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Iowa health survey documents public health consequences of energy unaffordability.

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**IOWA BRFSS CONSIDERS ENERGY
UNAFFORDABILITY HEALTH IMPACTS**

While it is universally acknowledged that home energy is an essential of modern life today, a recent study finds that the unaffordability of home energy, and the potential loss of home energy service either through involuntary disconnections¹ or voluntary deprivation, has public health consequences far beyond those historically discussed. A review of data generated by Iowa's participation in the 2007 Behavioral Risk Factor Surveillance System ("BRFSS") survey documents that the loss of home energy service has significant public health consequences for the State of Iowa.

WHAT IS BRFSS

The Behavioral Risk Factor Surveillance System (BRFSS) is "a state-based system of health surveys that collects information on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury."² According to the U.S. Centers for Disease Control and Prevention (CDC), "for many states, the BRFSS is the only available source of timely, accurate data on health-related behaviors."

Established in 1984, the BRFSS was designed to monitor actual behaviors rather than attitudes or knowledge. BRFSS was originally designed to look at premature morbidity and mortality, but has, over the years, been expanded to identify

¹ Throughout this paper, references to the "disconnection" of service is intended to incorporate, also, the inability to obtain a fill-up of a bulk fuel such as propane, LPG or fuel oil.

² National Center for Chronic Disease Prevention and Health Promotion, Behavioral Risk Factor Surveillance System, About the BRFSS. Accessed www.cdc.gov/BRFSS/about.htm, May 15, 2008.

health risks important to the promotion of healthy living and disease prevention more broadly. Through the BRFSS, CDC has developed a “core questionnaire” that states must administer. In addition, states have the option of adding supplemental modules that address specific health-related behaviors that are of particular significance in that state.

THE IOWA BRFSS ENERGY QUESTIONS

In 2006, the Iowa Department of Human Rights (“DHR”), the state agency responsible for administering the federal Low-Income Home Energy Assistance Program (“LIHEAP”) in Iowa, requested the Iowa DPH to add a series of questions to the BRFSS regarding the prevalence of state home energy emergencies. The request came in response to ongoing data reported by the Iowa Utilities Board (“IUB”) documenting that, largely because of spiraling home energy prices, low-income arrears and low-income service disconnections for nonpayment were reaching historic highs in Iowa.

Two different energy emergency situations were considered. The subpopulation of households having lost their home heating service due to nonpayment defined the first study population. The second study population was defined to include households having either of two characteristics: *either* the household lost its primary heating source due to nonpayment, *or* the household kept its home at what they felt to be unsafe or unhealthy temperatures.³ In addition to looking at data for the Iowa population as a whole, a separate inquiry examined that population with income at or below 150% of the Federal Poverty Level. The Federal Poverty Level was calculated by combining income data with household size.⁴

³ While some households may have demonstrated *both* characteristics, that population was not separated for study.

⁴ Calculating a Federal Poverty Level was made more difficult by the fact that income was reported by income range (e.g., less than \$5,000, between \$5,000 and \$10,000). To calculate Poverty Level, the mid-range of the income range was assigned to each household. If the household fell into

The Iowa Department of Public Health agreed to add two home energy-related questions to the 2007 BRFSS survey:

- Was there ever a time in the past 12 months when you wanted to use your main source of heat but could not for one or more of the following reasons: you ran out of fuel oil, kerosene, LPG, propane, coal, or wood because you were unable to pay for a delivery; or the utility company disconnected your gas or electric service because you were unable to pay your bill? (yes/no); and
- In the past 12 months, did you keep your home at a temperature that you felt was unsafe or unhealthy at any time of the year because there wasn't enough money for your energy bill (almost every month, some months, only 1 or 2 months, never).

Both questions were limited to circumstances where the energy emergency could be attributed to an affordability problem. The first question, in other words, was limited to circumstances where the loss of heating service was due to nonpayment “because you were unable to pay your bill.” Situations involving disconnects for nonpayment for reasons other than inability to pay were excluded. The second question was limited to maintaining temperatures at unsafe or unhealthy temperatures “because there wasn't enough money for your energy bill.”⁵

the \$20,000 to \$25,000 income range, in other words, it was assigned an income of \$22,500. Given this process, while a specific Poverty Level could not be determined for any given household, it was nonetheless possible to determine whether a household fell into broad ranges of Poverty. This study examined those households with income at or below 150% of the Federal Poverty Level.

⁵ In this respect, the energy questions mirror the U.S. Department of Agriculture's Food Insecurity Survey, which focuses on food insecurity based on an inability-to-pay.

UNAFFORDABLE HOME ENERGY AS A PUBLIC HEALTH ISSUE

The public health threat posed by unaffordable energy bills has been increasingly recognized in recent years after the natural gas price spike in 2004 and beyond. One Congressionally-funded study of federal LIHEAP recipients, for example, found that 16% of fuel assistance recipients kept their homes so cold that a member of their household had become ill. This study, by the National Energy Assistance Directors Association (NEADA), reported that 11% of energy assistance recipients had a household member that became sufficiently ill to require a doctor's attention.

Other research, both in the United States and elsewhere, confirms these NEADA findings. A 2006 study by the Child Health Impact Assessment Working Group, at the Boston Medical Center, reported that a five city (Baltimore, Boston, Little Rock, Minneapolis, Washington D.C.) study of predominantly low-income children under three years of age seen in primary care clinics and emergency departments found that young children not receiving LIHEAP were 30% more likely to be admitted to the hospital. In addition, the CHIWG report found that "budget tradeoffs between energy costs and food expenditures result in food insecurity. . . [F]ood insecure children are 2 – 3 times more likely to be in fair or poor health or chronically ill."

The association between unaffordable home energy and adverse health outcomes is slowly becoming better understood. A 2001 study in the United Kingdom (UK), for example, found that, in the UK, 45,000 more deaths occurred in winter than in summer each year. "For every 1° C fall in temperature below 20° C, mortality increases by between one and two percent in the UK." According to this UK report:

The widespread perception is that hypothermia causes cold-related deaths, but this accounts for very small numbers of annual deaths. In fact, winter has the

greatest proportional effect in respiratory mortality. Cardiovascular disease accounts for the greatest number of excess winter deaths and 10% of these are attributable to cold, independently of other factors.

* * *

Circulatory illness, or cardiovascular disease, is exacerbated by 'cold stress,' which results from fluctuations in temperature. This can arise from. . .moving between warm and cold rooms indoors. If the fuel poor can only afford to keep one room heated, the risk of cold stress in the home is increased. This affects older people in particular, whose blood pressure is likely to be raised in the winter. Furthermore, moving from a cold dwelling to the cold outside produces greater cardiovascular strain than going out from a warm house.

These adverse health outcomes not only create social consequences, but they also impose substantial economic costs. According to the Child Health Impact Working Group, "although these costs are often difficult to measure, one example is the substantial cost of preventable hospitalizations, borne by low-income families, payers, and health care providers." Nationwide, the average charge for a "general pediatric hospitalization" was \$9,945 in 2006. The average hospitalization charge for bronchitis and asthma was \$7,386. The Working Group notes that "these economic costs are 5 to 8 times the average cost of heating a home in the Northeast and 7 to 10 times the maximum home heating benefit from the LIHEAP program in 2006."

Aside from the direct cost of hospitalization, cold-induced illnesses contribute to prolonged convalescence and home care, as well as substantial increases in the number of visits to general practitioners. One study in the United Kingdom estimated that it costs the UK's National Health Service (NHS) £1 billion a year "to treat illnesses caused by living in cold, damp

conditions.” The pharmaceutical costs for medication are in addition to this.

IOWA RESULTS

The unaffordability of home heating service in Iowa poses a significant public health issue. Adverse health outcomes arise both when households face the loss of their home heating due to an inability to pay and when households face energy emergencies, whether or not such emergency are associated with the actual involuntary termination of access to heating service. The adverse health outcomes were found in Iowa’s residential population as a whole, as well as in its low-income population in particular.

Poor Health Outcomes

There is a significant overlap between households facing poor health and households facing utility bill affordability problems in Iowa. The Iowa BRFSS data documents that Iowans with “fair” or “poor” health⁶ are significantly over-represented among households reporting a disconnection of service for nonpayment. Nearly three times as many households experiencing a disconnection for nonpayment had fair or poor health as compared to households with no service disconnection.

The poor health outcomes are not minor or transient but can substantively interfere with the way Iowa residents carry on their normal activities of daily living. Three times as many Iowa households losing home heating service to a disconnection for nonpayment had a person whose bad physical health interfered with their normal activities 15 or more out of the preceding 30 days when compared to Iowa’s population as a whole.

The disproportionate adverse impacts on households with health problems do not change if one controls for the Poverty Level at which a household lives. If anything, the degree of the

disproportionate impact deepens when taking low-income status into account. For households with income at or below 150% of the Federal Poverty Level (FPL), there is a significantly greater proportion of disconnected households that include persons having bad physical health problems in 15 or more of the immediately preceding 30 days or that have persons who experience limitations on their normal daily activities due to physical, mental or emotional health problems.

Self-Efficacy and Home Energy Emergencies

One of the most disturbing findings from the Iowa BRFSS data involves the household medical conditions that impede the ability of a household facing either the disconnection of service for nonpayment, or a home energy emergency, to advocate on his or her own behalf. Much of the regulatory infrastructure designed to prevent the loss of home energy service is predicated on the assumption that households facing the loss of service, as well as households facing the unaffordability of service, are able to respond to their home energy situation through advocacy on their own behalf.

If identifiable medical conditions impede the ability of households to perform these tasks, however, much of the regulatory “protection” structure designed to allow a household response to energy emergencies is ineffective.

The Iowa BRFSS data documents that a substantial minority of households facing the disconnection of service for nonpayment, or a home energy emergency, face medical issues that may well impede their ability to respond to the home energy crisis situation. Compared to the total population, more than twice as many households experiencing a home energy emergency reported at least one of the self-efficacy conditions that impede the ability of the household to advocate on one’s own behalf. While one-in-five Iowa households reported such a condition some, most or all of the time,

⁶ The continuum was excellent, good, fair, poor.

more than half of households experiencing an energy emergency reported such conditions.

Of particular importance was the prevalence of feeling “worthless” or “hopeless.” A household feeling “worthless” or “hopeless” cannot reasonably be expected to negotiate on their own behalf, particularly when faced with an energy emergency situation. In the best of circumstances, the balance of power in transactions between a customer and a utility lies with the utility.

A feeling of “worthlessness” or “hopelessness” on the part of the payment-troubled customer exacerbates that imbalance. Nonetheless, more than three times as many persons experiencing a disconnection, and nearly four times as many persons facing an energy emergency, reported feeling “hopeless” or “worthless” either some, most or all of the time, when compared to the population as a whole.

The lack of self-efficacy was even more prevalent in the low-income population facing a home energy emergency in Iowa. Nearly 70% of households facing a disconnection of heating service, or a home energy emergency, reported feeling hopeless, depressed, or worthless, or that everything was an effort, either some, most or all of the time, as compared to 36% in the total low-income population. More than twice as many low-income households facing either a service disconnection, or a home energy emergency, reported feeling either “hopeless” or “worthless” as compared to the low-income population as a whole.

The Iowa BRFSS documents the problems with self-efficacy that impede the ability of households to respond to an actual or imminent energy crisis situation.

PUBLIC COSTS OF HOME ENERGY-RELATED ADVERSE HEALTH OUTCOMES

Households who either faced the disconnection of home heating service or experienced a home energy emergency are less likely to be able to

pay for their health care costs out of their own household resources. Between one-fifth and one-quarter of the total population (irrespective of income) facing either a home heating disconnection, or an energy emergency, lacked access to any type of health care coverage. The lack of access to health care coverage was between 2.5 and 3.0 times greater in the population facing energy problems than in the population as a whole.

More than one-third of the total population reporting an energy problem (home heating disconnection or home energy emergency) also reported that they had not sought the care of a doctor when needed because they could not afford it. The rate at which households facing either a home heating disconnection or home energy emergency could not afford medical care was between 4.0 and 5.0 times higher than in the general population

CONCLUSIONS AND RECOMMENDATIONS

The Iowa BRFSS provides important insights into the prevalence of unaffordable home energy as a public health problem. The Iowa BRFSS should continue to collect data on home energy-related issues. In addition, states other than Iowa should incorporate home-energy unaffordability questions into their BRFSS surveys.

The importance of the Iowa results is two-fold. First, the Iowa study examines data for the population as a whole rather than for specific vulnerable populations. Within the total population irrespective of income, between two and three times more Iowa households facing a home heating disconnection or home energy emergency also experienced prolonged periods of poor physical health, or either fair or poor health generally, than in the population as a whole. More than 50% of low-income households (defined to be households with income at or below 150% of the Federal Poverty Level) who faced a home energy emergency reported fair or poor health generally. Within the low-income population, nearly 40% of

households experiencing a home heating service disconnection, and 45% of those facing a home energy emergency, reported extended periods of poor physical health.

The economic costs of these adverse health outcomes are likely to be borne by society, by the health care industry, or by government assistance. More than one-third of low-income households facing a home heating disconnection or home energy emergency lacked access to health care coverage. Between 40% and 50% of low-income households facing either such energy problems (a home heating disconnection, a home energy emergency) reported not seeking a doctor's care when needed because they could not afford to do so.

While unaffordable home energy poses public health problems to particular vulnerable populations, in Iowa, home energy unaffordability poses public health problems to the broader population as a whole as well. The unaffordability of home energy should be treated as the public health issue that it is.

A copy of the report presenting Iowa's BRFSS home energy results, including data tables, can be obtained from the FSC web library:

http://www.fsconline.com/05_FSCLibrary/lib2.htm

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Fisher, Sheehan and Colton, Public Finance and General Economics (FSC) provides economic, financial and regulatory consulting. The areas in which FSC has worked include energy law and economics, fair housing, affordable housing development, local planning and zoning, energy efficiency planning, community economic development, poverty and telecommunications policy, regulatory economics, and public welfare policy.