06.html. Accessed August 28 2007.

iii Center on Budget and Policy Priorities. Number and Percentage of Americans Who Are Uninsured Climbs Again: Poverty Edges Down but Remains Higher, and Median Income for Working Age Households Remains Lower than When Recession Hit Bottom in 2001. August 28, 2007.

iv http://liheap.ncat.org/newslett/63net.htm Accessed August 27, 2007

v National Energy Assistance Directors' Association (NEADA). The Low Income Home Energy Assistance Program: Providing heating and cooling assistance to low-income families during a period of high energy prices. Washington, DC, February 9, 2007 (based on federal eligibility)

vi Power M. Low-Income Consumers' Energy Bills and Their Impact in 2006. Economic Opportunity Studies. Washington, DC. October 25, 2005.

vii C-SNAP calculation of LIHEAP funding divided by households served (projected for 2007). http://www.acf.hhs.gov/programs/liheap/funding/approp.html & http://www.neada.org/comm/surveys/NEADA_Survey_April_2007.pdf. Accessed August 28, 2007.

viii The Child Health Impact Working Group. Unhealthy Consequences: Energy Costs and Child Health. Boston, MA, November 2006

ix www.nationalfuelfunds.org/toolkit_main2.htm & Varon J, Marik P. Carbon Monoxide Poisoning. *The Internet Journal of Emergency and Intensive Care Medicine.* 1997;1(2). www.ispub.com/ostia/index.php?xmlfilepath=journals/ijto/vol1n1/CO.xml & Quinlan KP. Injury control in practice: Home radiator burns in inner-city children. Archives of Pediatric & Adolescent Medicine 1996;150:954-957.

x The Child Health Impact Working Group. November 2006.

xi National Scientific Council & Center on the Developing Child. The Science of Early Childhood Development: Closing the Gap Between What We Know and What We Do. January 2007

xii Cook JT, Frank DA, Ettinger de Cuba S et al. Energy Insecurity is Positively Associated with Food Insecurity and Adverse Health Outcomes in Infants and Toddlers. In Preparation

xiii Perry A, Ettinger de Cuba S, Cook JT, Frank DA et al. Food Stamps as Medicine: A New Perspective on Children's Health. Children's Sentinel Nutrition Assessment Program, February 2007.

xiv Frank DA, Neault, NB, Skalicky, A et al. Heat or Eat: The Low Income Home Energy Assistance Program and Nutritional and Health Risks Among Children Less Than 3 Years of Age. *Pediatrics* 2006; 118;1293-1302

xv Frank DA, et al. Seasonal Variation in Weight-for-Age in a Pediatric Emergency Room. *Public Health Reports*, July/August 1996, 111:366-371.

xvi Nord M, Kantor LS. Seasonal variation in food insecurity is associated with heating and cooling costs among low-income elderly Americans. J Nutr, November 2006. 136:2939-2944.

xvii Frank DA, Neault, NB, Skalicky, A et al. 2006.

xviii Ettinger de Cuba S, Frank DA, Rose-Jacobs R, et al. Nourishing Development: A Report on Food Insecurity and the Precursors to School Readiness among Very Young Children. Children's Sentinel Nutrition Assessment Program, July 2006.

xix Full results in Ettinger de Cuba S, Cook JT, Frank DA et al. Balancing Acts: Energy Insecurity among Low-Income Babies and Toddlers of Color Increases Food Insecurity and Harmful Health Effects. Children's Sentinel Nutrition Assessment Program, June 2007. Report commissioned by the Joint Center for Political & Economic Studies Health Policy Institute.

Citizens Energy Corporation

Children's Sentinel Nutrition Assessment Program
725 Massachusetts Ave., Mezzanine SW, Boston, Massachusetts 02118
phone: 617.414.5251 fax: 617.414.7047 web: www.c-snap.org