The National Environmental Health Association (NEHA) represents more than 6,600 governmental, private, academic, and uniformed services sector environmental health professionals in the U.S., its territories, and internationally. NEHA is the profession's strongest advocate for excellence in the practice of environmental health as it delivers on its mission to build, sustain, and empower an effective environmental health workforce.

NEHA Policy Statement on Food Safety
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Food safety is a critical public health issue that affects individuals and communities across the U.S. and around the world. NEHA recognizes the need for safe food handling practices at every step of food production, from the farm to processing, transportation, and preparation at the retail food level. Foodborne illness continues to be a preventable public health concern. NEHA supports preventive measures to reduce the incidence of foodborne illness.

NEHA'S POLICY STATEMENT

To ensure the nation's food supply remains safe, NEHA supports the following policies and actions:

- Increased funding and capacity building for federal, state, tribal, local, and territorial food safety programs to improve surveillance and response activities for foodborne illness outbreaks, including the advancement of technology for tracking and intervention.

- Education, credentialing, and training of food safety regulators to support an educated workforce.

- Robust training programs for food industry workers to increase their knowledge and understanding of safe food handling practices, including allergen awareness training.

- Enhanced training and understanding of good employee health and hygiene practices to support a culture of safe food handling and the exclusion or restriction of sick employees.

- Increased partnerships between regulatory food safety programs and federal organizations, academic institutions, trade and industry associations, and associations that support food safety practices to improve the communication and dissemination of knowledge and guidelines to communities.

- Improved federal guidelines and research support, backed by organizations, such as the Centers for Disease Control and Prevention (CDC), Food and Drug Administration (FDA), and the U.S. Department of Agriculture, to improve safe food handling and preparation techniques.

- Full adoption of the most recent FDA *Food Code* by state, tribal, local, and territorial public health agencies to provide standardized food safety regulations and requirements for safe food handling.

- Adoption of integrated food safety systems initiatives such as 1) strategic partnerships between federal, state, tribal, local, and territorial agencies, industry members, and academia and 2) taking a One Health approach to addressing foodborne illness outbreaks, the sources of outbreaks, and approaches to prevent such outbreaks.

- Fund and support capacity building for research on antibiotic resistance and antibiotic-resistant bacteria.

Analysis

The current capacity for tracking and surveilling foodborne disease outbreaks is fragmented and is not sufficiently standardized across agencies and organizations that protect public health. Since capacity building is considered to be a less urgent issue than emergency response, the already strained environmental health field is lacking in its ability to put prevention at the forefront of its food safety agenda (Brooks et al., 2019). In its New Era of Smarter Food Safety blueprint, FDA (2020) notes that records used for food tracing today are still largely paper-based, which slows the response time for tracking and identifying sources of foodborne illness outbreaks. Additionally, the lack of traceability and transparency in the supply chain has made tracking outbreaks more difficult and time-consuming, resulting in more illnesses, deaths, and money lost. While new and current technology, such as whole genome sequencing, has improved the speed of identifying pathogens, the capacity for this technology and the quality of the data collected still varies widely across public health agencies (Food and Drug Administration [FDA], 2020).

As diets, and thus the food industry, change, it becomes increasingly important to monitor imported food and alternative modes of cooking for food safety purposes. Consistently increasing food imports and foreign supplies of fresh fruits and vegetables, as well as the importation of almost all seafood (FDA, 2019), indicate a need to regulate food as it arrives to control for physical, chemical, and biological hazards before it is distributed across the country.

Additionally, there exists a need to ensure food sold within the U.S. is unadulterated and accurately represented. Food fraud—the intentional adulteration of food by means such as the substitution of one product for another, mislabeling food products, or unapproved modification of food products—can occur at every stage of food production, threatening safe food distribution (BRCGS, 2018). Lack of transparency regarding a product's ingredients may cause allergic reactions or foodborne illness outbreaks if people unknowingly consume compromised food (Food Safety Net Services, 2016). Within the U.S., alternative food preparation venues, such as foods prepared in a home kitchen (also known as cottage foods) and sold at farmers markets, microenterprise kitchens (MEKs), and illegal vendors, make consistent regulation, such as conducting inspections, difficult if these food retailers are not clearly identifiable (Brooks et al., 2019). NEHA recognizes the need for stronger and more standardized

regulation and inspection of both imported goods and the methods of food preparation across an increasingly diverse array of vendors.

The risks of unsafe food handling also include economic impacts, such as productivity loss, medical costs, and loss of business and profit. Though the economic costs of outbreaks to restaurants can vary greatly, sometimes having little economic impact, they can also be quite severe when legal fees, lawsuits, and lost revenue are considered (Bartsch et al., 2018). Reduction of economic losses from foodborne illness outbreaks is a solvable problem that requires preventive public health measures and practices in restaurant settings.

Underreporting of illnesses is also a concern among food distributors and scientists. Research shows that most foodborne illnesses go underreported or are not reported because people generally recover from foodborne illnesses and thus, are not detected by surveillance mechanisms (Centers for Disease Control and Prevention [CDC], 2019a). On the other hand, intentional underreporting can occur due to a lack of employee protections. Employees who are ill may continue to go to work due to the threat of income loss and/or loss of employment (Brooks et al., 2019). Weak employee protections are detrimental to health because sick workers, rather than staying home and away from the food production line, are instead infecting others.

Justification

Current estimates by CDC find that foodborne diseases cause 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths in the U.S. each year (Scallan et al., 2011). Those individuals most affected by foodborne illnesses include higher-risk groups: people under the age of 5 and over the age of 65, pregnant individuals, and people with weakened immune systems (CDC, 2019b). Foodborne illness outbreaks can originate from any stage in the food production line. Restaurants are the most commonly reported location of food preparation associated with outbreaks, accounting for 64% of the outbreaks for which a single location of preparation was reported; most of such outbreaks (48%) occur in sit-down establishments (CDC, 2019a).

A study by Bartsch et al. (2018) found that the economic costs of foodborne illness outbreaks varied depending on outbreak size and venue type, ranging from 10% to 5,790% of annual marketing costs and from 0.3% to 101% of annual profits and revenue. From loss of productivity to medical expenses, financial costs can range annually from $10-$83 billion (U.S. Department of Health and Human Services [HHS], 2017).

Outbreaks and related expenses are rarely limited to one company or food retailer, highlighting a need for improved technology and faster tracking and surveillance of contaminated food products (Council to Improve Foodborne Outbreak Response [CIFOR], 2020). The technology for food data tracking and whole genome sequencing exists but is widely variable in "quality and compatibility" (FDA, 2020). With increased funding and attention to develop surveillance technology, the sources of contaminated food can be detected more rapidly, speeding up public health response (FDA, 2020).

An integrated food safety system (IFSS) emphasizes strategic partnerships, the exchange of information, and regulatory standards for food safety and tracking as methods for reducing the risk of foodborne illnesses (FDA, 2021). Notable achievements of IFSS include the creation of foodborne illness outbreak systems, such as the National Outbreak Reporting System (NORS) that collects outbreak data and information across the US. and OutbreakNet that provides support to health departments in their

capacity to detect and respond to foodborne illness outbreaks. FDA has also developed standards for food handling to increase coordination in the food industry. Such initiatives have improved coordination across different jurisdictional levels and have resulted in increased compliance to health and safety standards that are backed by science. NEHA supports the continued initiatives of CDC and FDA to improve support for and communication among agencies involved in food safety in all aspects of the environmental health field.

One Health refers to a multisectoral approach to address health challenges and health outcomes that recognizes the interconnectedness of humans, animals, and the environment, and the impact that these relationships have on health outcomes. Efforts toward a One Health approach include collaboration among representatives from all three health sectors at local, national, and global levels, and analyzing how a deficiency or a health issue in one has the potential to affect another, rather than focusing on the health of one sector on its own. As human populations grow and expand into new areas and globalization increases contact between humans around the world, the risks of disease spread from animals to humans and from humans to humans across the globe increases (CDC, 2021). A One Health approach to foodborne illnesses will help to address the implications of our nation's changing diet and the associated increases in importation and transportation of food. Humans, animals, and the environment (and thus illnesses), are connected and do not follow state or jurisdictional boundaries, so increased cooperation will also increase understanding of how diseases spread and ultimately improve the response to public health threats (CDC, 2021).

In the Council to Improve Foodborne Outbreak Response's (CIFOR) 2020 guidelines for foodborne disease outbreak response, multistate and multijurisdictional diseases are presented as a growing issue. CIFOR recommends a clear and robust communication network between public health agencies, other bodies that receive foodborne illness complaints, and epidemiology and laboratory staff to investigate and respond to potential outbreaks in a timely manner (CIFOR, 2020). An important One Health issue related to foodborne disease is antibiotic-resistant bacteria and the role of whole genome sequencing to study the spread of such bacteria. These technologies and partnerships have helped to track significant outbreaks, such as the source of a 2015–2018 multidrug-resistant *Salmonella* Heidelberg outbreak with infections in multiple states (CDC, 2020).

The FDA model *Food Code* provides guidance and advice on best practices and creates uniform standards for food retailers and stakeholders. The most recent version of the *Food Code* includes updates to the language that is more consistent with other federal agencies and international bodies (HHS, 2017*).* This version also includes instructions for people in charge of food establishments and outlines the responsibilities of individual employees regarding safe food handling, hygiene, and disclosure of health information relating to foodborne illness (HHS, 2017). Benefits of adoption of the most recent version of the model *Food Code* include increased compliance with the most scientifically current information, standardization of training and food safety protocols, and the creation of common language that will improve the efficiency of communication for all stakeholders. NEHA supports the adoption of the most recent *Food Code* as an effective way to increasing uniformity in the already complex issue of food safety.

In a study conducted by CDC, NEHA, and Baylor University, Understanding the Needs, Challenges, Opportunities, Vision, and Emerging Roles in Environmental Health (UNCOVER EH), information was collected from over 1,700 environmental health professionals across the U.S. The UNCOVER EH study found that 64% of environmental health professionals held the Registered Environmental Health Specialist/Registered Sanitarian (REHS/RS) credential. This credential signifies that an environmental

health worker is well versed in the latest environmental health issues and has the skills to both respond to situations as well as educate communities on environmental concerns (National Environmental Health Association [NEHA], 2019). Included in the REHS/RS exam is a substantial section on conducting food facility inspections, The study guide for the exam emphasizes that among other necessary skills, an REHS/RS must be knowledgeable about proper food transport, storage, and handling techniques as well as proper sanitation methods and potential chemical, biological, and physical hazards (NEHA, 2021a). NEHA's Certified Professional–Food Safety (CP-FS) credential ensures that an individual is competent in, among other skills, assessing food safety standards, identifying and investigating foodborne illnesses, and developing policies and procedures related to allergen control and hygiene practices (NEHA, 2021c). Maintaining an REHS/RS or CP-FS credential requires 24 hours of continuing education every 2 years, which ensures that the professional is kept up-to-date on significant changes regarding environmental health, including best food safety practices (NEHA, 2021b, 2021c). Benefits to credentialing include higher standards and compliance to rules and regulations that are critical to the maintenance of a safe food handling environment (American Society of Association Executives, 2016).

Food safety certifications for those working in the food service and allied fields are beneficial for increasing the confidence of both food retailers and consumers. According to the Global Food Safety Resource (GFSR, 2021), having a nationally or internationally recognized certification demonstrates that retailers are following consistent and high-level standards of food handling and are knowledgeable about delivering high-quality, safe food. Food safety certification is not legally required but may contribute to a competitive advantage in the food distribution market if customers know they are consuming food that has been responsibly handled. Businesses may also end up saving money on food recalls and potential economic losses from foodborne illness outbreaks, thus making certification a wise investment for both the seller and buyer (GFSR, 2021). A study conducted by the Environmental Health Specialists Network (EHS-Net) on the connection between food safety certification status and food safety knowledge found that for both workers and managers, those who were certified in food safety were also more likely to pass a food safety knowledge test (Brown et al., 2014). Additionally, workers who had managers that were more knowledgeable in food safety were also more likely to be knowledgeable in food safety (Brown et al., 2014).

Encouraging a culture of food safety is important in retail settings; it is also crucial for civil society organizations and individuals to be knowledgeable about best practices to be safe at home. Increased partnerships among civil society, health departments, and individuals are key to ensuring that people not only know how to handle food but also are encouraged to do so. Advocacy groups, the media, and universities can be beneficial in distributing accurate information, assessing community needs, and changing the behaviors and beliefs that people can have (FDA, 2020). Preventing foodborne illnesses goes beyond retailers. Consumers should also be knowledgeable about how to keep themselves healthy and their food safe at home.

Food safety is critical to the lives of everyone and protecting the quality of our nation's food supply is key to protecting health. NEHA applauds the progress made and recognizes the existence of deficiencies in the field of food safety. NEHA advocates for standardized and more adequately funded approaches to prevent foodborne illnesses, as well as the implementation of a more comprehensive and rapid response to curb the spread of foodborne illness outbreaks when they occur.

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Drafted by the NEHA Food Safety Program Committee and NEHA Staff

NEHA Food Safety Program Committee
Eric Bradley, MPH, REHS, CPS, DAAS
Environmental Health Coordinator
Scott County Health Department

Casey Gardner, MESH, REHS, CP-FS
Environmental Health Technical Specialist/District Standardization Officer
Peninsula Health District

Donald Howell, CP-FS
Director of Quality Assurance Food Safety
Ascent Hospitality

Adam Kramer, MPH, ScD, RS, CFS
U.S. Public Health Service

Water, Food, and Environmental Health Services Branch
Centers for Disease Control and Prevention

NEHA Staff
Georgia Lo
Intern
National Environmental Health Association

Laura Wildey, CP-FS
Senior Program Analyst, Food Safety
National Environmental Health Association

Edited by:
Kristen Ruby-Cisneros
Managing Editor, *Journal of Environmental Health*
National Environmental Health Association