



Consumer Federation of America

Foodborne Illness: Another Way the Poor Pay More



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Introduction

In 1967, David Caplovitz published *The Poor Pay More*, which documented how poor families in New York City housing projects paid more for the same goods and services as their more affluent neighbors. Caplovitz’s landmark sociology study is a part of rich tradition of consumer advocacy seeking to shine a light upon, and ultimately undo, the “poverty penalties” that affect consumers across the economy, from consumer finance to product safety.¹

This report examines the “poverty penalty” wrought by the food system in the form of foodborne illness. Foodborne illness represents a serious public health threat, with significant economic consequences for consumers. According to researchers at the U.S. Centers for Disease Control and Prevention (CDC), each year an estimated one in six U.S. consumers suffers a foodborne illness, with 128,000 hospitalized and 3,000 dying.² A number of risk factors determine who is most likely to suffer from foodborne illness. Some of these, such as international travel, eating raw oysters, or dining out, fall squarely within an individual’s control. Others, such as the sanitation and refrigeration capacity at the neighborhood grocer, reflect systemic conditions.

In the United States, poor consumers, particularly children, are more likely to suffer from many types of foodborne illness, despite being less likely to engage in many higher risk behaviors.³ This report explores some the causes of this disparate impact, and strategies for reducing the burden of foodborne illness on the poor.

A Preventable Epidemic

Unlike many other diseases, foodborne illness is entirely preventable, yet it imposes an enormous toll on our public health and economy. The U.S. Department of Agriculture’s Economic Research Service has estimated that the subset of foodborne illnesses attributable to specific pathogens—only about 20% of the estimated 48 million illnesses each year—costs consumers over \$15.5 billion each year.⁴ This price tag reflects only medical costs and productivity losses, as measured by lost wage estimates. The full cost of foodborne illness, however, and what consumers would be willing to pay to avoid it, greatly exceed these estimates.

Despite the high costs, progress on reducing foodborne illness has largely stalled in recent years. In fact, the most recent CDC data shows an upward trend in reported foodborne illnesses over the last four years.⁵ The incidence of infections caused by *Campylobacter*, *Yersinia*, *Cyclospora*, Shiga toxin-producing *E. coli* (STECs), and *Vibrio*, rose in 2019 compared

with the previous three years (2016-2018), while progress in reducing *Salmonella*, *Shigella*, and *Listeria* infections effectively flat-lined. New culture-independent diagnostic testing (CIDTs) may account for some of the increase, but CDC researchers have made clear that “identification of infections that might not have been detected before adoption of CIDTs cannot explain this overall lack of progress.”⁶ What’s more, the lack of progress has disproportionately affected the poor, who suffer increased rates of foodborne illness, according to recent studies.

Measurement Challenges

Research on foodborne illness and poverty has been beset by measurement challenges. In general, uncertainty poses a major barrier to more effective policy, public and private, to prevent foodborne illness. Perhaps most importantly, strategies to curb most foodborne pathogens are missing a key feedback mechanism because the vast majority of foodborne illness infections simply go unreported.

The most costly foodborne pathogen, *Salmonella*, illustrates this problem. Each year, *Salmonella* causes an estimated 1.35 million illnesses, 26,500 hospitalizations, and 420 deaths in the United States,⁷ at an estimated cost of \$3.7 billion in medical bills alone.⁸ The bacterium causes more hospitalizations and deaths than any other microbiological pathogen in the U.S. food supply, but most victims do not seek medical care.⁹ For those who do, they may nevertheless receive an incorrect diagnosis, because the symptoms of *Salmonella* infection vary from one patient to the next. Fever, abdominal cramps, and diarrhea are among the most common signs, but many infections do not manifest these symptoms. In the initial stages of infection, only a stool sample can confirm whether *Salmonella* is the cause, and if a person takes antibiotics before a diagnostic test is performed, a false negative may result. Even where a patient seeks medical care and provides a specimen, and laboratory testing confirms salmonellosis, those results may not necessarily be reported to public health authorities. As a result, CDC researchers estimate that for every reported case of *Salmonella* infection, another 29 go unreported.¹⁰

This uncertainty obscures the extent to which foodborne illness affects consumers, and measuring the burden of foodborne illness on poor consumers in particular faces additional obstacles. One of these arises out of uneven access to healthcare. Epidemiologists have estimated that individuals with health insurance are three times as likely to submit a stool sample as individuals without health insurance.¹¹ Simply identifying patients who are living in poverty poses a challenge as well. In the United States, the best data on foodborne illness is available via

the Foodborne Diseases Active Surveillance Network, or FoodNet. However, CDC and the state and local public health partners that contribute to FoodNet do not track income or other indicators of socioeconomic status in their reporting. FoodNet data poses an additional challenge by virtue of the geographic areas from which its data is gathered. As researchers have explained, the FoodNet “catchment area was not chosen to equally represent all racial and ethnic groups, and even in the expanded FoodNet population, Hispanics and those living below the poverty level are underrepresented when compared to the general American population (6% vs. 12%, and 11 vs. 14%, respectively).”¹²

The Toll of Foodborne Illness on the Poor

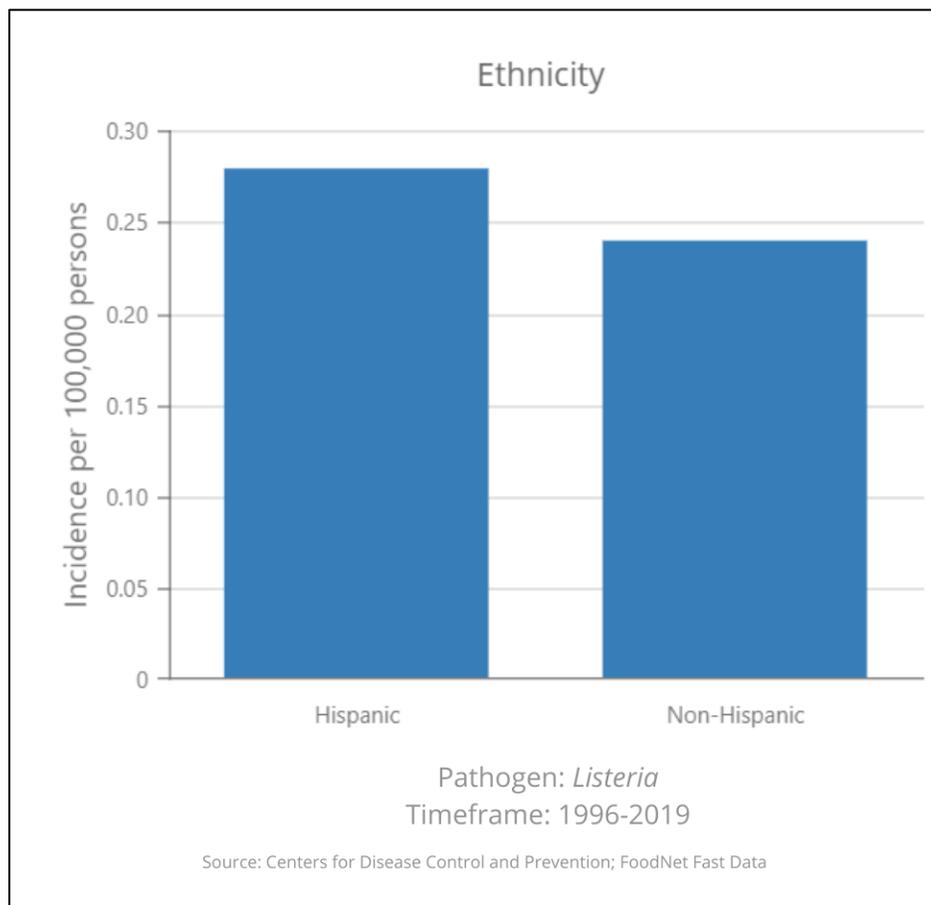
Despite this uncertainty, recent research provides a clear indication that living in poverty is an important risk factor for acquiring a foodborne illness. By using location data for reported cases, researchers have analyzed whether living in zip codes with higher rates of poverty makes a person more likely to report a foodborne illness. Their studies strongly suggest that poverty puts consumers, particularly those under five years of age, at higher risk of infection from foodborne pathogens such as *Campylobacter*, *Salmonella*, and *Shigella*.^{13,14,15}

One of the most comprehensive of these recent studies analyzes *Salmonella* infection rates across FoodNet sites. *Salmonella* makes people sick through a diverse array of foods—led by fresh produce, poultry, and pork. This ubiquity has no doubt helped to make *Salmonella* the most economically harmful foodborne pathogen. In a recent FoodNet study, researchers analyzed 52,821 *Salmonella* infections, reported between 2010 through 2016. They were able to exclude nearly four thousand of those cases as likely acquired during international travel outside of the U.S., which eliminated an important confounding variable, since international travel typically correlates with higher income. The incidence of the remaining “domestic cases” was “statistically associated with increasing census tract poverty.”¹⁶ This association was strongest for children under five years of age, with children in high poverty census tracts 50% more likely to report an infection. The study concludes that salmonellosis prevention efforts should carry an “emphasis on young children living in higher-poverty areas.”

Similar results were documented in other recent studies. In a 2020 study of 23,028 *Shigella* infections, reported to FoodNet between 2004 and 2014, researchers found that, after excluding 1,684 patients that reported international travel in the week prior to illness, patients living in high poverty census tracts (with greater than 20% of the population living below the federal poverty line) were over three times more likely to report a *Shigella* infection than their

counterparts in low poverty areas (less than 5% living in poverty).¹⁷ Likewise, in a 2016 study of *Campylobacter* infections, researchers found higher incidence of infection “in zip codes with higher percentages of individuals living below the poverty level.”¹⁸

For *Listeria*, a rare but deadly pathogen associated with foods including sliced deli meats and raw milk cheeses, a smaller overall number of cases has so far prevented researchers from conducting similar analyses of the impact of poverty on infection rates. However, racial and ethnic data collected by FoodNet suggests that a similar dynamic exists.¹⁹ As shown in the graph below, individuals identifying as “Hispanic”—a group with poverty rates more than double those of “non-Hispanics,”²⁰—suffer from significantly higher rates of listeriosis. Evidence from outside the United States further buttresses the claim that poverty increases *Listeria* risk, with a UK study concluding that “listeriosis incidence was highest in the most deprived areas of England when compared with the most affluent.”²¹



Incidence* of Selected Laboratory-Confirmed Infections in 2019 by Pathogen and Age Group

Pathogen	<5	5-9	10-19	20-64	65+
<i>Campylobacter</i>	31.01	10.73	11.09	19.84	23.89
<i>Listeria</i>	0.27	0	0.02	0.15	1.03
<i>Salmonella</i>	62.56	15.42	10.8	13.54	19.46
<i>Shigella</i>	9.67	4.72	2.44	5.41	2.85
STEC **	21.78	6.21	6.45	4.74	6.08
*Incidence per 100,000 persons					
**Shiga Toxin-producing <i>E. coli</i>					

Source: Centers for Disease Control and Prevention: FoodNet Fact Data

Why the Poor Suffer More from Foodborne Illness

The higher incidence of reported foodborne illnesses in areas with higher poverty levels raises serious concerns, particularly since so many factors would seem to support opposite results. Poor consumers are less likely to have reliable access to healthcare and therefore are less likely to have a foodborne illness reported. The poor also have less access to “high-risk” foods—in particular fresh produce, which accounts for an estimated 17% of *Salmonella* illnesses, and nearly half of all reported foodborne illnesses each year;²² they are less likely to eat raw foods, including raw oysters and raw beef; and they are less likely to dine out. All of these are significant risk factors for acquiring a foodborne illness.

On the other hand, cultural practices around food may contribute to more foodborne illness among poor consumers. According to census data, the poverty rates for Blacks and Hispanics is more than double that of non-Hispanic Whites.²³ One recent study found that “minority consumers were significantly more likely than Caucasian consumers ($p < 0.05$) to purchase live poultry and to purchase eggs unrefrigerated,” and “were also more likely to report cooking offals [the entrails and internal organs of food animals] and cooking a whole turkey overnight,” practices associated with a high risk of cross-contamination and temperature abuse, respectively.²⁴ Researchers have hypothesized that consumption of “fresh Mexican-style cheeses” (see photo at right below) may explain why FoodNet data includes over five times as many reported cases of listeriosis suffered by Hispanic pregnant women, as compared to non-Hispanic pregnant women, since the cheeses are associated with an increased risk of *Listeria*

infection.²⁵ Similarly, eating chitterlings—or hog intestines (see photo at left below)—may account for an increased incidence of yersiniosis among African-Americans.²⁶



There is also some evidence of heightened foodborne illness risk in retailers that service poor communities. One recent study indicates that “small, independently owned corner markets operating in urban areas with populations of low socioeconomic status (SES) may experience barriers to food safety including pest infestation, poor infrastructure and refrigeration, language, limited resources, and small or untrained staff.”²⁷ The study compared food samples taken from corner stores in poorer areas, with similar samples from larger supermarkets and chain convenience markets in more affluent census tracts within the Philadelphia metropolitan region, and found higher levels of bacteria contamination on products like fresh produce and milk in the corner stores.²⁸

Such evidence lends support for certain targeted interventions, such as education campaigns focused on risky food handling practices among some groups,²⁹ or fully funding state and local health departments that inspect local food retailers.³⁰ However, the most significant source of vulnerability to foodborne illness likely has nothing to do with how a consumer prepares food or where she shops.

The harsh reality is that living in poverty itself represents a risk factor for a wide range of health problems, including foodborne illness.³¹ According to one recent study of national survey data collected during 2010–2016, children from low-income households were significantly more likely to have suffered a recent bout of gastrointestinal or respiratory illness, compared to their peers in higher income households.³² This reflects, in part, a lack of access to nutritious foods. Over 23 million U.S. consumers, about half of whom are “low-income,” live in a food desert.³³ While this may translate into fewer foodborne illness cases attributable to fresh produce, it likely increases the burden of foodborne illness overall, because poor nutrition makes individuals more vulnerable to foodborne illness.³⁴

The dynamics behind this increased vulnerability are straightforward. Researchers have noted that poor nutrition is “well understood to impair immune function,” in part because it tends to “impair the production and activity of immune cells and antibodies.”^{35,36} A weakened or compromised immune system can, in turn, increase one’s risk for infection, including from foodborne illness. Studies have shown, for example, that poor nutrition leads to reduced gut health, which in turn stymies the body’s ability to fight off *Salmonella* infections.³⁷ As a result of these factors, consumers struggling with the stresses of scarcity tend to be the least equipped to fend off foodborne pathogens that pose a threat to all consumers.

Action Steps: How to Protect the Poor from Foodborne Illness

Foodborne illness disproportionately affects people—particularly children—living in poverty, and this fact strengthens the case for reforms to improve food safety. Some policies, such as education campaigns³⁸ or retail inspection strategies,³⁹ may target sources of foodborne illness that particularly affect low-income communities. The most important food safety reforms needed to protect the poor, however, also happen to be those that will reduce foodborne illness among the entire population. Here are five suggested food safety reforms:



- Protect consumers from meat and poultry adulterated with virulent *Salmonella*: Current regulations allow meat and poultry processors to sell product contaminated with dangerous *Salmonella* bacteria. With tools such as vaccines and closer monitoring of live animals, producers outside of the U.S. have

achieved significant progress in reducing the toll of salmonellosis.⁴⁰ Regulators in the U.S. can make similar progress by declaring outbreak serotypes of *Salmonella* to be adulterants under federal law.⁴¹ As a first step, USDA should immediately disclose the data it already collects to the public in real time.⁴² This data identifies when a meat or poultry product has tested positive for an outbreak strain of *Salmonella*, i.e. a strain genetically identical to one collected from a cluster of illness victims.



- **Make fresh produce safer:** Recent outbreaks of *E.coli* O157:H7 linked to romaine lettuce and other fresh produce have killed at least six people and sickened an untold number of consumers.⁴³ The evidence indicates that the deadly bacteria originated in cows, with one recent romaine lettuce outbreak linked to a nearby feedlot that holds more than 100,000 head of cattle at a time.⁴⁴ To avoid future outbreaks, federal regulators should follow through on rules requiring sanitization of agricultural water. Congress should also hold cattle producers accountable, through laws such as the Expanded Food Safety Investigation Act of 2019, which would give regulators authority to conduct microbiological sampling on concentrated animal feeding operations (CAFOs).⁴⁵ Policymakers should also consider incentives for cattle producers to vaccinate cattle against *E.coli*, an option that has been commercially available for the past five years, but seldom used because it does not boost profitability for feedlot operators.⁴⁶ Vaccinating cattle against dangerous *E.coli* would improve the safety of both beef, and foods grown in the vicinity of cattle, i.e. almost everything.



- Slow the rise of superbugs: Approximately 70% of all medically important antibiotics in the United States are sold for use in animals.⁴⁷ This widespread use generates antibiotic resistance. Antibiotic resistance in foodborne pathogens, like *Salmonella*, is associated with a greater risk of hospitalization and death in infected individuals.⁴⁸ Overall, antibiotic-resistant infections kill an estimated 23,000 Americans each year.⁴⁹ The threat of antibiotic resistance demands a comprehensive response from Congress, such as the Preservation of Antibiotics for Medical Treatment Act, long championed by the late Rep. Louise Slaughter.⁵⁰ In the meantime, federal regulators should pursue policies to reduce animal antibiotic overuse. A good start would be to create a system to collect data on how antibiotics are used on-farm, including information on quantities of antibiotics used and the specific indications for use.⁵¹



- Promote a culture of food safety in the workplace: Food workers are on the front lines of the fight to prevent foodborne illness. Yet workers who lack basic workplace safety protections, including paid sick leave, cannot be expected to contribute to the attitudes, values and beliefs that make a successful culture of food safety possible. More and more companies have embraced this reality, but for others, rules are needed. At the outset of the COVID-19 pandemic, USDA announced a decision to allow several large poultry processors to increase their line speeds, rather than directing them to slow their lines to reduce worker crowding and make it possible to maintain social distancing.⁵² More recently, USDA officials have interceded on behalf of meatpackers in discussions with local health departments that sought to protect workers and their communities from COVID-19.⁵³ The opposite approach would better promote food safety. The pandemic has highlighted the importance of paid sick leave in particular as a critical protection for workers. Sick leave is also important to reduce foodborne illness directly, with CDC estimating that sick food workers cause hundreds of foodborne illness outbreaks every year.



- Create a single, independent food safety agency: 15 different federal agencies currently divvy up responsibility for ensuring the safety of the food supply. The U.S. Department of Agriculture simultaneously promotes and polices U.S. food producers, a glaring conflict that has led to predictable lapses in protection for consumers. The Safe Food Act, most recently introduced by Rep. Rosa DeLauro and Sen. Richard Durbin in 2019, would consolidate federal food safety activities into one independent single food safety agency, with broad jurisdiction to address food safety hazards wherever they may emerge.⁵⁴

Conclusion

Foodborne illness affects everyone, and consumers will have to contend with some foodborne illness risk no matter what precautions are taken. But that does not justify neglecting cost-effective, practical solutions that will improve food safety. The benefits of these policies will disproportionately flow to the poor, and particularly to children living in poverty, because they are disproportionately hurt by foodborne illness. That fact should provide added motivation for action.

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