

Poverty's Impact on Food Safety: How Healthcare Workers Can Help

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HLTHST 400

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February 17, 2018

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Foodborne illnesses sicken 48 million Americans each year, leading to 128,000 hospitalizations and 3,000 deaths (HealthyPeople.gov, 2018)! Although foodborne illnesses are preventable, they still present major challenges for children and people living in poverty. Foodborne diseases can be caused by bacteria, viruses, and parasites that contaminate food. This contamination can occur at any point from growing the food, to preparing the food. Individuals that live in poverty are frequently at a higher risk for foodborne illnesses because they may lack the housing and knowledge to properly store and prepare their food in ways that decrease their risk of becoming ill. Poverty impacts food safety practices and increases foodborne illnesses due to lack of resources and information. As healthcare professionals, we can improve food safety for people living in poverty by providing education, supporting families with meal programs, and advocating for improvements in the safety chain for food production.

Food Safety: Problems

Foodborne illness, often called food poisoning, is a common, costly, yet preventable public health problem. Foodborne illnesses can occur for many reasons and at many points from the farm to the table (HealthyPeople.gov, 2018). Adequate food safety can be difficult for people living in poverty because they have less access to safe food sources and fewer resources for proper food storage and preparation. Food that is not produced, acquired, stored, or prepared properly increases the likelihood of foodborne illnesses.

Production Concerns

Food production and distribution is an important factor that affects people living in poverty. Overall food production is limited by constraints such as conditions that affect harvest yields, and available water and land resources (Alamar, Falagán, Aktas, & Terry, 2018). Getting

fresh fruits, vegetables, and meats from the farms to the grocery store presents another problem in the quantity of fresh goods being presented and distributed from the marketplace. These goods require interventions like refrigeration, humidity, and moisture to prevent spoilage and losses. Inadequate and outdated practices and technologies account for a large portion of food losses during this process, and can result in unsafe foods being delivered and consumed (Alamar et al., 2018).

Additionally, because so much perishable food is wasted by spoilage during the storage and transportation process, the price of fresher, healthy foods is increased. This makes it difficult for those experiencing poverty to be able to purchase healthy foods, causing them instead to rely upon processed foods. Diets high in these processed foods can be linked to health conditions such as diabetes, hypertension, obesity, certain types of cancer, and heart disease (Anderson, 2013).

Problems with Food Acquisition

An inability to acquire healthy and safe food increases the likelihood of consuming food of questionable safety and therefore the chances of developing foodborne illnesses. Food insecurity and food deserts are major factors affecting the acquisition of healthy, safe food. Food insecurity is, “little or uncertain availability or access to nutritionally adequate and safe food” (Petralias et al., 2016, p. 290). Food insecurity has been shown to be associated with low income, lack of employment, single-parent households, ethnic minorities, and low education (Petralias et al., 2016). Unfortunately, these are common findings in individuals living in poverty. Areas without access to healthy, nutritious and affordable food are known as food deserts (Wright, Donley, Gualtieri, & Strickhouser, 2016). As with food insecurity, food deserts have been found to be more common in areas of low income or minority groups - characteristics once again

common to individuals living in poverty (Wright et al., 2016). Therefore, it follows that individuals living in poverty are more likely to experience foodborne illnesses because the food they are able to acquire is often of questionable quality.

Food Storage and Preparation Difficulties

Anybody can get food poisoning, but most people don't think about food safety until they or someone they know gets sick after eating contaminated food. Those living in poverty can vary from a homeless person living on the street to a low-income family struggling to make ends meet. When a person is homeless, they generally do not have a means to keep their food cold. This lack of refrigeration can cause bacteria to grow on foods. When these bacteria-infested foods are ingested, a person can become sick. Hand hygiene is also very important. It has been proven that poor hand hygiene alone is the leading cause for the spread of foodborne illness (Pellegrino, Crandall, O'Bryan, & Seo, 2015). Unfortunately, a homeless person living on the street may not have access to clean water and soap to cleanse their hands appropriately prior to handling their food which alone increases their risk for developing a foodborne illness.

Food Safety: Solutions

Healthcare workers are in a position to impact food safety for people living in poverty. They can educate people about important food safety tactics, connect people with food assistance programs, and advocate for better food production practices.

Education

Education is one of the key methods of preventing foodborne illnesses. It is important to identify the needs of the population you are working with. Assess what level of knowledge they have and then tailor the education to them. The FDA (2017) has made a printable sheet that can be handed out. They have broken the information into four groups: clean, cook, separate, and

chill. Hand hygiene, as always, is very important to emphasize. You must wash your hands for at least 20 seconds with soap and water. Remind people to use soap and water to clean all items that were used to prepare the food. Wash fruits and vegetables including the ones you will be peeling. Canned goods must be cleaned before opening. All food should be cooked to the right temperature, and using thermometers is recommended. Separate all raw meats and seafoods, never reuse marinades, and use different cutting boards for meats and vegetables. The FDA even recommends separating them in the grocery bags. Chilling is another important factor. Refrigerate foods within two hours of cooking them. Divide large amounts of leftovers into smaller containers. The refrigerator should be set at 40 degrees and the freezer at 0 degrees Fahrenheit.

While these recommendations are ideal for preventing foodborne illnesses, it is important to recognize that individuals living in poverty may not have the resources to follow the FDA's guidelines. In such cases, education should be provided about alternative methods for following the recommendations, such as using hand sanitizer, coolers with ice for refrigeration, washing produce and cans at food pantries before leaving, etc.

It is important to let people know that foods can make you sick even if they do not show signs of spoilage. It can smell, look, and taste fine but the bacteria that causes the food to spoil are different than the bacteria that cause people to be sick. Pathogenic bacteria are what makes you sick. These types of organisms live in raw meats and even vegetables. Therefore, proper handling of food is very important and will reduce the risk of foodborne illness (FDA, 2017).

Assistance Programs

Healthcare workers are in a position to direct individuals living in poverty to assistance programs. The Idaho Foodbank (2018) has many programs in place such as the Backpack,

School Pantry, Picnic in the Park, Cooking Matters, Mobile Pantry, and TEFAP (The Emergency Food Assistance Program) programs. These programs help ensure adequate access to safe and healthy foods for Idahoans. Programs such as these have been shown to reduce food insecurity and therefore improve the health status of participants (Petralias et al., 2016). Having access to safe and healthy foods will decrease the likelihood of contracting foodborne illnesses through consumption of contaminated foods.

Advocacy for Better Food Production Practices

Healthcare professionals can advocate with local government officials for improvements in food production practices. Efforts to increase future production and harvest potential through the use of technologies like fertilizer, machinery, and advanced farming techniques are already being done, with outputs increasing at a steady but very slow level over many years (Alamar et al., 2018). Reducing food loss is a much more feasible way to immediately boost the availability of fresh foods to people, improving accessibility for people living in poverty. One method to reduce food loss is the use of radio frequency identification, or RFID, to track food shipments in real-time while simultaneously monitoring conditions like temperature, moisture, humidity, and oxygen, carbon dioxide, and chemical levels (Bibi et al., 2017). This technology has been shown to be able to detect various food degradation markers, resulting in a reduction of food loss when used in the distribution process over the currently more widely used system of barcodes and labels (Bibi et al., 2017).

Conclusion

Clearly, the lack of resources and information common to individuals living in poverty impact food safety practices and increase the risk of contracting foodborne illnesses. As healthcare professionals, we are obligated to improve food safety for people living in poverty.

We can do this by providing education, supporting families with meal programs, and advocating for improvements in the safety chain for food production. Effective efforts to improve food safety for these individuals will result in improved health outcomes and a reduction in preventable foodborne-illness-related deaths.

References

- Alamar, M. C., Falagán, N., Aktas, E., & Terry, L. A. (2018). Minimising food waste: A call for multidisciplinary research. *Journal Of The Science Of Food & Agriculture*, 98(1), 8-11. doi:10.1002/jsfa.8708
- Anderson, J. J. (2013). Potential health concerns of dietary phosphorus: Cancer, obesity, and hypertension. *Annals Of The New York Academy Of Sciences*, 1301(1), 1-8. doi:10.1111/nyas.12208
- Bibi, F., Guillaume, C., Gontard, N., & Sorli, B. (2017). A review: RFID technology having sensing aptitudes for food industry and their contribution to tracking and monitoring of food products. *Trends In Food Science & Technology*, 62, 91-103. doi:10.1016/j.tifs.2017.01.013
- FDA. (2017). *Food Facts*. Retrieved from <https://www.fda.gov/downloads/Food/FoodborneIllnessContaminants/UCM254400.pdf>
- FoodSafety.gov. (2018). *Check your steps*. Retrieved from <https://www.foodsafety.gov/keep/basics/index.html>
- HealthyPeople.gov. (2018). *Food safety | healthy people 2020*. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/food-safety>
- Pellegrino, R., Crandall, P. G., O'Bryan, C. A., & Seo, H. (2015). A review of motivational models for improving hand hygiene among an increasingly diverse food service workforce. *Food Control*, 50, 446-456. doi:10.1016/j.foodcont.2014.09.015
- Petralias, A., Papadimitriou, E., Riza, E., Karagas, M. R., Zagouras, A. A., & Linos, A. (2016). The impact of a school food aid program on household food insecurity. *European Journal Of Public Health*, 26(2), 290-296. doi:10.1093/eurpub/ckv223

The Idaho Foodbank. (2018). *Programs that make a difference*. Retrieved from
<https://idahofoodbank.org/programs/>

Wright, J., Donley, A., Gualtieri, M., & Strickhouser, S. (2016). Food deserts: What is the problem? What is the solution? *Society*, 53(2), 171-181. doi:10.1007/s12115-016-9993-8