

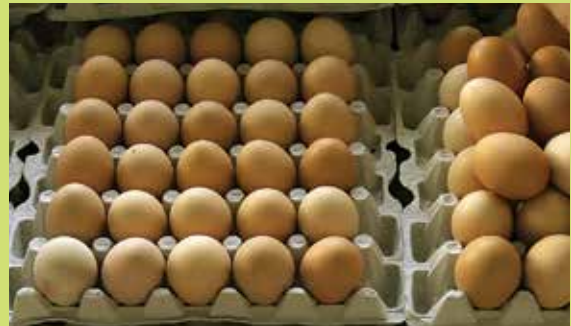


INTERNATIONAL
FOOD INFORMATION
COUNCIL FOUNDATION

Food Safety

A Communicator's Guide to Improving Understanding

1st EDITION



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A Communicator's Guide to Improving Understanding



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We would like to extend our gratitude to the many academic researchers, health professionals, food companies, and government officials who contributed their time and expertise to this *Guide*.

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Established in 1991, the IFIC Foundation has the mission of effectively communicating health, nutrition and food safety for the public good. Over the years, the Foundation has partnered and collaborated with global stakeholders, including food and health organizations, government agencies, academic institutions, food industry professionals and nonprofit organizations, on efforts to enable effective communication and informed decision-making along the food chain to promote global health and consumer understanding.

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This Guide was prepared under a partnership agreement between the U.S. Department of Agriculture (USDA) Foreign Agricultural Service (FAS) and the IFIC Foundation to provide guidance on effective food safety communication. This partnership agreement does not constitute an endorsement of any products or organizations that support IFIC or the IFIC Foundation.



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Dear Colleagues:

Safe food for all people is a universal goal, and while food producers, processors, manufacturers, distributors, retailers, regulators, and consumers around the globe strive to keep food safe, not all food is safe all of the time. For food safety communicators who are tasked with explaining why this is and when and how it affects consumers, the International Food Information Council Foundation (IFIC) Foundation provides this resource, ***Food Safety: A Communicator's Guide to Improving Understanding*** (*Guide*).


This *Guide* shows effective planning and execution of food safety risk communication through a practical, hands-on approach for communicators. Effective risk communication depends greatly on audience characteristics, as well as local and national cultural contexts in which the communication occurs. To that end, the *Guide* provides tools and templates for risk communication in unique environments, and discussion about specific food safety situations.

While many of the examples provided in the *Guide* are U.S. examples, they serve as a roadmap of what types of information should be communicated to the public. We encourage communicators and government officials from around the world using this *Guide* to customize the templates and materials based on local, regional, and national needs.

Communication and distribution channels have changed with the advent of social networks and the resulting digital media by creating more (and faster) ways to send and receive information. The extent to which this is possible, however, varies by country. Regardless of the role journalists, producers, and editors play in your country, the media are a crucial element of any food safety communication plan. In this *Guide*, we discuss how to interact with reporters under different food safety situations. Any communicator will be able to apply the tips for media interaction to their unique circumstances.

Food safety is not a competitive factor; it is a goal that unites us all. We hope this *Guide* is a useful resource as you implement food safety risk communication best practices so that, globally, we build better capacity for better coordination – and greater trust in the food supply. To access the online version of the *Guide* and additional resources, visit www.foodinsight.org/foodsafetyguide.

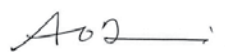
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INTRODUCTION



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2

HOW TO USE THIS GUIDE

How to use *Food Safety: A Communicator's Guide to Improving Understanding*

Communicating about food safety is an intricate process involving numerous affected and interested parties. Having a roadmap and the right tools and resources is critical to effective communication.

Risk is a natural part of life – daily activities such as crossing the street, riding a bike, flying on a plane, and playing sports all present a certain amount of risk. And while it is important to address societal risks such as these, food safety risk is unique because it is universal. Food is necessary for life.

The international community recognizes the importance of minimizing food safety risk to the extent possible and practical. The United Nations International Covenant on Economic, Social and Cultural Rights¹ (which as of September 2015, has 164 Parties

and 17 Signatories), provides “the right to adequate food,” includes the premise, among others, that food be “free from adverse substance.” The Covenant goes on to set requirements for food safety and for a range of protective measures by both public and private means to prevent contamination of foodstuffs through adulteration and/or through bad environmental hygiene or inappropriate handling at different stages throughout the food chain; care must also be taken to identify and avoid or destroy naturally occurring toxins.

Both public and private entities are

Note:

Terms that are underlined in the *Guide* are defined in the Glossary. Terms that are in "blue" are hyperlinked to web pages.

responsible for ensuring safe food and communicating food safety risk when it is present. Ensuring that responsibility means government officials, health professionals, and food companies along the supply chain understand and effectively communicate food safety risk with consumers, the media, businesses, and other relevant stakeholders. Doing so will build better capacity for better coordination and more trust in the food supply.

The purpose of this *Guide* is to provide for communicators the necessary information and tools to:

- Establish a checklist of food safety risk communication actions;
- Enhance individual communication skills; and
- Explore different approaches to deal with ever-evolving food safety challenges, as no two regions, no two industries, and no two countries have the same systems or needs.

Chapter 3 defines food safety and provides an overview of how food safety risks are effectively assessed, managed, and communicated. Chapter 4 builds a practical framework for using risk communication best practices and strategies, as well as individual communication tools: an example of a *Food Safety Risk Communication Worksheet* and an example of a *Key Resource List*. In Chapter 5, we provide fact sheets for six food safety issues to better understand them and develop effective messages.

In Chapter 6, you will find practical tips for putting effective risk communication into practice when

working with the news media, including guidelines for scientists, editors, journalists, and industry and advocacy groups to communicate about food health and safety issues.

Chapter 7 explains global, national, and local food regulatory systems, using the United States as one country example. Understanding the regulatory framework for compliance, enforcement, correction, and restoration of safe food systems for companies, restaurants, regions, and trade is critical in communicating to the public about how food is being protected, how outbreaks or contaminations are managed, and how public health is ensured.

Finally, the Appendix includes *Best Practices for Effective Risk Communication*, developed by the National Center for Food Protection and Defense (NCFPD), templates for the *Food Safety Risk Communication Worksheet* and the *Key Resource List* discussed in Chapter 4, and for the Media List discussed in Chapter 6. Also included are two additional examples of how to use the *Risk Communication Worksheet* when communicating about incidents that carry varying levels and types of risk to human health

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3

DEFINING FOOD SAFETY

- Risk Analysis
- Risk Assessment
- Risk Management
- Risk Communication

Defining *Food Safety*

The definition of food safety is not the same for everyone. In order to prevent food-related illnesses – a global goal – it is imperative to understand how food safety risks are assessed, managed, and communicated.

Even though food safety is a global public health priority and the vast majority of meals are eaten without incident, an estimated 2 million deaths occur worldwide each year from unsafe food and drinking water. Correct food preparation, including the use of safe drinking water, can prevent most of them.

According to the World Health Organization (WHO), more than 200 diseases are spread through food; so in today's interconnected global food supply, preventing and responding to food safety incidents is more complex than ever. Antibiotic resistance is a growing public health concern with implications for antibiotic use in both human health and agriculture. Chemical hazards can originate in the

food itself, from food contamination, intentional or accidental, as a result of inappropriate preparation or cooking. Many food producers around the world are working to find methods to lower exposure to the formation of chemicals during cooking and processing.^{1,2,3}

We all play a role in ensuring food safety. Cooperation between public and private sectors, in the food industry, research, health, and communication fields, is key. Food Safety in homes is just as vital, and necessitates education for families and children on basic safe food handling practices.

Not everyone defines food safety in the same way. To some, food safety means that food is free from microbial, chemical, or physical hazards. To



While the vast majority of meals are enjoyed without incident, prevention of food-related illness is the goal, and it begins with an understanding of how food safety risks are assessed, managed, and communicated.



others, food safety sometimes is perceived correctly or incorrectly with respect to how food is grown, processed, or marketed with claims such as natural, pesticide-free, healthful, fresh, organic, or local.

Among specialists, food safety is often defined as the processes implemented by those who produce, process, distribute, or prepare food (including consumers) to ensure that risk is minimized from the following:

- microbial hazards (e.g., bacteria such as Salmonella and Escherichia coli 0157:H7, viruses, and parasites);
- chemical hazards (contaminants, e.g., melamine and arsenic; naturally occurring toxins, e.g., histamine in some fish and cheese and cyanogenic compounds in some plant foods); and

- physical hazards (e.g., plastic, metal, bone, etc.).

Prevention of food-related illness is a global goal, and it begins with an understanding of how food safety risks are assessed, managed, and communicated.

RISK ANALYSIS

The foundation for characterizing, preventing, and addressing food-related human health risks is the process of food safety risk analysis, which involves risk assessment, risk management, and risk communication. Together, these three functions provide a roadmap for regulatory agencies, the food industry, and the public to strive for a safe and abundant food supply.

In the past, many regulators used a “hazards-based approach” to understand and act on food safety concerns. The mere presence of a hazard in a food was deemed to be unsafe. However, over the past few

decades, a “risk-based approach” has emerged as the dominant method. The risk-based approach is based on whether the likely levels of exposure to a hazard have a negative impact on public health. Taking realistic exposure levels into account allows all involved to focus efforts on reducing risks that may have significant impacts on public health.

A hazard-based approach is where simply the presence of an agent at any detectable level might be used as the basis for legislation. A risk-based approach tries to establish acceptable levels of exposure to hazards using evidence-based risk assessment methodologies.⁴

In risk analysis, the activities associated with risk assessment, risk management, and risk communication are inter-connected. By implementing all of these steps appropriately, risk analysis is used to develop an estimate of the risk to human health and safety, identify and implement appropriate measures to control the risks, and communicate with stakeholders and the public about the risks and measures applied.



= Risk Analysis

Source: <http://foodrisk.org/overviewriskanalysis/intro/>

RISK ASSESSMENT

Risk assessment is defined by the *Codex Alimentarius Commission* (Codex) as a scientifically based process consisting of hazard identification, hazard characterization, exposure assessment, and risk characterization:⁵

- *Hazard identification* pinpoints biological, chemical, and physical agents that may be present in food and are capable of harming human health.
- *Hazard characterization* describes the evaluation of the nature of the adverse health effects associated with biological, chemical, and physical agents that may be present in food.
- *Exposure assessment* is the evaluation of the likely intake of biological, chemical, and physical agents via food and other exposure routes.
- *Risk characterization* estimates the probability of the occurrence and severity of known or potential adverse health effects in a given population based on hazard identification, hazard characterization, and exposure assessment.

RISK MANAGEMENT

Risk management means using the results of the risk assessment to determine the acceptable limit to a risk – that is, the level that will avoid harm to public health. Thus, risk management seeks to balance:

1. the risks from a known hazard versus the risks that may ensue from specific actions against that risk, and

2. the risks from that hazard in a food versus the health benefit of that food.

It also is important to note that the process of risk management reflects the values of the society in which the management is being done. A good example of a risk management decision is the establishment of the regulatory limit for methylmercury in seafood.⁶ The risk from methylmercury to specific groups is balanced against the general health benefits derived from certain seafood.

Risk management for the food supply chain, especially if the limits are established by regulation, also must be properly implemented. Consumers expect safe foods. Likewise, food prepared in the home kitchen also is expected to be safe and prepared according to food safety management procedures, whether that food is consumed by the family or by neighbors.

Internationally-developed risk management tools are facilitating an increasingly quantitative and strategic approach to risk management.^{7,8} For example, there are techniques used to model or simulate risk scenarios, relating exposure levels to the effects on public health that are *reasonably likely to occur*. The levels of hazard control that must be achieved at specific points along the food chain are then determined. This approach provides for a level of control based on risk as well as flexible interventions that can be used to control food-borne hazards. Using this approach, the effectiveness and relative levels of control that can be



Risk-Based Approach Example

A food service establishment determines how best to keep its food safe by monitoring and controlling the appropriate time and temperature metrics.^{10,11}

A chicken breast is marinated and held at 41 °F (5 °C) or below until time to bake; baked to 165 °F (74 °C) for 15 seconds; and held for service at 135 °F (57 °C) or higher; leftover chicken is chilled to 41 °F (5 °C) within four hours and stored at 41 °F (5 °C) or lower; reheated to 165 °F (74 °C) for 15 seconds within two hours before serving. A clean, sanitized, and properly calibrated thermometer should be used to determine that appropriate temperatures have been reached and are being maintained.

achieved by different interventions at different points along the food production process can be compared to select the most appropriate actions. Robert Buchanan, PhD, director of the University of Maryland's Center for Food Safety and Security Systems, notes, "This is the advantage that risk management approaches bring to food safety: They increase the amount of knowledge mobilized to make better food safety decisions."⁹

The Hazard Analysis and Critical Control Points (HACCP) method, widely used in food service worldwide, illustrating the importance of identifying and managing potential significant hazards (i.e., those associated with risk due to exposure) at multiple points throughout the food production chain.

Government officials can develop interdisciplinary risk management resources as guidance for industry in implementing regulations. For example, the Council to Improve Foodborne Outbreak Response (CIFOR) Industry Guidelines were developed by a wide range of U.S. regulators as a reference for companies establishing new procedures, to complement existing procedures, and to educate staff.¹² The

Global Food Safety Initiative (GFSI) is an example of a global cooperative initiative among retail, manufacturing, and food service companies, as well as international organizations, governments, academia, and service providers to promote a harmonized approach to food safety risk management.¹³ Beyond government or multisectoral guidance, individual companies must adopt specific procedures that are appropriate to their products, meeting or exceeding regulatory requirements.

RISK COMMUNICATION

Effective risk communication is the third and final essential component of the overall risk analysis process. The importance of and dedication to global collaboration in the realm of risk communication is evident through groups such as the International Center of Excellence in Food Risk Communication.¹⁴

After the hazards have been identified and appropriate procedures for reducing the impact of the hazards have been developed, an effective strategy is needed to communicate with food industry personnel, the lay public, and others about potential risks. In doing so, risk communication can build support





for risk management plans, prevent the wasting of resources, keep decision-makers well-informed, stop the spread of misinformation, ensure confidence and public trust, and even decrease the potential risk of illness and death related to food safety issues when they happen.

Strong communication among researchers, regulators, food handlers, and health professionals helps to ensure a strong risk analysis. Risk communication facilitates appropriate formation of risk management procedures that encompass societal values, beliefs, and customs.

Significant challenges in explaining scientific concepts to the public include the ambiguity of scientific conclusions and the concept of thresholds versus “zero risk.”⁷ While consumers would generally prefer assurance that food is absolutely safe, scientists and regulators must utilize a more subtle decision-making process, combining susceptibility of individuals or groups, likely exposure, and the way in which

a hazard may be introduced into the process. Without testing 100% of the food produced (and hence not having any product to offer for sale and consumption), one cannot say that a food product is ever 100% safe. While it is tempting for communicators to focus solely on the facts and attempt to convince consumers that 100% safety is not realistic, risk communication requires recognition and respect of the public's perspectives, and an effort to bridge that divide.

SUMMARY

Food safety is a complex topic that encompasses the goal of providing food whose microbial, chemical, and physical risks can be managed, and includes an in-depth look at the processes by which food is produced. Through science-based assessment, hazards in foods that are reasonably likely to pose a risk to human health can be more effectively managed. Risk communication is critical to the overall risk analysis process, including informing and protecting the public with respect to food safety.



Effective risk communication can decrease the potential risk of illness and death related to food safety issues.

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Building a Practical Framework for Successful Food Safety Risk Communication

In an outbreak or recall crisis, communicating with general or targeted audiences has to happen quickly as a population's safety is at risk. Creating a framework to communicate food safety messages could result in preventing further damage and saving lives.

Effective food safety *risk communication* requires planning and organization. Without a framework from which to work, it can be difficult and even overwhelming. This chapter presents a framework to help organize the risk communication response. The framework is made up of six elements, which are further explained below:

1. the situation,
2. goals,
3. audiences,
4. objectives,
5. messages, and
6. tactics or actions.

Before discussing the risk communication framework, it is important to understand the role of communication in the general risk response process.

ROLE OF COMMUNICATION IN THE RESPONSE PROCESS

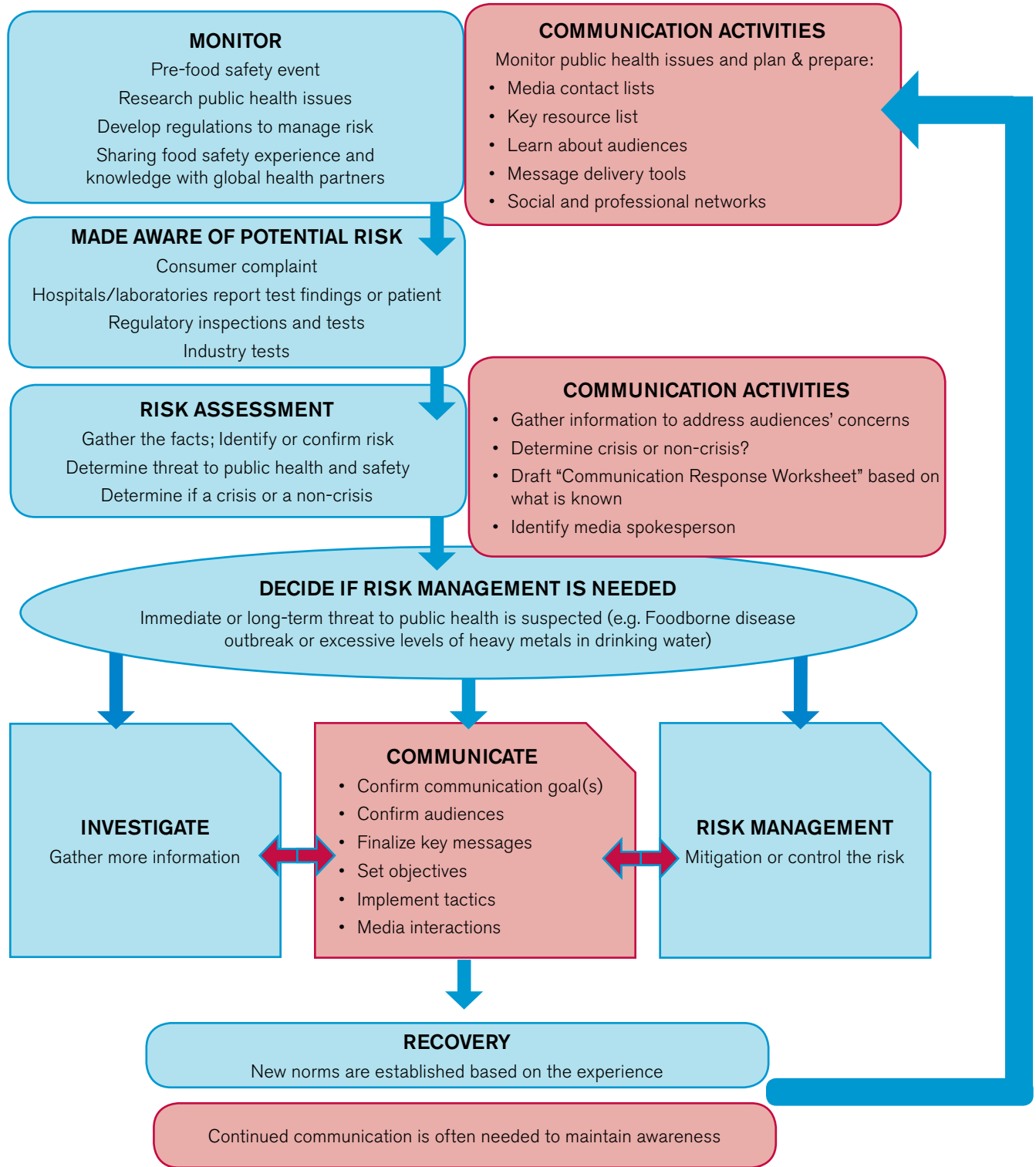
While responses to risk can vary widely, the general process is similar. Diagram 1 outlines the basic response process beginning with the period when the food safety event is unknown and ending with a feedback loop. The diagram also illustrates how the various risk communication activities, which are shown in red, interact with the other response activities.

4

BUILDING A PRACTICAL FRAMEWORK FOR SUCCESSFUL FOOD SAFETY RISK COMMUNICATION

- Role of Communication in the Response Process
- Communication Response Framework

Diagram 1
THE ROLE OF COMMUNICATION IN THE RESPONSE PROCESS
 (Red boxes indicate communication activities)



Source: IFIC Foundation



In the monitoring stage, before a risk is known, the role of the communicator is to plan. This includes establishing the partner networks, identifying contacts and key resources, learning about the various audiences, and developing message delivery tools. Planning in advance of a risk situation will make communicating easier and more effective.

While preparing the communication networks, lists, and tools, a change in the risk environment may occur, generating the need for a risk assessment. Consumer complaints, test results, and regulatory inspections are just a few of the many ways an organization may learn of potential food safety risks. Once the potential risk is known, a risk assessment is conducted.

During the risk assessment process (discussed in Chapter 3), the organization will gather scientific, health, regulatory, and situational information in order to identify or confirm the risk, and to determine to what degree public health and safety are threatened. The risk assessment also will help determine whether the situation is a crisis or a non-crisis. At the same time, the communicator should gather information about the situation and begin completing the communication framework discussed later in this chapter. Based on the risk assessment, a decision will be made as to whether risk management activities are necessary.

If it is decided that risk management (discussed in Chapter 3) is needed, the organization will further investigate the situation, engage in risk communication, and mitigate or control the risk simultaneously. The framework discussed in the next section may be used to develop and

communicate effective messages to audiences. As shown by the red two-way arrows in Diagram 1, it is absolutely critical that the communicator be in constant contact with those who are conducting the risk mitigation activities, as the situation and risk mitigation measures can change, and the communicator needs to convey the most recent and accurate information.

Finally, after risk mitigation measures are implemented and the risk is either eliminated or reduced to acceptable levels, recovery begins. During this phase, a new norm takes place. Note that there should not be a complete return to pre-event conditions. If the mitigation measures and the risk communication efforts were effective, there will be changes – changes in how the risk is perceived; changes in what people know about the risk; and changes in how people behave toward the risk. Risk communication may continue in order to maintain a minimum awareness level among audiences.

It is important to recognize that the response process never ends; instead, it returns to the monitoring step and the process starts over again. The communicator returns to updating lists, refining or developing new message delivery tools, and monitoring the food safety communications environment.

COMMUNICATION RESPONSE FRAMEWORK

The risk situation affects virtually every aspect of food safety risk communication – the urgency with which it needs to be carried out, what to communicate, how to communicate it, and to whom, and even how the messages are to be delivered.

Because of this, the communication response framework begins with identifying the type of situation and describing it.

The Situation

There are two types of equally important risk communication situations: a non-crisis situation and a crisis situation. Each food safety situation is classified as one or the other based on how quickly action must be taken to protect public health.

In a food safety non-crisis situation, the risk is thought to accumulate slowly or to be manageable over time. Examples of non-crisis situations include exposure to low levels of pesticide residues or to toxic heavy metals. In non-crisis situations, a significant amount of information and scientific research are usually available, and there usually is time to have a continual, in-depth dialogue with targeted audiences. Because of this, the messages tend to be detailed; and they are often delivered through a variety of communication channels – from written brochures and billboard ads to electronic social networks, for example. In these situations, the communicator also may have time to conduct market research to better understand audience perceptions. It is important in non-crisis situations to communicate clearly and frequently to prevent the situation from becoming a crisis.

In a food safety crisis situation, the risk happens quickly, sometimes without warning, and requires immediate action in order to save lives or minimize illness and injury. Foodborne disease outbreaks, contagious diseases such as Norovirus among food industry workers, and intentional food contamination that

When gathering information about a situation, consider:

- Is the hazard in question present in the food supply now? If so, is it present in particular foods? Are the affected foods widely available or found only in certain regions or marketplaces?
- Is the food safety risk so small that it is offset by the risk of eliminating that particular food or food practice (i.e., what is the risk-benefit analysis)?
- Who is at risk if they consume these foods?
- Is the potential harm immediate or long-term for the at-risk population?
- How much would need to be consumed before causing harm?
- What are the food- and risk-related perceptions and behaviors of those at risk? Is there a perception or behavior associated with the food preparation or consumption that actually increases the risk?
- Among those who are at risk, as well as those who perceive themselves to be at risk, who is a trusted source for food safety information?
- Is there a public perception of risk, but little scientific evidence to support that perception?
- What are the gaps in knowledge about the risk, vulnerable groups, and appropriate safety practices?
- What are the potential unintended consequences of a misguided food safety recommendation?
- Is there an opportunity and/or a need to coordinate communication messages or tactics among various trusted sources of information?

poses an immediate and serious threat to public health are all crisis situations. It is important to communicate throughout all stages of a crisis.

The pre-crisis stage is the time to build credibility and trust with audiences. During the initial stage of a crisis, it is essential to communicate early and with empathy, and as the crisis matures, risk communicators must continue to provide reassurance, remain accessible to the media, revise, and update messages as necessary. Communicators also must coordinate with external networks and partners. Finally, in the resolution stage, communicate to all audiences when the situation is over and the risk has passed.

In a crisis situation, there typically is no time for new research (market or scientific), and communication mechanisms for delivering information are generally limited to those that can reach the greatest number of potentially affected people in the shortest amount of time. For example, it would be time-consuming to develop an advertising campaign about a *Salmonella* outbreak, whereas a press release to TV news stations may result in faster communication to affected audiences.

Because each situation poses different communication challenges, it is important to first understand whether the situation is a crisis or not. It is helpful to gather all available information and describe the situation based on what is known about it, the history of the problem, where it is happening now, who is affected and how they are affected, and why it concerns the organization. The side bar provides a list of helpful questions to ask when researching

the situation, and the *Key Resource* template at the end of the Appendix may be used to identify resources that can help answer them. From the information that is gathered, the communicator should write a short description of the situation, and, if necessary, reference where more details can be found. This understanding of the situation is the foundation for the initial risk communication response.

Goals

Based on the situation, establish no more than three communication goals, and even one is sufficient. A communication goal refers to a state of being that can be influenced by communication. The goals pertain to all communication efforts as a whole – not one activity or group. For example, a communication goal may be “to be the most trusted source of risk information regarding a particular food safety situation.” If there is a question whether a particular activity should be pursued, determine whether or not it supports the goal, and only those activities that support the goal should be implemented.

It is important to distinguish communication goals from non-communication goals. Non-communication goals are those that support other responses to the situation. They may focus on the scientific, medical, or regulatory responses. For example, “to reduce total annual foodborne illnesses from the year before” or “to update regulations based on current science” are non-communication goals. Food safety risk communicators, however, should be aware of the non-communication goals and ensure that the communication goals are consistent with them.

Audiences

After the situation is identified and the communication goals are established, the next step is to determine with whom communication will take place. In order to be most effective, risk communication should be targeted to specific groups of people or audiences. The key to successful risk communication is identifying these various audiences and knowing their characteristics, concerns, and needs. Original market research can be helpful in identifying and describing audiences, but in many cases the communicator will have to rely on secondary research, experience, and common sense.

Audiences are identified from the perspective of the communicator. The communicator should consider direct contact with audiences who may be directly affected or who may be able to effectively reach others who are affected. This may include, for example, journalists, regional public health departments, retailers and wholesalers, exporters, and other regulatory authorities. For example, from a government agency's perspective, regional health clinics may be an important audience during a disease outbreak because they can help communicate to adults who are more than 70 years of age, a vulnerable population. Other government agency audiences may be governmental in nature, such as global trading partners, or they may be non-governmental in nature, such as food importers and exporters, food retailers, distributors and manufacturers, food producers and handlers, and consumers. The audiences in the example *Food Safety Risk Communication Response Worksheet* at the end of this chapter

are identified from the perspective of a governmental agency.

The more segmented the audiences, the more targeted the risk communication can be, but not all situations allow for narrow audience segmentation. During non-crisis events, it may be possible to be more targeted (e.g., mothers with children between the ages of 0 and 5), but during a crisis event, getting the risk message communicated quickly to all consumers takes priority over developing separate communication strategies for each audience.

Once the audiences are identified, it is important to understand how each one views the specific risk being communicated. The communicator will work to understand the beliefs and cultural practices that may affect how receptive the audience will be to risk messages. Learn how each audience receives information, and identify their concerns. Some of this work can be done during the pre-risk or monitoring stage of the response process.

Audience perception of the food safety risk is especially important and also should be well-understood. Risk perception may or may not be shaped by facts related to the hazard and the probability of exposure, as scientists view them. Nonetheless, the emotionally driven consequences of exposure and the subjective evaluation of personal risk are quite powerful. As Peter Sandman, Professor Emeritus of Human Ecology at Rutgers and Professor of Environmental and Community Medicine at the Robert Wood Johnson Medical School, aptly points out, "The risks that upset people are completely different than the risks that kill people."

The better the communicator



"The risks that upset people are completely different than the risks that kill people."

— Peter Sandman, Professor Emeritus of Human Ecology at Rutgers and Professor of Environmental and Community Medicine at the Robert Wood Johnson Medical School



Key messages should be easy to understand. WHO's Five Keys to Safer Food⁴ are

1. keep clean;
2. separate raw and cooked food;
3. cook all foods thoroughly;
4. keep food at safe temperatures; and
5. use safe water and raw materials.

understands the different audiences, the easier it will be to develop meaningful and impactful messages.

Key Messages

In every situation there are usually no more than three key messages reiterated throughout the risk communication campaign to multiple audiences that address:

1. the issue/risk;
2. how to avoid or reduce risk; and
3. what will be done to prevent the risk in the future.

A summary of messages (e.g., message map) can help organize the key messages. The messages should take into account the emotional responses to a food safety event, empower people to make informed decisions, and encourage constructive, rather than negative, responses.^{2,3}

Keep in mind it is not enough to simply inform people of a risk. In order to prevent panic or unintended consequences, it is particularly important that communicators advise audiences how to reduce risk in clear, concise and easy-to-understand terms. For example, in the global campaign to encourage safe food storage and preparation in homes, WHO uses a key message titled Five Keys to Safer Food: 1) keep clean; 2) separate raw and cooked food; 3) cook all foods thoroughly; 4) keep food at safe temperatures; and 5) use safe water and raw materials.⁴

Based on what is known about the situation and about each audience, the communicator will determine which messages are most appropriate. For example, consumers will want to know about the risk, where the risk comes from, how to avoid

it or reduce its impact, and who it impacts the most and what to do if exposed to the risk. Industry representatives, on the other hand, will want to know how it affects their operations and the related regulatory impacts. Because protecting public health is primary, key messages commonly address the most important facts that consumers should know, for example:

- What has happened?
- What does it mean?
- Who may be affected?
- What should consumers do?
- Where can consumers get more information?

It is imperative to keep all messages consistent. They may vary in the level or type of details, but they should not contradict one another. Risk communication messages that conflict with one another will cause confusion, anger, and even panic. And in today's electronic world, communicators must assume that any message may reach any audience, whether or not that is the intention.

Finally, messages should be truthful, understandable, and believable. When developing messages, the communicator should always acknowledge uncertainty, ambiguity, or the unknown.⁵ During some situations, especially in the initial stages of a crisis situation, events often unfold faster than the facts can be collected, and the situation changes frequently, which can cause communications to lag. This, in turn, can cause confusion among affected audiences, or worse, instill mistrust in the communicator. In these situations, it is important that a clear, concise risk communication statement be made as soon as



possible based on whatever accurate information is available at the time. It is best to acknowledge that not all of the facts are known and explain what is being done to obtain more information; to remain silent or to try to conceal the ambiguity may be interpreted as deceptive and will jeopardize audience trust in the communicator.

Objectives

For each “audience,” determine the communication objective(s), or what it is that needs to be achieved. Communication objectives are either informational or motivational. Informational objectives focus on exposing the audience to information. To inform “Audience A,” an example of an informational objective is: to inform Audience A of the risk and how to avoid it. Note that exposure to the message does not necessarily indicate whether the

audience understands or has acted upon the information.⁶

Motivational objectives, on the other hand, focus on changing attitudes and influencing behavior. Examples of motivational objectives are: to stop the inaccurate news coverage of the issue; or to change the way food is cooked and stored.

For each audience, informational objectives must be achieved before motivational ones are attainable. This is not surprising since an audience must first be aware of the issue and understand it before there can be a change behavior. Because different audiences will have different levels of risk awareness, communication campaigns are likely to have both informational and motivational objectives.

Tactics/Actions

Tactics are specific tools used to deliver messages to audiences in



order to achieve the stated objectives. Like objectives and messages, tactics should take into consideration the intended audience and, to the extent possible, facilitate the multi-directional exchange of information between (and among) the communicator and the audiences.

There are numerous ways to communicate with audiences – word-of-mouth, professional networks, social networking (Facebook, Weibo, Twitter, etc.), advertising, print materials, TV, radio, and face-to-face meetings are just a few. However, not all tactics are appropriate for all audiences, so when choosing how to communicate, take into consideration the audience characteristics, objectives, and time constraints. It also is necessary to consider the communication budget, although this element is not discussed in this *Guide*.

Some audiences also can be included as tactics, depending on whether they are the final recipient of the message or a message delivery vehicle to reach another group. For example, it is common in food safety risk communication for government health agencies to use medical professionals to communicate risk messages to vulnerable populations. In this case, the agency would consider the medical professionals both as an audience that needs to be informed of the medical risks and symptoms, and as a tactic to communicate the information to vulnerable populations.

To determine whether a group is an audience or a tactic, remember audiences are made up of people capable of receiving and understanding messages, and tactics are message delivery mechanisms that can be human, but not always. The remainder of this chapter discusses news media and

social networks, two audiences that are also commonly used as tactics.

News Media and Social Networks

News media is both an audience and a tactic, depending on whether the reporters or the medium are the focus. For example, if news outlets are reporting inaccurate information, then the reporters who are writing the stories make up an audience that may be reached using tactics such as email, phone, interviews, editorial boards, or a post on a reporter's social network account. The actual medium or technology, on the other hand, such as television, radio, Internet, and print newspapers and magazine are tactics used to reach viewers, listeners, and readers. (Chapter 6 further discusses the news media and how to use it as a tactic during crisis and non-crisis food safety risk communication situations.)

Social networks also can be both an audience and a tactic. For example, if a government food safety agency has a Facebook account and uses it to regularly communicate with its followers, then the agency's followers make up an audience, and Facebook is the tactic used to communicate with them. On the other hand, if the agency wants to reach all consumers who are interested in food safety (the audience), it might use the tactic Twitter and the existing hashtag #foodsafety to reach this audience.

As a tactic, social networks have emerged as effective tools for communicating directly with consumers as well as members of the news media. Journalists, reporters, and consumers regularly look to social network channels for information that is “trending” with consumers to help provide story ideas. In addition,



engaging with different social networking platforms is essential to sharing your message with some audiences that previously might not have been accessible. With a well-established social networking presence, you can reach a large audience with your message in a matter of seconds.

One challenge of social networks is verifying the source or accuracy of information. As a result, misinformation can spread quickly. However, having a social network presence

allows you to participate in the conversation, dispel myths, and/or share additional information immediately in order to provide important balance to the dialogue.

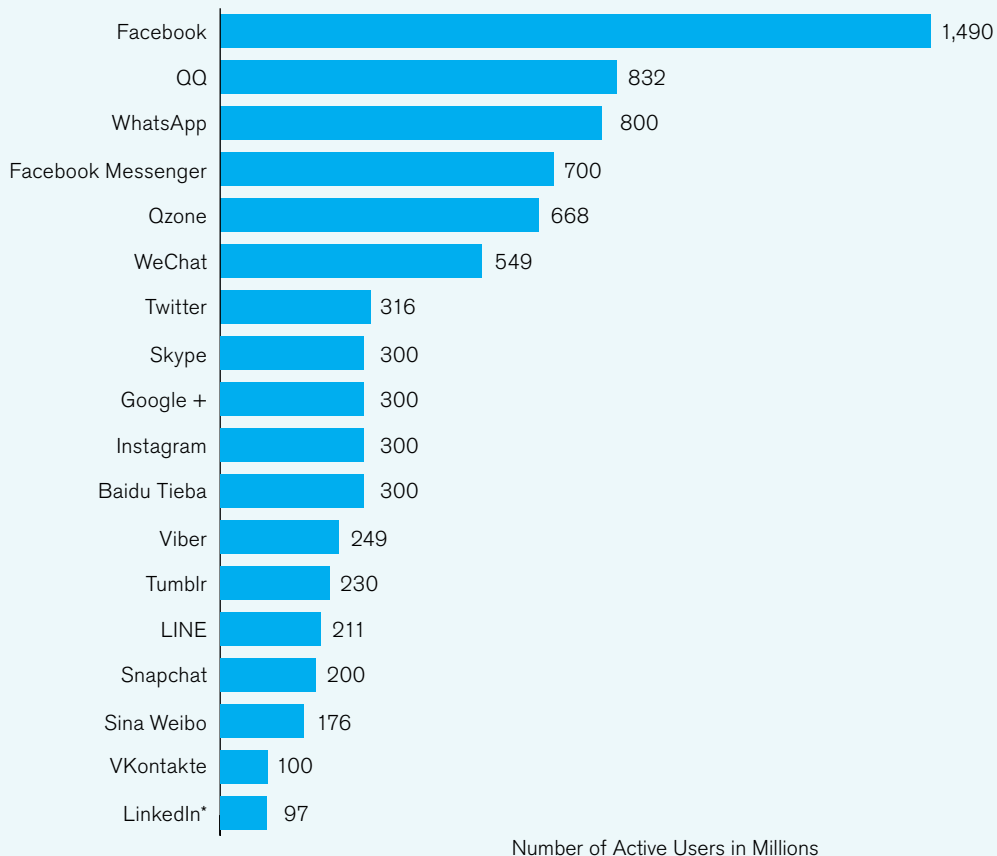
Communicators may be invited to participate in social network forums or “chats” on important or breaking food safety issues. They also may sponsor such events. The basic preparation for participation in these types of exchanges is similar to that of mainstream media: know

your messages, prepare for possible questions, and practice in advance. Being clear and succinct is especially important given the nature of the channels.

Communicators also may be asked to prepare blog posts for news/information sites on important food safety topics. Blog posts are less formal than traditional news articles, and generally call upon personal experiences and views of the author. But if writing as an official representative

Most Popular Social Networks Worldwide, August 2015 (ranked by number of active users)

Facebook, the first social network to surpass 1 billion registered accounts, is ranked first. Mobile instant messaging networks WhatsApp and QQ accounted for 800 and 832 million users respectively, and microblogging network Twitter was ranked seventh with more than 316 million monthly active accounts.⁷





of a government agency, it is important to obtain internal clearances as with other public communications. Regardless of the forum, the words that are expressed reflect official government guidance.

Social networks such as Facebook, Weibo, WhatsApp, QQ, and Twitter, among others, can be powerful tactics for multi-directional communication among audiences, but determining which one(s) to use takes time and planning. Before deciding which social network to use, review your agency's social media policy, if one exists, and also consider the targeted audience. If the primary target audience is men and women over 70 years old, a social network may not be the best way to reach this group. However, if the audience is caregivers, age 40-50, using a social network that is popular with this group may be helpful.

In order to be most effective, social networks require ongoing human and financial resources, and the communicator needs to constantly participate in the conversations. If social networks are to be used as a tactic, it is best to first research the various social network platforms available and identify the ones that best suit the organization's current food safety risk communication needs and resources. A list of the 18 most popular social networks worldwide, as of August 2015, is shown on page 17.

SUMMARY

The communication response framework is a strategic planning process that communicators use when faced with a crisis or non-crisis risk food safety situation, or potential situation. The six framework elements,

which are described below, are incorporated into an easy-to-use worksheet template titled, *Food Safety Risk Communication Worksheet*, in the Appendix. In order to strategically use the framework, the communicator must complete the worksheet.

1. The Situation
2. Goals
3. Audiences
4. Key Messages
5. Objectives
6. Tactics/Actions

Using the worksheet will ensure an effective and efficient food safety risk communication plan for incidences such as a food recall, a disease outbreak, a contamination event, or some other incident. Additionally in the Appendix are Best Practices for Effective Risk Communication that also can be used while implementing the Framework.⁸

In order to complete the Framework, we provide hypothetical examples of how to communicate information during crisis and non-crisis events to a variety of audiences, including the food industry, health professionals, consumers, and the media.

To the right is a fictional example of a food recall (*E. coli*). Additionally, in the Appendix are two fictional examples of how to communicate during a disease outbreak (Norovirus) and a contamination event (Heavy Metals).

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3. International Center of Excellence in Food Risk Communication. <http://www.foodriskcommunications.org>.
4. World Health Organization. Five Keys to Safer Food: http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/.
5. National Center for Food Protection and Defense. Best Practices for Effective Risk Communication: <http://www.ncfpd.umn.edu/Ncfpd/assets/File/pdf/NCFPDRiskCommBestPractices.pdf>.
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8. National Center for Food Protection and Defense. Best Practices for Effective Risk Communication: <http://www.ncfpd.umn.edu/Ncfpd/assets/File/pdf/NCFPDRiskCommBestPractices.pdf>



EXAMPLE (All information in this example is fictional)

FOOD SAFETY RISK COMMUNICATION RESPONSE WORKSHEET

(To be completed by food safety risk communicator)

COUNTRY "X"/Lead Communicating Organization: CXFSA

Last updated: August 25, 2015

Source: IFIC Foundation

Agency or person(s) completing this worksheet: **COUNTRY "X" FOOD SAFETY ADMINISTRATION (CXFSA)**

Circle the type of situation and Type of problem	Crisis or Non-crisis			
	Contamination	Disease outbreak	Food recall <i>E. coli O157:H7 in Food "Y"</i>	Other (specify) _____

Describe situation and problem to be remedied using communications:

- Food Y, with lot #12345z stamped in white ink on the front of package, and expiration date 8/20/15 stamped in white ink below the lot number, was sampled on 8/19/15 at a retail grocery store in City "Z". Test results completed today found the product to be contaminated with *E. coli* O157:H7.
- *Escherichia coli* O157:H7 bacteria (*E. coli* O157:H7). *E. coli* O157:H7 causes a diarrheal illness often with bloody stools. Although most healthy adults can recover completely within a week, some people can develop a form of kidney failure called Hemolytic Uremic Syndrome (HUS). HUS is most likely to occur in young children and the elderly. The condition can lead to serious kidney damage and even death.
- The source of the Food "Y" contamination is not yet known; CXFSA officials are investigating. However, known sources of *E. coli* are 1) contaminated food, especially undercooked ground beef, unpasteurized (raw) milk and juice, soft cheeses made from raw milk, and raw fruits and vegetables (such as sprouts); 2) contaminated water, including drinking untreated water and swimming in contaminated water; 3) animals and their environment, particularly cows, sheep, and goats. If you do not wash your hands carefully after touching an animal or its environment, you could get an *E. coli* infection; and 4) feces of infected people.
- No illnesses have been linked with this product as of 8/25/15. The incubation period is 1-10 days with the illness lasting 5-10 days. Most people are better in 6-8 days. If HUS develops, it usually occurs after about 1 week.
- Food "Y" is consumed by persons less than 2 years of age. "FM", the company that manufactures Food "Y", has agreed to issue a voluntary, nationwide recall of this product. They are instructing consumers who have the recalled product in their possession to return it to the place of purchase for a full refund. The company also is advising parents to contact their medical professional immediately if their child experiences symptoms.
- New mandatory "CXFSA" food safety regulations focusing on preventing food safety problems are now in place and enforceable. These rules include: a) mandatory preventive controls and increased inspections for food facilities; b) science-based, minimum standards for the safe production and harvesting of fruits and vegetables; c) authority to issue a mandatory recall, as well as mandate that food facilities keep particular records and trace foods as they move through the food chain; and d) authority to better ensure that imported products meet U.S. standards.

Risk Communication Goal(s):

- Ensure recall information is immediately distributed nationwide
- Ensure the company's communication accurately describes the risk and what consumers should do if they have been exposed or have the product in their possession

Key messages and supporting points: (Note: This section is based on the Fact Sheets in Chapter 5 and the Message Map template in the Appendix.)

Main Message #1: Do not consume "Food Y" with lot #12345z stamped in white ink on the front of package and expiration date 8/20/15 stamped in white ink below the lot number because it has the potential to be contaminated with *E. coli* O157:H7, a potentially dangerous bacteria.

Main Message #2: Protecting public health is our priority.

<p>Key Message #1: "Food Y" is intended to be consumed by infants and babies, who are especially vulnerable to kidney damage caused by the <i>E. coli</i> bacteria</p> <ol style="list-style-type: none"> 1. Symptoms, which include diarrhea, often with bloody stools, typically occur in 1-10 days after consuming the contaminated food. 2. The bacteria can cause serious kidney damage and even death in young children and the elderly. 3. Parents should contact their medical professional immediately if their child experiences symptoms. 4. The recalled product was distributed nationwide. 5. To date, no illnesses have been linked to this food recall. 	<p>Key Message #2: Immediate action can be taken to reduce risk of contamination</p> <ol style="list-style-type: none"> 6. Do not consume, or allow your child to consume, the recalled product. 7. The company is advising anyone with the recalled product in their possession to return it to the place of purchase for a full refund. 8. <i>E. coli</i> can be spread through feces, so wash hands before preparing food, after diapering infants, and after contact with animals and their living environment. 9. Consumers are reminded to clean, separate, cook and chill to prevent cross contamination in the kitchen. 	<p>Key Message #3: Much is being done to find the problem and prevent it from happening again</p> <ol style="list-style-type: none"> 10. The food manufacturer issued a recall and stopped the sale of all recalled product still in inventory. 11. The food company stopped production of "Food Y" until the issue has been resolved. 12. "CXFSA" investigators are inspecting the company's facility to find the source of the contamination. 13. New regulations give "CXFSA" the authority to use whatever means necessary to protect public health.
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Publicly Available Resources: More information about this recall is available at: *<insert link to copy of company news release>*.

Audiences <i>(complete table for those that apply in this specific situation)</i>	Audience's Concerns/Worries	Objectives <i>(What do we want to achieve?)</i>	Tactics/Actions <i>(How will we achieve it? How will we address their concerns/worries?)</i>
GOVERNMENTAL AUDIENCES			
<input type="checkbox"/> Internal: People within the "CXFSA"	<ul style="list-style-type: none"> What is the "CXFSA" doing? 	<ul style="list-style-type: none"> Inform "CXFSA" field office of test result and the company recall 	<ul style="list-style-type: none"> Post finding and recall in intra-agency bulletin
<input type="checkbox"/> Internal: Other federal govt. agencies in COUNTRY "X"	<ul style="list-style-type: none"> What is "CXFSA" doing? What is our role? How will it affect what we do? 	<ul style="list-style-type: none"> Coordinate with Country "X" Health Dept to receive latest update about related illnesses 	<ul style="list-style-type: none"> Include the recall on the agenda for the biweekly inter-agency conference calls until resolved.
<input type="checkbox"/> State, departmental, or provincial govt. agencies	<ul style="list-style-type: none"> What is the "CXFSA" doing? How will it affect what we do? Do we have a role? If so, what? And why? 	<ul style="list-style-type: none"> Notify all State health depts. of recall and test finding Provide state health depts. with company's distribution list for recalled product 	<ul style="list-style-type: none"> Use recall alert email to share information Email "FM's" product distribution list to state food safety officers
<input type="checkbox"/> Global partners: other countries' food safety and health agencies COUNTRY "X"	<ul style="list-style-type: none"> What is the problem? How does it affect our country? What is "CXFSA" doing to prevent it from affecting us? What do we need to do to protect our country? How can we work together to protect people in both countries? 	<ul style="list-style-type: none"> Inform of the issue Explain what is being done to reduce risk Minimize impact on trade 	<ul style="list-style-type: none"> Email recall alert to countries with which we have an agreement to share such information, or to those who may have imported the product. Review company's distribution list, identify countries to which the recalled product was shipped and immediately notify the food safety agencies in those countries.
<input type="checkbox"/> Other _____			
OTHER STAKEHOLDERS			
<input type="checkbox"/> Parents of babies and infants (vulnerable population) in the company's distribution area(s)	<ul style="list-style-type: none"> What is the issue? What should I do? How do I protect my child? Where do I get more info? 	<ul style="list-style-type: none"> Make aware of the issue and the risk, using main messages and Key Message #1. Inform parents of symptoms and what to do if their children show symptoms, supporting points 1-5 Empower parents to make informed decisions about how to reduce risk, supporting points 6-9. 	<ul style="list-style-type: none"> Post copy of company's recall announcement on "CXFSA" website, and provide link to FAQ section at http://www.cdc.gov/ecoli/general/ Use CXFSA social networks to communicate messages Appoint an "CXFSA" official available for media interviews Require retail grocery stores who sold the product to inform shoppers either by phone or by posting a notice in the store
<input type="checkbox"/> Foreign-speaking parents in the distribution area(s)	<ul style="list-style-type: none"> Same as above, but language needs and the ways information is received may be different 	<ul style="list-style-type: none"> Same as above Note publicly available resources in Spanish 	<ul style="list-style-type: none"> Translate company announcement and distribute to foreign-language TV and radio stations.
<input type="checkbox"/> Pediatricians/Health professionals in the distribution area(s)	<ul style="list-style-type: none"> What is the issue/risk? Who is most at risk? What are the symptoms? How are the symptoms treated? What should I do if I come in contact with someone who has symptoms? Where do I find more information? 	<ul style="list-style-type: none"> Provide information that will help them more quickly diagnose and treat exposed children. Main Message #1, Key Message #1, supporting point 1-5 and publicly available resources. 	<ul style="list-style-type: none"> Email recall announcement to pediatric associations and hospitals in the distribution area(s) Provide contact information at "CX" Health Agency who can answer doctor's questions.
<input type="checkbox"/> Day care facilities or care givers for infants and young children	<ul style="list-style-type: none"> What is the issue? What are the symptoms? What do I do if the child I'm caring for has these symptoms? 	<ul style="list-style-type: none"> Make aware of the issue and the risk, using main messages and Key Message #1. Educate about symptoms 1-2 and what to do 3, 6-9 	<ul style="list-style-type: none"> Write a special FAQ section on the "CXFSA" recall webpage that addresses parents, care givers' and day care facilities' questions and concerns.
<input type="checkbox"/> Food Manufacturer (FM)	<ul style="list-style-type: none"> What are my regulatory obligations? How do I comply with regulations? How do I notify consumers? How do I notify customers? 	<ul style="list-style-type: none"> Ensure company knows how to notify consumers of the risk Provide information about how to carry out an effective recall in the interest of public health Inform company of "CXFSA" authority, 13 	<ul style="list-style-type: none"> Provide the company with a link to the "CXFSA" online industry guidelines to issuing a recall. "CXFSA" recall coordinator will be available to answer company questions. Review company recall announcement to ensure proper risk communication components Require company to distribute announcement to at least one nationwide news wire service.



Key Resources for CXFSA Last updated: August 25, 2015 People, agencies or groups who may assist or inform us when needed (Alphabetical in each category)	
GOVERNMENT AGENCIES	
Centers for Disease Control and Prevention (CDC) (800) 232-4636 or (404) 639-3311; TTY (888) 232-6348 http://www.cdc.gov Twitter: @CDC_ehealth FDA Center for Food Safety and Applied Nutrition (CFSAN) Phone: (888) SAFEFOOD / (888) 723-3366 http://www.cfsan.fda.gov www.foodsafety.gov	USDA Food Safety and Inspection Service (FSIS) Phone: (202) 720-9113 http://www.fsis.usda.gov
COMMUNICATION	
IFIC Foundation Phone: (202) 296-6540 http://www.foodinsight.org/ @Foodinsight	
FOOD SAFETY ORGANIZATIONS	
Association of Food & Drug Officials Phone: (717) 757-2888 http://www.afdo.org National Association of State Departments of Agriculture (NASDA) Phone: (202) 296-9680 http://www.nasda.org/	International Association for Food Protection Phone: (800) 369-6337 http://www.foodprotection.org Institute of Food Technologists Phone: (312) 782-8424 http://www.ift.org
HEALTH/MEDICAL ORGANIZATIONS	
Academy of Nutrition and Dietetics (AND) Phone: (800) 877-1600 http://www.eatright.org American Academy of Pediatrics Phone: (847) 434-4000 http://www.aap.org	Food Allergy Research and Education (FARE) Phone: (800) 929-4040 http://www.foodallergy.org
FOOD AND AGRICULTURAL ORGANIZATIONS	
Grocery Manufacturers Association (GMA) Phone: (202) 639-5900 www.gmaonline.org Food Marketing Institute (FMI) Phone: (202) 452-8444 http://www.fmi.org	National Restaurant Association (NRA) Phone: (202) 331-5900 http://www.restaurant.org/Home
SCIENTIFIC ORGANIZATIONS	
Council for Agricultural Science & Technology Phone: (515) 292-2125 http://www.cast-science.org Food Allergy Research and Resource Program (FARRP) Phone: (402) 472-2833 http://www.farrp.org	Institute for Food Safety and Health Phone: (312) 567-3000 http://www.iit.edu/ifsh/
OTHERS (TBD)	



Food Safety Risk Communication Fact Sheets

Providing the public with accurate information and resources through risk communication can prevent potential food-related risks and at the same time ensure confidence and public trust. Importantly, strong, tailored messages may even decrease the risk of illness and death related to food safety issues. Sample Fact Sheets illustrate how key information can be shared with the public.

BUILDING A FRAMEWORK FOR SUCCESSFUL FOOD SAFETY COMMUNICATION

Communicating about food safety serves multiple purposes, with the ultimate goal being to protect the public from potential food-related risks while facilitating the delivery and availability of a wholesome, safe, and affordable food supply. Specifically, effective risk communication practices can build support for risk management plans, prevent the wasting of key resources, such as time, financial, and human resources, keep decision-makers well-informed, stop the spread of misinformation, ensure confidence and public trust, and even decrease the potential risk of illness and death related to food safety issues.

Risk Communication Basics

Risk communication efforts should be tailored to account for the public's

emotional response to a food safety event, empower people to make informed decisions, and encourage constructive, rather than negative, responses. In order to achieve these goals, the principles of food safety risk communication must be understood and put into practice by individuals and organizations across the food chain from producers to consumers.

As described in Chapter 4, risk assessment, risk management, and risk communication are interrelated. Risk communicators play an integral role in communicating recommendations, based on risk assessment and management components of the overall process. Food safety risk communicators must reach specific agencies, health professionals, food producers and handlers, and when appropriate, consumers. Furthermore, dialogue between stakeholders increases the likelihood of success in coordinating

5

FOOD SAFETY RISK COMMUNICATION FACT SHEETS

- Microbial Contamination
- Mycotoxins
- Norovirus
- Heavy Metals
- Food Defense
- Managing Food Safety Risks on the Farm

Effective risk communication can decrease the potential risk of illness and death related to food safety issues.

the entire risk analysis process. In short, risk communication is multi-directional, and a mutual exchange of ideas.

The Four Stages of Crisis Communication

An ongoing conversation is necessary. If dialogue happens only when there is a crisis, prevention will never be a reality. **Pre-crisis, initial, maintenance, and resolution** stages all require food safety risk communications, but different scenarios require different approaches. A crisis communication plan is essential for dealing with urgent food safety concerns, while a long-term communication plan must also be in place in order to strive for prevention of future crises, and to deal with enduring food safety risks.

- The **pre-crisis stage** is the time to build credibility and trust with the public, other stakeholders, and the media. Education and information will be most effectively delivered during times of low stress, and communicators have time to engage in message development and testing.

Although prevention of a crisis is a critical goal of risk analysis, a food safety crisis may nonetheless occur. During the **initial stage**, it is especially important to understand critical changes in what and how people hear information. In high stress situations, the number of messages a person can process decreases and there is greater difficulty in understanding complex information. They shift focus away from competence, expertise, and knowledge of the communicator and towards the communicator's apparent listening behavior,

caring, empathy, and compassion.

Prior preparation will facilitate the essential approach of communicating early and with empathy, describing what is known and not known as well as what actions are being taken, and conveying commitment to finding solutions and keeping the public informed.

- Beyond the first initial stage, risk communicators move into the **maintenance stage**, in which response is expanded. Communicators must continue to monitor the situation, remain accessible to the media, revise and update messages as necessary, and coordinate with external networks.
- As a crisis is resolved (**the resolution stage**), commitment to clear, accurate, consistent communication, as well as willingness to listen increases the likelihood that the crisis will continue to resolve and trust will be reinforced for the future. It is also important during resolution to evaluate the effectiveness of the response with key audiences.

Sample Fact Sheets for Effective Food Safety Communications

To illustrate how these concepts can be used as a framework for effective food safety communication, the following Fact Sheets will explore several examples of food-related risks and how information about them can be relayed to the public:

- Microbial Contamination
- Mycotoxins
- Norovirus
- Heavy Metals
- Food Defense

- **Managing Food Safety Risks on the Farm**

These Fact Sheets serve as examples to assist communicators. They include a short background on the issue and answer key questions important for food safety risk communications such as:

- What is it?
- How does it get into food?
- What is the risk to the public?
- What are the regulations?
- What is being done in the food system to ensure food is safe?

Food safety issues, however, can vary around the world. We encourage communicators to identify, research, and create or modify their own collection of Fact Sheets based on their respective country and global region needs and food safety concerns.

The following Fact Sheets, examples of potential risks associated to food, are to be utilized as examples of how food safety officials, regulators, communicators, and others effectively communicate food safety risks to maintain confidence and minimize any risk to public health.

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Food Safety Risk Communication Fact Sheet

Microbial Contamination

What is microbial contamination?

For most people, it is a stomachache. Each year, roughly one in six people in the United States get sick from eating contaminated food. Worldwide, an estimated 2 million deaths occur each year from unsafe food and drinking water. Microbial contamination can happen when a **pathogen** (illness-causing microorganism or germ) gets into the food or water we consume. Foodborne and waterborne pathogens/germs include bacteria, viruses, and parasites. Bottom line, people become sick when eating food that has been contaminated.

What is the risk to the public?

Most foodborne pathogens, while causing unpleasant symptoms like vomiting and diarrhea, will go away within a few days. However, some foodborne illnesses can be more serious, have long-lasting effects, or cause death. An example is **hemolytic uremic syndrome (HUS)**, which is a condition that results from the abnormal premature destruction of red blood cells. This may be due to a foodborne infection with a certain strain of *Escherichia coli* (*E. coli*) in contaminated meat or produce.

Some people are at increased risk of getting a foodborne illness. These vulnerable populations include the very young, the elderly, pregnant women and their unborn babies, and those with a weaker immune system because of disease or medical treatment. These individuals are more

likely to have a longer illness, require hospitalization, or even die. If you – or someone you care for – are in one of these high-risk groups, safe food selection and handling practices are of uttermost priority.

How does food get contaminated?

Food can be contaminated at any point from “farm to fork”— including while being grown or raised on the farm, during and after harvest, during packaging, processing, storage, and transport to market, in food-service and retail operations, and in our homes. Food can be exposed to pathogens through contact with contaminants in the air, water, soil, or other foods (“cross contamination”), and contact with infected humans or animals. These pathogens are invisible — we cannot see, smell, or taste them.

What are the regulations for protecting consumers?

Food producers, processors, transporters, and service operators follow many local, state, and federal Hazard Analysis and Critical Control Point (HACCP)-based mandatory regulations and/or voluntary guidelines.

These regulations and guidelines focus on developing, implementing and monitoring procedures and practices that prevent, eliminate or reduce risks from pathogens, and from other foodborne hazards (chemical, physical, and microbial).

Five specific practices and behaviors have been identified by the U.S. Centers for Disease Control and Prevention (CDC) as contributing factors in most foodborne illness outbreaks:

- food from unsafe sources;
- poor personal hygiene;
- inadequate cooking;
- improper holding;
- contaminated equipment; and
- cross-contamination.

Microbial Contamination

The U.S. Food Safety Modernization Act (FSMA) directs the U.S. Department of Agriculture (USDA) to focus more on preventing food safety problems, rather than reacting to problems after they occur. These rules include:

- Mandatory preventive controls and increased inspections for food facilities;
- Science-based, minimum standards for the safe production and harvesting of fruits and vegetables;
- Authority to issue a mandatory recall, as well as mandate that food facilities keep particular records and trace foods as they move through the food chain; and
- Authority to better ensure that imported products meet U.S. standards.

Inspections, both mandatory and voluntary, are conducted by the USDA, the Food and Drug Administration (FDA), and state and local health departments to ensure food is safe and wholesome.

What should consumers do to protect themselves from microbial contamination?

Clean

- Keep good personal hygiene by washing hands thoroughly before eating, preparing, handling, or serving food; in between handling different foods, especially after handling raw meat, seafood, or poultry; and after using the bathroom or changing a baby's diaper. If you are ill, especially if

experiencing vomiting, diarrhea, or a fever, avoid handling others' food and wash your hands often.

- Wash all equipment, utensils, and countertops with hot, soapy water before and after use, and especially between preparing raw meat, seafood, or poultry, and before preparing any other food.
- Wash all raw fruits and vegetables under running water before preparing or eating. Even if you plan to peel or remove the outer rind of produce before eating, it still is important to wash it first so dirt and bacteria aren't transferred from the knife onto the fruit or vegetable. If the package indicates that the contents are pre-washed and ready-to-eat, you can use the produce without further washing.

Separate

- Avoid cross-contamination by storing raw meat, poultry, and seafood separately, in a drip-proof container, and below raw produce and other ready-to-eat foods, like luncheon meat and cheese.

Cook

- Cook food to proper temperatures. This kills most bacteria and parasites.
- Use a thermometer to make sure the correct temperature is reached, even when using the microwave.

Chill

- Keep refrigerator at 40 °F or below and freezer at 0 °F or below.

- Store cold foods at 40° F or colder as quickly after purchase as possible, and within no more than two hours.
- Thaw foods in the refrigerator, instead of on the counter or in the sink.
- Quickly cool foods after cooking or serving.
- Know when to throw away prepared food or open packages. Safe time limits for home-refrigerated or frozen foods can be found at <http://www.foodsafety.gov/keep/charts/storagetimes.html>.

Following all of the safety steps above can help protect you and your family from the risk of foodborne illness. Just like you, food operators take steps to ensure the delivery of a safe and affordable food supply. They too use good personal hygiene practices, thoroughly clean equipment, properly store foods, hold cold foods at 40 °F or below, and cook foods to proper internal temperatures. They do all of this and more to keep foods safe.

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4. Partnership for Food Safety Education, FightBac - <http://www.fightbac.org/>
5. U.S. Centers for Disease Control and Prevention - <http://www.cdc.gov/foodsafety/>
6. World Health Organization, Five Keys to Safer Food Program - <http://www.who.int/foodsafety/consumer/5keys/en/>

Food Safety Risk Communication Fact Sheet

Mycotoxins

What are mycotoxins?

Mycotoxins are natural toxins produced by fungi, particularly molds. The presence of visible mold does not necessarily confirm the growth of mycotoxins. In fact, there are thousands of known mycotoxins, but only a few cause illnesses and/or economic losses through their effects in humans, animals, or crops. Some mycotoxins, or toxic molds, known to cause harm are: aflatoxins, deoxynivalenol/nivalenol, zearalenone, ochratoxin, fumonisins, putalin, and citrinin.

How do mycotoxins get into food?

Mycotoxin contamination of food is more likely to occur in hot, humid climates, and in areas where poor food handling and inefficient storage methods are prevalent. Mycotoxins can contaminate food and animal feed both in the field and post-harvest, as well as during handling, storage, processing, and distribution. In the field, insect infestation may be encouraged by drought or plant diseases. Insects and diseases damage crops, encouraging mold growth and the mycotoxins they may produce. At any stage of food handling or processing post-harvest, pest damage, excess moisture, and inadequate ventilation are a few of the factors that encourage mycotoxin formation and growth.

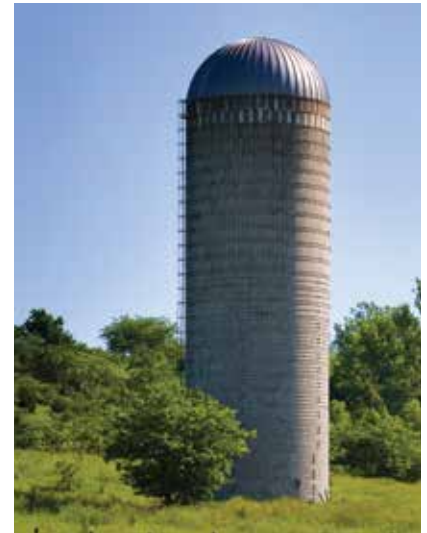
Mycotoxin contamination may cause economic hardship for farmers due to decreased yields or crop losses. Livestock consuming contaminated

feed may refuse feed, become ill, or even die. In some cases, however, livestock can develop tolerance to a particular mycotoxin resulting in the animal showing no sign of illness and enter the food supply undetected, potentially increasing the risk for human illness.

Various types of agricultural commodities are vulnerable to mycotoxin contamination including corn, wheat, sorghum, oats, barley, millet, rice, peanut products, rye, milo, cotton, and alfalfa. Foods such as coffee, cocoa, beer, and wine have also been reported to contain mycotoxins. Still, most of these foods are not contaminated with harmful levels of mycotoxins. As noted, mycotoxin levels are affected by handling practices, climatic conditions, the type of crops grown, storage facility for the product, the traditional production methods of the region, and the regulatory standards of the country of origin. Once in the food supply, mycotoxin contaminants are highly heat-resistant and difficult to destroy during food processing. To ensure the safety of both humans and animals, it is important to control the potential for mycotoxin contamination during all stages of the food chain.

What are the human health risks of mycotoxin contamination in foods?

People and animals may become ill from mycotoxins if contaminated food or feed are eaten. High levels of mycotoxins can cause adverse

**Key messages for the public**

- Avoid eating foods that are visibly moldy.
- The primary line of defense is to prevent or manage conditions that promote mold growth, such as controlling pests in the field and in storage, and temperature and humidity conditions in storage.
- Even with appropriate controls throughout the food supply chain, mycotoxins occur in nature and can still be present in foods. Regulations are in place to reduce the risk of mycotoxin contamination and to detect it when it occurs.
- Ongoing research and risk analysis programs are in place to continually improve prevention and detection.

Mycotoxins

health effects to human and animal populations ranging from immediate or long-term, and mild to serious conditions. Certain mycotoxins may decrease liver and kidney functions, or may harm the central nervous, cardiovascular, or pulmonary systems. In severe cases, mycotoxins may cause birth defects or even death. Some mycotoxins are suspected of being cancer-causing and can reduce resistance to infectious diseases. Although illness from mycotoxin-contaminated food is unusual in the United States, it is a significant global food safety concern, particularly in developing countries with hot, humid climates.

What are the regulations regarding mycotoxins in foods?

Controlling mycotoxin contamination of human and animal food is a priority for global agricultural and food markets. Regulations vary among countries, specific mycotoxins, and specific foods. More than 100 countries have established legislation or regulations for maximum limits of mycotoxins in the food or feed supply. Although there is no international standard for mycotoxin regulation, some countries such as the United States have strict standards for domestic and imported food and feed. The U.S. Food and Drug Administration (FDA) regulates mycotoxin limits. International agencies are advocating for universal regulatory standards and recognize many factors must be considered when establishing standards.

The first priority is to protect the health and well being of the public. Current research criteria for sampling methods, establishment of contaminant levels, and the need for

an adequate food supply may contribute to the implementation of globally acceptable mycotoxin regulations.

Complications related to the regulation of mycotoxins include the following:

- Several mycotoxins may exist in the same product;
- Mycotoxin limits may require multi-tiered action levels;
- Mycotoxins present in the supply chain may not yet have been identified as contaminants; and
- Detection is limited to the available technology and resources.

For these reasons, current and future research initiatives to prevent and detect mycotoxin contamination throughout the food system will benefit domestic and global markets.

What is being done in the food supply chain to ensure food is safe regarding mycotoxins?

Mycotoxins can be reduced but not totally eliminated from the food supply chain. The primary line of defense is to increase practices that minimize contamination among growers, producers, processors, and handlers. Implementing an effective food safety risk assessment program at each stage of the supply chain can help to minimize mycotoxin contamination.

Control measures to minimize mycotoxin contamination include implementing good agricultural practices (GAP) and good manufacturing practices (GMP). GAPs include controlling pests and diseases in the field and during storage, appropriate drying, and maintaining the optimal moisture level in storage for the agricultural commodity. Keeping the

product dry in areas of high humidity, such as in the tropics, may be challenging. As foods move through the supply chain, GMPs similarly include pest control and sanitary standards that discourage pest infestation or mold growth. At any stage from field to the consumer's plate, moldy food should be avoided.

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3. Food Mycotoxins - <http://www.ift.org/Knowledge-Center/Read-IFT-Publications/Science-Reports/Scientific-Status-Summaries/Food-Mycotoxins.aspx>

Food Safety Risk Communication Fact Sheet

Norovirus

What is norovirus?

Norovirus is a very contagious virus. It is the leading cause of reported foodborne illness outbreaks in the United States and the leading cause of acute gastroenteritis (vomiting and diarrhea), including about 20 million cases each year. Symptoms begin one to two days after contact with the virus and usually last for two to three days. During that time, this virus can cause extreme illness with vomiting and/or diarrhea many times a day. Some people can become severely dehydrated, especially the elderly and young children.

What is the risk to the public?

Norovirus is a risk to the public because it easily spreads and is hard to destroy. While ill with norovirus, people can shed billions of virus particles via human waste, and it only takes a small amount of the virus—a few droplets—to make another person sick. Norovirus can survive on common surfaces, like doorknobs, equipment handles, and keyboards, for weeks. It also survives all sanitizers and some disinfectants, making it hard to remove. An ill person who works with food can, without meaning to, make many people very ill by touching food or drinks.

How does norovirus get into food?

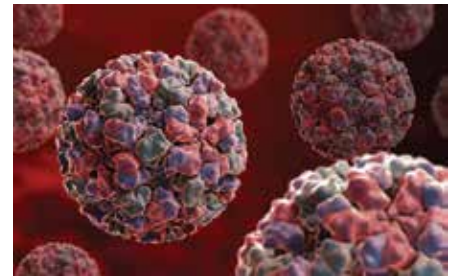
The most common way to get norovirus is coming into close contact with a person who is ill with

norovirus. About 70% of food-related norovirus outbreaks happen when an infected food worker prepares food. Norovirus can contaminate food when:

- Infected food or farm workers neglect to wash their hands thoroughly after using the bathroom or vomiting, then directly touch food or drinks.
- Surfaces, such as counters or utensils, are touched by an infected person, which then comes into contact with food, drinks, or another food handler's hands.
- Vomit, even tiny droplets, from an infected person travels through the air and lands on food or surfaces that touch food (such as when a food worker vomits in the food production area).
- Food comes into contact with water contaminated with human waste, such as crops were irrigated with or seafood harvested from contaminated waters.

What regulations and practices are in place to prevent contamination of food with norovirus?

Food producers, processors, transporters, and foodservice operators follow many local, state, and federal regulations and guidelines, such as those based on the Hazard Analysis and Critical Control Point (HACCP) system. The U.S. The Food and Drug Administration (FDA) recommends a



How can consumers protect themselves and others from norovirus?

- Wash hands thoroughly with soap and water before handling, preparing, or eating food.
- Wash hands thoroughly after vomiting, using the bathroom, or changing diapers.
- Avoid preparing food or caring for others when sick with symptoms of norovirus, including vomiting and diarrhea, and for at least two to three days after recovery.

Norovirus



three-part approach to prevent norovirus outbreaks:

- Everyone who comes into contact with food should frequently and thoroughly wash his or her hands with soap and water.
- Prevent the bare hands of food handlers from touching ready-to-eat or ready-to-serve foods. Food handlers should wear gloves.
- Food handlers should stay home when they are ill with foodborne illnesses or specific symptoms. The employer should have a system in place for ill food handlers to report their illnesses and symptoms.

In addition, ensuring safe food includes:

- Purchasing foods from sources that are safe and in compliance with current food laws.
- Carefully washing produce before preparing, serving, and eating.
- Thoroughly cooking foods, then holding these foods at safe temperatures.

If food preparation, food service, or dining areas become contaminated, rigorous cleaning and disinfecting procedures are needed to prevent the spread of the germs and remove any bodily fluids that may not even be visible. The FDA recommends food-service operations have a procedure in place and employees trained to address such a problem. These guidelines include stopping all food preparation and service, wearing personal

protective equipment while cleaning the area, and using a disinfectant that is effective in killing norovirus (standard foodservice and home sanitizers do not kill norovirus). The process should minimize the spread of germs and these body fluids to other surfaces or areas. Resources for developing a body fluid clean-up procedure, guidelines for home clean-up, and effective norovirus disinfectants are provided below.

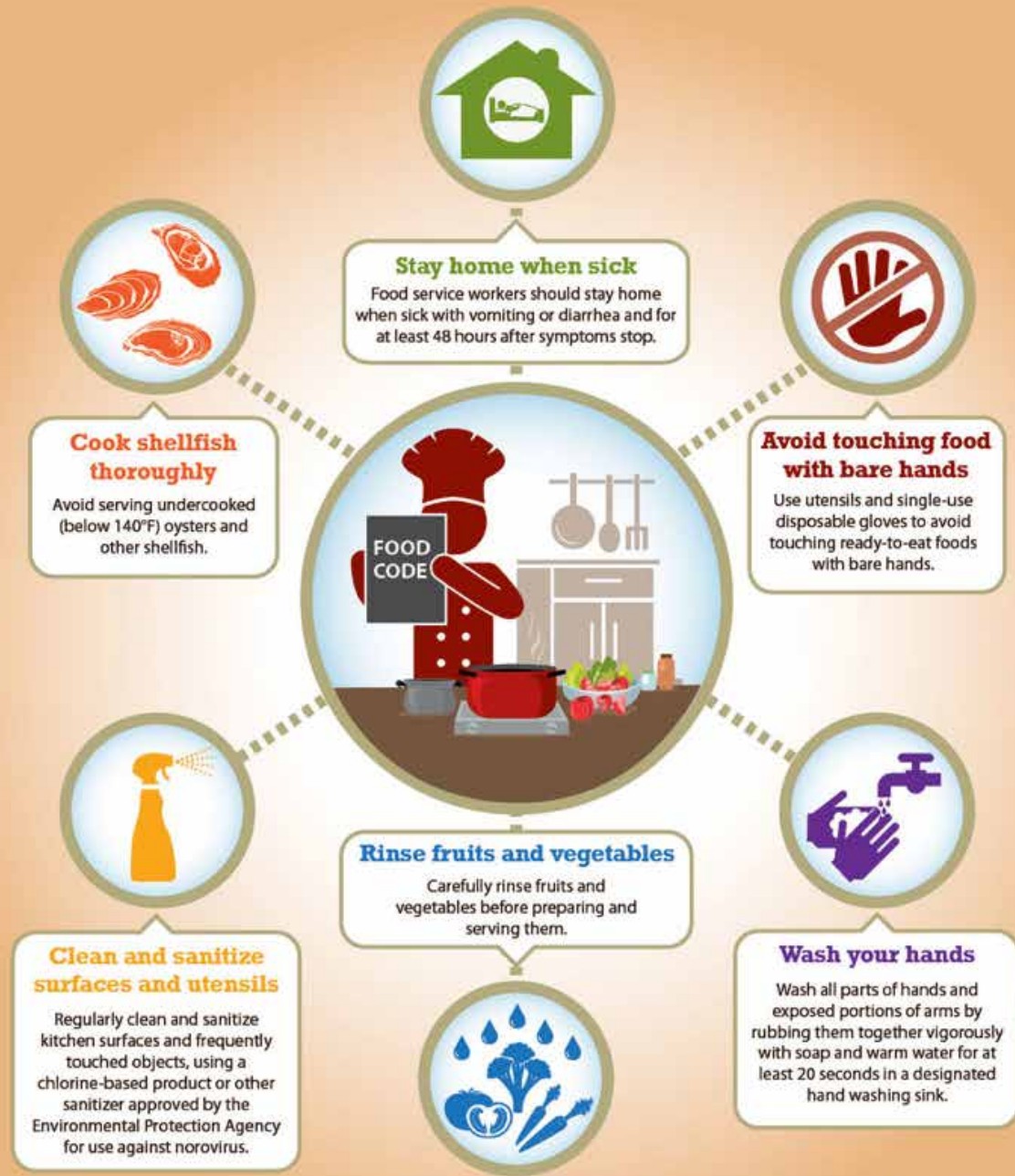
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3. NoroCORE Food Virology at North Carolina State University - <http://norocore.ncsu.edu/>
4. European Food Safety Authority, Scientific Opinion on Norovirus in Oysters - <http://www.efsa.europa.eu/it/efsajournal/pub/2500>



Ways to prevent norovirus outbreaks from food contamination

Kitchen managers should be trained and certified in food safety and ensure that **all food service workers follow food safety practices** outlined in the **FDA model Food Code** and **CDC guidelines**.



SOURCES: US Food and Drug Administration, Food code, 2013, <http://www.fda.gov/foodcode>, MMWR, March 4, 2011.

Food Safety Risk Communication Fact Sheet

Heavy Metals



Certain heavy metals, including methylmercury, arsenic, lead, and cadmium, have been identified as food-related hazards by multiple health and food safety authorities worldwide. Regulations, food industry practices, and monitoring activities are in place in many nations worldwide to ensure that exposure to these heavy metals remains within safe limits and to initiate actions to reduce exposure where necessary.

What should I do to reduce my dietary exposure to heavy metals?

- Eat a varied, balanced diet to reduce risks associated with exposure to heavy metals.
- Eliminating individual foods or food groups will not completely eliminate exposure to heavy metals. Conversely, the benefits of consuming a variety of foods from food groups such as seafood, fruits, vegetables, and whole grains that may contain trace amounts, outweighs any potential risks from heavy metals.
- Use cookware that is manufactured for daily use.
- Infants would benefit from eating a variety of grains as first solid foods, rather than eating only one type.

Methylmercury

What is it? How does it get into food?

Methylmercury is an organic compound that exists naturally in the environment and also can be released into the environment. It is present in streams, lakes, and oceans, is eventually absorbed by fish during feeding, and, over time, accumulates in its muscle tissue.

What is the risk to the public?

High levels of methylmercury can harm the developing brains and nervous systems of children (U.S. Environmental Protection Agency (EPA), 2014). Although a link between coronary heart disease and methylmercury consumption has been suggested previously, current evidence does not support such an association (World Health Organization (WHO), 2010). There is no data linking methylmercury exposure in humans to cancer, although current data is limited (EPA, 2014).

What are the regulations regarding methylmercury in foods?

In the United States, the Food and Drug Administration (FDA) regulates both domestic and imported seafood products. The FDA sets limits on the amount of methylmercury that seafood can contain. All fresh and saltwater fish, finfish, crustaceans, and mollusks can have no more than 1.0 parts per million (ppm) of methylmercury.



Heavy Metals

What is being done in the food system to ensure food is safe?

In the United States, the FDA works with state regulators to ensure that commercial fish caught and sold locally do not have methylmercury levels above 1.0 ppm.

Arsenic

What is it and how does it get into food?

Arsenic occurs in both organic and inorganic forms in water, air, food, and soil. It is naturally present in very small amounts in most foods, including water. The inorganic form is more toxic, but is rapidly excreted in urine. Arsenic, naturally present in soil and water, is absorbed into most plants.

What are the regulations regarding prevention of contamination and hazardous levels?

The EPA has set a limit of 10 parts per billion (ppb) for the concentration of arsenic in bottled and municipal water. One ppb is equal to a single drop of water in an Olympic-sized swimming pool. A limit of 10 ppb of inorganic arsenic has been proposed for apple juice, although the recommended intake of arsenic concentrations found in for 100% fruit juice is much lower than for water.

What's being done in the food system to ensure food is safe?

In response to concerns about arsenic in rice, the FDA increased testing of rice and rice products in order to conduct a risk assessment of the long-term effects of arsenic exposure through rice. The FDA has been measuring and tracking total arsenic

concentrations in foods through the Total Diet Study program since 1991. FDA has found no reason to change food or beverage regulations based on its ongoing assessment. Still, a variety of grains, versus only rice for young infants, are encouraged.

The rice industry is conducting research to understand whether different growing methods may reduce arsenic uptake from the soil or different processing methods may reduce the arsenic content of rice post-harvest.

Lead

What is it and what is the risk to the public?

Lead is a naturally-occurring toxic substance found in very small amounts throughout the environment. The small amounts individuals are exposed to from their diet do not pose a significant public health concern, but exposure to larger amounts can harm the central nervous system, the kidneys, and the immune system. Even small amounts from the environment of chronic lead exposure in children are associated with health concerns, including cognitive impairment.

How does it get into food?

Lead is present in soil and absorbed by plants. Washing and other processing steps cannot eliminate 100% of lead, as so many foods do contain lead in trace amounts (ppb). Lead can also pass into food through lead-based cookware and some types of traditional ceramic cookware.

What are the regulations regarding prevention of contamination and hazardous levels?

U.S. Food and Drug Administration
"Fish: What Pregnant Women and Parents Should Know"

<http://www.fda.gov/Food/FoodborneIllnessContaminants/Metals/ucm393070.htm>

Heavy Metals

The United States has set mandatory and voluntary limits for specific foods, food products, and food ingredients based on levels shown to be hazardous to health. FDA has established regulatory limits for bottled water and sugar, and provided recommendations for candy likely to be consumed by small children, candy wrappers, and juice. There are currently no specific limits for baby food or canned foods because data from FDA surveys have shown these foods do not have lead levels above the FDA's tolerable intake levels:

"FDA assesses the significance of lead levels found in food on a case-by-case basis. In the July 2010 survey, none of the juices or other foods tested by FDA contained levels of lead above FDA's current tolerable intake levels. The lead levels that FDA has historically found in foods like carrots and sweet potatoes that can be used as ingredients in baby food have mean levels of 15 parts per billion or less and are below FDA's current tolerable intake levels."

(<http://www.fda.gov/Food/FoodborneIllnessContaminants/ Metals/ucm233520.htm>; last updated in Nov. 2011)

What's being done in the food system to ensure food is safe?

For decades, FDA has been monitoring the levels of lead in the food supply through annual and other routine testing. A major focus is on food products commonly consumed by children, which includes baby foods, fruit juices, and canned fruits and vegetables. Like arsenic, the Total Diet Study also tracks lead levels in food.

Cadmium

What is it and what is the risk to the public?

Cadmium is a mineral naturally present in the earth's crust and throughout our environment, where it often combines with other elements like oxygen, sulfur, and chlorine. It is released into the environment through human activities such as smoking cigarettes and mining operations, as well as through natural activities including wind and rain activity, forest fires, and volcanoes. Soil, rocks, and fertilizers can contain cadmium. Eating foods contaminated with levels of cadmium far above regulatory limits may cause stomach irritation, vomiting, and diarrhea.

How does it get into food?

Plants absorb cadmium through the soil. It can also be taken up by animals and seafood from their environment. While low levels are present in all foods, shellfish, liver, and kidney meats have the highest levels of cadmium in food. Drinking water can also become contaminated with cadmium.

What are the regulations regarding prevention of contamination and hazardous levels?

In the United States, EPA and FDA have set exposure limits for water and food at levels far below safe limits. Lifetime exposure to 0.005 ppm cadmium is considered the limit. EPA has determined that exposure levels are not expected to cause any adverse health effects.

What's being done in the food system to ensure food is safe?

Bio-monitoring studies help set limits for the levels of cadmium in foods and beverages and guide additional research on exposures and health outcomes.

What are the recommendations to limit the amount of cadmium in our diet?

Eat a balanced diet with a variety of foods to keep cadmium levels low. Certain foods including shellfish, liver, and kidney meats, are known to be higher in cadmium.

RESOURCES AND REFERENCES

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Food Safety Risk Communication Fact Sheet

Food Defense



What is food defense?

Food defense is a process to assess vulnerabilities and establish procedures to protect our food supply from *intentional* contamination on local, national, and international levels.

What should consumers do to protect themselves from intentional food contamination?

It is highly unlikely that you would ever purchase food that had been intentionally contaminated, but to further reduce risk, here are a few steps you can take:

- Purchase foods from sources that are safe and in compliance with current food laws.
- Inspect the packaging of all food products and do not purchase or consume if the packaging or labeling has been removed, damaged, or altered.
- Carefully wash produce before preparing, serving, and eating.
- Thoroughly cook and hold foods at safe temperatures.
- Know symptoms of illness related to tainted food, whether intentional or not, may include vomiting, diarrhea, stomach pain, or cramps. Additionally, take the following steps:
 - If you or family member becomes ill, seek treatment immediately.

- If you suspect the illness is related to a food, save the product, packaging, and purchase receipts.

- If you suspect it is related to intentional tampering, contact your local law enforcement agency or health department.

What is the risk to the public?

Food and water are critical to our survival and the survival of livestock and domestic animals. As with any unintentional food-related outbreak, an attack on the food supply could affect the health of many individuals and disrupt the availability of specific food products. In addition, such an event would have a major economic effect and weaken our confidence in the food supply and those companies and government agencies tasked with its protection.

How might food be intentionally contaminated?

Food can be contaminated at any point throughout the food chain. Hazards to the food supply that cause illness, injury, or death may include those that are biological, chemical, physical, or radiological in nature. Efforts to prevent these hazards from coming into contact with food take into account numerous means by which contamination could occur, and are focused on foods sold within the country of origin, as well as those exported to other countries.

Food Defense

What is being done to protect my food?

Food defense is an important part of any food protection and food safety plan. Food producers and handlers address potential hazards and vulnerabilities of food through Standard Operating Procedures (SOP) that include safe food handling as well as monitoring to reduce or eliminate both accidental and intentional hazards. Additional safeguards for food defense include public/private foodborne illness outbreak monitoring systems. As groups of illnesses are detected, whether intentional or unplanned, actions can be taken to implement food recalls and investigate the cause(s).

In the United States, food producers, processors, transporters and food-service operators follow many local, state, and federal Hazard Analysis and Critical Control Point (HACCP)-based mandatory regulations and/or voluntary guidelines.

- On the farm, Good Agricultural Practices (GAPs) include pre-harvest practices such as protecting the quality and cleanliness of the soil and water, ensuring good personal hygiene of agricultural workers. Good Handling Practices (GHPs) on the farm also involve employee hygiene and packing facility sanitation.
- In manufacturing, processing, packaging, and storage facilities, Current Good Manufacturing Practices (CGMPs) employ both training for and monitoring of safe food handling and personal hygiene. Also in manufacturing,

Hazard Analysis and Risk-based Preventive Controls (HARPC), a comprehensive approach to standard operating procedures, is used. It involves the following steps:

1. Identification of hazard;
 2. Risk-based preventive controls;
 3. Monitoring effectiveness;
 4. Corrective action;
 5. Verification;
 6. Record keeping and documentation; and
 7. Requirement to reanalyze.
- In foodservice and retail operations, good retail practices (GRPs) minimize the risk factors, such as poor employee hygiene, that commonly lead to unsafe food, and require demonstrated knowledge of such requirements by the manager in charge.
 - Inspections, both mandatory and voluntary, are conducted by the U.S. Department of Agriculture (USDA) and FDA, and by state or local health departments to ensure food is safe and wholesome.

The U.S. Food Safety Modernization Act (FSMA) adds an additional layer of preventive controls by identifying, quantifying, and prioritizing the vulnerabilities in food systems. In addition, it strengthens laws for inspections, registration of food facilities, maintenance of records, recall procedures, and advance notice of import shipments. To support these requirements, FDA provides

tools and resources to guide owners and operators of food facilities in the development of a broad food defense plan and in the training of management and staff in food defense protocols.

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3. National Center for Food Protection and Defense - <https://www.ncfpd.umn.edu/>
4. USDA - <http://www.fsis.usda.gov>
5. U.S. EPA - <http://epa.gov>
6. U.S. FDA - <http://www.fda.gov/food/fooddefense/default.htm>



Food Safety Risk Communication Fact Sheet

Managing Food Safety Risks on the Farm

Certain food safety risks are most effectively managed when they are prevented at the source—on the farm—with effective risk management continuing throughout the food supply chain. Zoonotic diseases (those that are transmitted from animals to humans), antimicrobial resistance, and pesticide residues are different examples of potential food safety hazards, that can pose different levels of risk through food, but all must be managed judiciously.

Key Messages for the Public

- Globalization of food trade and a growing world population increase demand for food, and also increase the complexity of the system that must deliver food safely.
- Food safety efforts require a farm-to-table approach with collaboration among industry, regulatory agencies, and public health officials to identify, assess, and control hazards associated with each segment of the food production system.
- The majority of zoonotic diseases, including bovine spongiform encephalopathy, foot and mouth disease (FMD), and avian influenza, do not pose a threat to human health via food.
- Regulation is evolving to ensure that the use of antibiotics to maintain the health and safety of

food-producing animals does not threaten the usefulness of antibiotics to treat disease in humans. Of greater concern is overuse in human treatment, which is also being addressed in the medical community.

- Strict regulations for the use of pesticides on the farm helps to ensure that the level of exposure through residues on foods is well within safe limits to protect public health.
- The majority of food-related illnesses are preventable if food safety principles are understood and practiced from farm to table.

Zoonotic Diseases

Certain zoonotic diseases are not a significant threat to human health through food, yet these diseases still present a global threat to animal health. Therefore, it is important for farmers and ranchers to employ on-farm risk management practices to protect their herds and flocks.

For example, it is clear that **foot and mouth disease** (FMD) is not a threat to human health, and that humans cannot contract the disease through consumption of meat, dairy products, gelatin, or other animal-derived products. However, it is a debilitating viral disease to animals both in the wild and on the farm worldwide. It affects cows, pigs, sheep, goat, and other divided-hoof animals, and can



Managing Food Safety Risks on the Farm

be spread by animals, people, or materials that bring the virus into physical contact with susceptible animals. The United States has been free of FMD since 1929, and the U.S. Drug Administration (USDA) and other U.S. federal agencies provide stringent safety measures to stay FMD-free.

Bovine spongiform encephalopathy (BSE) is a rare disorder affecting the brains of cows. There are other forms of the disorder that affect many other animal species. Because there is some evidence that a human disease, variant Creutzfeldt-Jakob disease (vCJD), may be related to consumption of products from animals infected with BSE, the U.S. Food and Drug Administration (FDA) and USDA, as well as governments around the world, have taken significant steps to protect cows from BSE.

Avian influenza is another significant disease globally that affects ducks, geese, and chickens, but does not appear to be transmitted to humans through food.¹ According to the CDC, it is possible that the virus could mutate into a human strain of influenza. There have in fact been rare cases outside the United States in which people have become sick with a form of avian influenza, although it is believed that they were infected through inhalation of the virus or from touching infected birds and then touching their mouths. Importantly, according to the USDA, CDC, and FDA, proper handling and cooking provides protection against avian influenza, just as it protects

against other viruses and bacteria such as *Salmonella* and *E.coli*.

Antimicrobial Resistance

There are concerns in the food safety community that the routine usage of animal drugs to treat, control, or prevent animal diseases may be contributing to animal and/or human antimicrobial resistance. Antimicrobial resistance may develop when bacteria or other microbes are exposed to excessive amounts of antimicrobial drugs repeatedly. There is concern that overuse or misuse of the antimicrobial drugs in animals could potentially contribute to increases in antimicrobial resistance of the very pathogens that cause foodborne illnesses in people.

Antimicrobial resistance in animals may threaten public health if people eat or handle food contaminated with resistant pathogens or when individuals come into direct or indirect contact with waste from an animal carrying resistant pathogens. Global and national efforts to ensure judicious use of these drugs in humans and preventative use in animals are also underway.

Because preservation of the effectiveness of antimicrobial drugs is vital to protecting human and animal health, the National Antimicrobial Resistance Monitoring System (NARMS), the U.S. Centers for Disease Control (CDC), the USDA, and the FDA are working collaboratively to monitor and preserve the effectiveness of medically important antimicrobial drugs used in food-producing animals. For example, the

FDA has withdrawn the approval of fluoroquinolones for use in poultry; prohibited the off-label use of fluoroquinolones and cephalosporins in cattle, swine, chickens and turkeys; and is promoting the judicious use of medically important antimicrobial drugs in food-producing animals. In addition to actions taken at the farm level to reduce the risk of increasing resistance of foodborne pathogens to antimicrobial drugs, consumers can still take action to protect themselves by ensuring that meat is cooked to appropriate temperatures to kill any harmful microbes that may be present.

The World Health Organization (WHO) also is scaling up efforts to raise awareness and understanding about, and to address, antimicrobial resistance, including through the release of “10 Facts on Antimicrobial Resistance” and has developed a draft global action plan to combat antimicrobial resistance for consideration by the World Health Assembly. The World Organisation for Animal Health (OIE) and the Food and Agricultural Organization of the United Nations (FAO) also are promoting best practices.

Pesticide Residues

Pesticides have been used in crop production for decades and play an invaluable role in protecting and sustaining the food supply. If used inappropriately or excessively, however, pesticides can cause unintentional damage to humans, animals, and the environment. The umbrella term “pesticides” encompasses a



Managing Food Safety Risks on the Farm

variety of crop protection products used to control unwanted pests such as, insects, rodents, weeds, bacteria, mold, and fungus.

Pesticide residue refers to the pesticides that remain on or in food crops after harvest. Dietary exposure most commonly occurs through consumption of these foods or from being within environments treated with pesticides. Because the deleterious health effects of pesticide exposure depends on the amount and type of pesticide, the EPA, USDA, and FDA cooperatively monitor, regulate, and enforce the maximum (or tolerance) level of pesticide residue that is legally permitted in or on a food, feed, or food constituents. In 1996, the U.S. Food Quality Protection Act (FQPA) was enacted, mandating stricter safety standards, especially for infants and children, and requiring reassessment of all existing pesticide safety levels. Nevertheless, and even though residues tend to decline as the pesticide breaks down over time, consumers are encouraged to wash produce under running water, scrub hardy produce, and peel away outer leaves in order to remove surface microorganisms, dirt, and remaining pesticide residues.

Summary

Collectively, zoonotic diseases, antimicrobial resistance, and pesticide residues illustrate the importance of food safety risk management on the farm. Foods can become contaminated at any stage of the food production process, and some of these threats cannot be controlled by

consumers. However, while there is an inherent risk associated with consumption of any food, the majority of food-related illnesses are preventable if food safety principles are understood and practiced from production to consumption. Therefore, ongoing collaboration among regulatory agencies, public health officials, veterinarians, and other food safety experts are essential for implementing a farm-to-table approach that focuses on prevention of potential food safety issues and agricultural health threats.

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3. IFIC Foundation. IFIC Review: Pesticides and Food Safety. http://www.foodinsight.org/IFIC_Review_Pesticides_And_Food_Safety.
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10. World Health Organization, draft Global Action Plan on Antimicrobial Resistance - http://www.who.int/drugresistance/global_action_plan/en/
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Guidelines for Interacting with the News Media

One of the most effective ways to communicate with the general public is through the media. Having a media-outreach plan ready is vital in both crisis- and non-crisis situations.

The news media provide a critical channel for reaching the public with important information. Good communication between communicators and journalists is mutually beneficial: The communicator needs to share specific messages with consumers, and journalists want to be the first to release breaking news with experts adding credibility to news stories. Interactions with the media fall, including during a food safety crisis, into three different categories – planning, preparing to communicate through media, and communicate – each of which will be discussed separately below.

Food Safety Crises

Clear, timely communication between communicators and media outlets is critical in situations where there is a risk to public safety. In the event of a food recall or food-related situation that threatens health,

communicators need the media to disseminate information quickly to protect the public. The diagram below outlines several basic considerations as a communicator prepares to reach out to the media in a food safety crisis.

1. Planning: Planning is the basis for efficient communications during crises when time is critical. Many tasks can be completed and chains of command determined in advance resulting in swift responses and solutions for the public.

Communication teams should agree in advance:

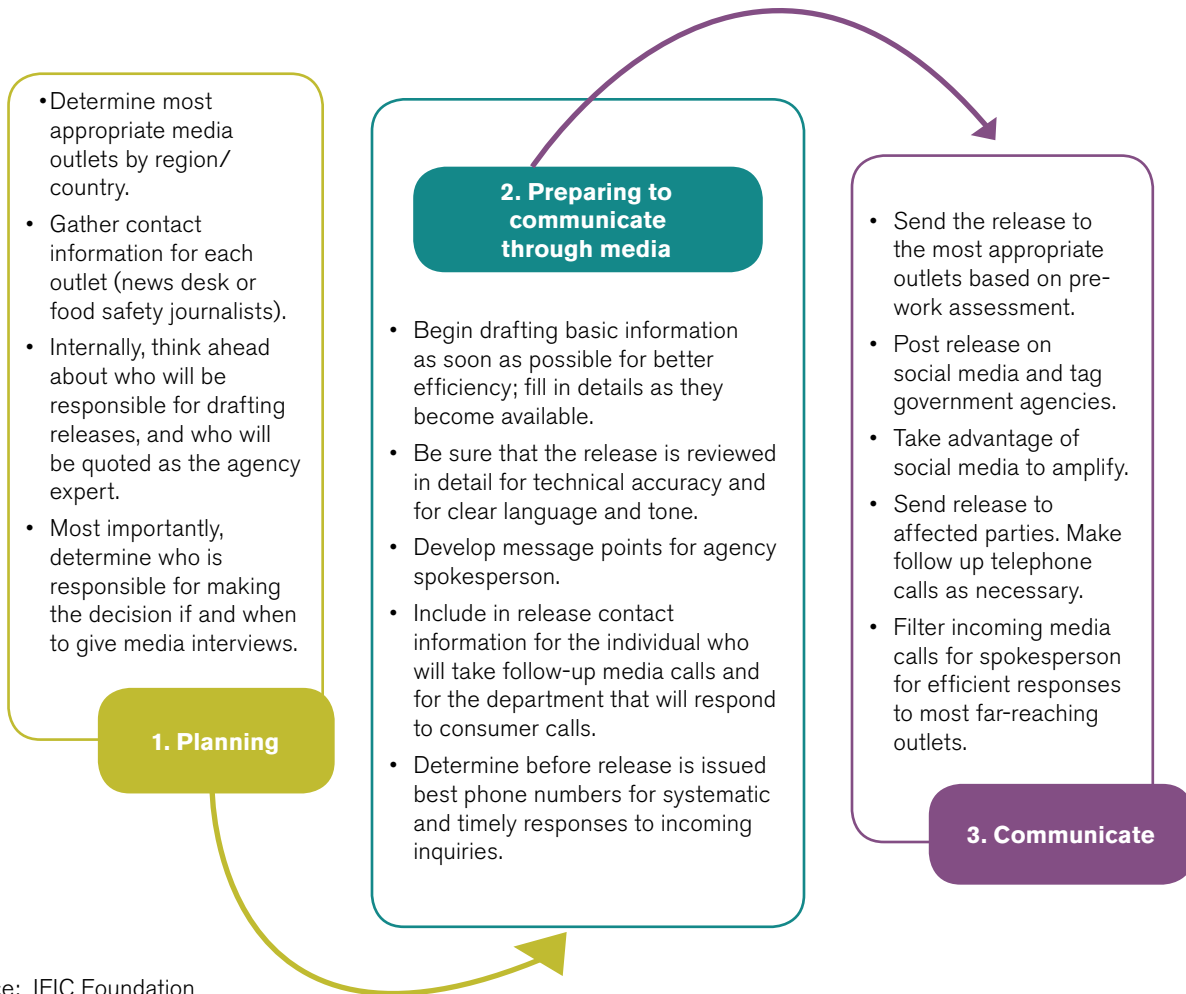
- Who decides whether or not to communicate on the issue, when, and in what manner;
- Determine who will draft a public statement or release;
- Who will be quoted; and

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GUIDELINES FOR INTERACTING WITH THE MEDIA

- Food Safety Crises
- Non-Crisis Food Safety Information
- Expert Perspective in Developing Stories
- Working Successfully with the Media
- Differences in News Media
- General Guidelines for All Parties in the Communication Process
- Communication Guidelines for Scientists
- Communication Guidelines for Journal Editors
- Communication Guidelines for Journalists

Media Outreach in a Food Safety Crisis



- What levels of internal approval are necessary before the release goes out.

Press Release

It is critical that press releases and statements are reviewed for the highest levels of accuracy as information issued by the government may have higher credibility in a crisis. The tone used in press release should be clear and in plain-language so it is understood by the general public, which also should provide guidance on next steps in the dealing with the crisis. Finally, include contacts for reporters to reach out to you.

In addition, structure press releases with an informative lead, with the most important information included early in the release, and include links to additional resources as most releases are electronic.

Media Contact List

Before a situation ever arises, identify media outlets or wire service(s) – both national and regional – with the greatest reach and credibility, and which outlets serve which areas. (A News Media Contact List Template and Example are at the end of this chapter.

Determine in advance where to send press releases in a crisis situation: main news desk and/or to reporters who cover food issues; all of this information should be kept on file and updated several times a year.

2. Preparing to Communicate through the News Media: In the event of a potential or pending crisis, drafting the basic press release framework early on – even before all the facts are known or a decision is made to issue a release – can save precious time in the long run.

Along with the release, agree upon

and draft key message points. This will help both in framing the document and in preparing the organization's spokesperson. Key messages should address the most important facts that consumers want to know:

- What happened?
- What does it mean?
- Who is or may be affected?
- Does this information need to be communicated in different languages?
- What should consumers do?
- Where can consumers get more information?

Before making a public statement, ensure that the representatives speaking with the media and consumers are fully briefed. As previously mentioned, apply communication discipline: be clear about what is known and what is not known; what is fact, and what is speculation or informed opinion.

3. Communicate: After statements or releases are issued to the appropriate outlets based on guidance from the media contact list, agency spokespersons should be available to respond. Ideally, telephone calls will not go directly to a spokesperson, but rather to an individual who can screen and prioritize incoming requests on behalf of the spokesperson.

Other actions for the communicator include:

- Post the press release on the communicator's website;
- Contact parties who are or may be directly affected, or those who may be able to effectively reach others who may be affected, such

as regional public health departments, retailers and wholesalers, exporters, and other regulatory authorities; and

- Post messages to government agency social media accounts with links to statements or press releases.

Additionally, internal and cross-agency coordination of public outreach during a food recall or disease outbreak is critical to minimize any potential threat to public health and maintain public confidence. Equally important is reaching out to local and state public health agencies as they also coordinate public and consumer outreach.

Non-Crisis Food Safety Information

Communicators frequently need to share food safety information that is important but not in a "pending crisis" context. In these non-crisis situations, working through the media is an excellent way to inform the public of new statements, fact sheets, or other available resources. As with a crisis situation, knowing in advance which outlets will carry your message to your target audience is important. The Media Contact List will be a helpful tool in a non-crisis situation.

Social media channels, such as Facebook, Twitter, or Weibo (the most popular sites may vary with world area), offer excellent opportunities to reach the public directly. Links to new resources, fact sheets, or videos can be shared directly with both consumers and media via these channels.

If the information is being shared on an ongoing basis, for example, as part

of a public health initiative, the outreach can go beyond journalists and news editors. In most areas, there are many television and radio programs that dedicate long feature health and food stories relevant for consumers including food and health.

Producers of community affairs programs and those who manage public service advertising for television stations also are good targets. If the information is relevant to certain ethnic or demographic groups, consider reaching out to programs that focus on those audiences.

Expert Perspective in Developing Stories

Journalists often look to subject matter experts (SMEs) for consumer guidance, insight into maintaining food safety, or respond to food safety problems as they arise. SMEs can add balance and credibility to a story, and those in government are sought after for unbiased perspective.

In working with the media, as in all other communications, use the food safety risk communication principles and concepts explored in Chapters 4 and Chapter 5 of this *Guide*.

Before offering expert opinion, consider the implications of the issue in question from a public health perspective. Consumers often look to government officials when deciding the relevance of a development to them and/or their families. Consumers will look not only at the words said, but the tone and the manner in which they are delivered. As an expert, consider the following questions before offering comment:

- How can I help the public put this information into practical context?

- How important is this information to consumers? Are consumers at risk, and if so, are some sub-groups at more risk than others?
- What actions should consumers take to minimize risk?
- Is the risk time-sensitive, or on-going?
- How can the public get more in-depth information after reading/hearing this story?

Government officials may be invited to participate in social network forums or “chats” to comment on breaking food safety issues, or will be asked to sponsor such events. The basic preparation for these exchanges is similar to that of mainstream media: know your message(s), prepare for possible questions, and practice in advance. Being clear and succinct is especially important given the nature of communication channels.

Working Successfully with the Media

Establishing and maintaining a strong relationship with the media is an integral part of a communication plan. Your organization's media outreach procedures must, however, take precedence, so be sure to familiarize

yourself thoroughly with those outreach policies.

- **Build relationships:** Take advantage of opportunities to nurture positive relationships with reporters by periodically sending new information or items of interest to remind them you are a good resource for food safety.
- **Be consistent:** Develop key message points so anyone in your organization in contact with the media can deliver consistent messages. Designate one person as your organization's spokesperson to provide a familiar presence with the media.
- **Offer other contacts:** Further demonstrate your value as a media resource by recommending other good contacts from organizations that add value to the food safety issue and complement your area of expertise.
- **Give the media a heads up:** Reporters appreciate advance notice in developing stories. When you know of an anticipated announcement or event, give the media a “heads up” for adequate time to cover the story. When appropriate, use “embargo ground rules” during conference calls and webcasts. On news releases,

indicate “embargoed until [date], [time]” at the top of the page to let reporters know the information cannot be officially released, while always being selective and careful with what you release early.

- **Help reporters do their job:** To a degree, reporters rely on food experts such as yourself for story ideas, timely information, and access to interview subjects—usually under tight deadlines. Establish a productive relationship by helping reporters accomplish their objectives. If you are prepared, you can make a reporter's life easier and will be remembered as a helpful and thorough source.
- **Be proactive:** Provide background information before the interview. Most reporters appreciate receiving brief bullet points that also can prompt interview questions.
- **Stay in touch:** Compliment reporters on accurate, thorough stories on your priority issues. If a reporter quotes you or your organization, send a note of appreciation.
- **Do your homework:** Before pitching a story, research the reporter's previous stories on the topic to avoid pitching an idea that already has been covered. This also may help determine the journalist's or media outlet's position on the issue.
- **Become indispensable:** Introduce yourself as an expert – or someone with access to experts – on food safety. When reporters recognize you as a valuable source for food safety stories,





they are likely to pay attention to your suggestions. An example of reaching out as an expert is to compile and send the most compelling food safety statistics and research. Also, keep a list of informed speakers and commonly requested facts on hand that can be provided quickly.

- Be prepared to repeat it all over again as new reporters come onto the job.

Preparing For a Media Interview

- **Practice:** Before giving an interview, write out your main points, and practice incorporating those messages into answers to a broad range of possible questions.
- **Recognize the importance of your message:** When talking with the media, you are reaching a multitude of people with your comments. Never take this responsibility lightly; work hard to be clear and accurate.
- **Be brief:** News stories require concise messages that can easily be converted into “sound bites” and short quotes. Stating, “the important thing to remember is...” can help to flag key points.
- **Be relatable:** Humility and

responsibility are attractive qualities, as is the ability to relate to a media outlet’s readers or viewers.

- **Be responsive:** Realize that all media operate on tight deadlines. Respond quickly to requests for information or interviews. If possible, respond within the hour. The media’s ability to reach you is critical to establishing yourself as a reliable, valuable media source.
- **Be honest:** If you do not know an answer, say so and offer to find out. If you cannot find out, say so. And admitting when you have made a mistake will help build trust.
- **Be prepared:** Be prepared to provide information and to answer questions once you have a reporter’s interest.
- **Be professional:** No matter the approach used by journalists, bloggers, or others, convey your message in a manner that is science-based, entertaining, and respectful of other points of view.
- **Nothing is “off the record”**—even when chatting conversationally before or after answering specific questions on the topic.

Always assume that everything you say can be traced back to you, and will be included in the story.

Differences in News Media

Each type of media has its own format and audience. The following offer a few points to keep in mind by type of media.

Television

Television is a highly visual and typically fast-paced medium; television producers will work to include images that will make the story more interesting or easier to understand.

When working with television journalists, keep the following tips in mind:

- Find out in advance whether the story will be a brief, or a longer feature where a more detailed question and answer opportunity is anticipated.
- Ask whether an interview will be edited or used as-is. If it will be used as-is, confirm that you can repeat a response if your initial answer was not clear or accurate.
- TV news stories are brief, often reducing issues to 30-second segments using short “sound bites.” If you arrange an on-camera interview, remember that brief is best. Focus on your top three key messages. (Interviews taped beforehand are often reduced to one or two short sound bites embedded within the segment. Live on-air interviews are usually kept to three minutes or less.)
- Whenever possible, supply visual help for clarity. For example, if the story is about a food recall,

USING NEWS MEDIA AS A TACTIC

While the role of each medium, the format, and standards for interviews and story deadlines vary by region, there are general rules of thumb when using news media as a tactic:



Television and online media prefer visuals, so photos or videos work well with these tactics.



Television news is brief, often reducing issues to 30-second segments using short “sound bites.” If you arrange for an on-camera interview, remember that brief is best.



Some radio stations also have websites, so be prepared to offer photos or video footage to complement your message.



Radio can accommodate brief, 10-second public service announcements or extended interviews that last several minutes. For taped radio interviews, speak in short (10- to 15-second) “sound bites” for easy editing.



Make sure interviews—whether by telephone or in person—are conducted without audible distractions (papers being shuffled, office mates talking, or cell phone static, etc.) to ensure good sound quality.



Print and online newspapers and magazines may provide more in-depth coverage of a subject than television or radio, although interviews may still be heavily edited. Offer simple graphics and suggest photo opportunities to explain or add depth to the story.

pictures of the targeted items would be helpful for consumers.

- Provide the producer for display on air, phone numbers and websites where the public can obtain more information.
- Video news releases, B-roll (supplemental video footage), and other graphics are often used by TV producers to help viewers better understand information provided in the segment. If you have footage specific to the topic at hand, offer it to the producers.
- Longer, feature pieces likely will allow a more in-depth discussion of the issue. While answers still should be clear and succinct, it

is not as important to focus on “sound bites” for this format.

Radio

Radio presents similar considerations as television, but without the visual nature of the medium. Know in advance if the interview will be part of a brief news item, a longer feature segment, or a listener call-in program. These variations will help guide how questions are answered. If the interview is being taped in advance, always ask the reporter if you can have the opportunity to repeat an answer if you feel you did not get the message across clearly or accurately. Because no one can see the participants in a radio interview, having talking points in front of you is a smart practice.

Print and Online Newspapers/ Magazines

Newspapers and magazines, both print and online, may provide more in-depth coverage of a subject, although interviews may still be heavily edited. Consider in advance the quote you would like to appear in a print article. Write it down and incorporate it clearly several times during the interview. Where applicable, offer simple graphics and suggest photo opportunities that will help explain or add depth to the information you need to communicate to the public. Do not hesitate to follow up by phone or email after the interview if you have something additional to say.

Improving Public Understanding: Guidelines for Communicating Emerging Science on Nutrition, Food Safety, and Health

For Journalists, Scientists, and Other Communicators

Based on an advisory group convened by the Harvard School of Public Health and the International Food Information Council (IFIC) Foundation

First published by Oxford University Press in the Journal of the National Cancer Institute (February 4, 1998, Volume 90, Number 3). Please use the original citation when reprinting part, or all, of this document.

See also: "Getting the Story Straight on Nutrition," The Journal of the American Medical Association (JAMA), February 11, 1998

"These Guidelines can only make a difference if they don't sit on a shelf. Putting these recommendations into practice just might make a difference in the public's understanding of diet and health. I urge you to read them, share them, remember them and use them. After all, I think what the public wants is for us to be honest with each study as it comes along and try to put it into perspective, but keep reminding people that it's the totality of evidence as it unfolds that warrants their attention."

— Timothy Johnson, MD, MPH, Medical Editor, ABC Good Morning America

Twenty-five years ago, a food and health study would never have made the evening news. Now, hardly a day goes by that a breaking story on the foods we eat doesn't make headlines.

The public has taken an avid interest in their food, and due to its personal and emotional nature, food stories make for compelling news.

However, the reality is that emerging science can be confusing. According to the IFIC Foundation 2012 Food & Health Survey, three out of four consumers (76%) feel that changes in nutritional guidance make it hard to know what to believe. The way emerging science is communicated and by whom can have a powerful effect on the public's understanding, behavior, and well-being.

To examine these issues and assist in the communications process, in 1998 the Harvard School of Public Health and the IFIC Foundation convened an advisory group of leading experts for a series of eight roundtables around the country, involving more than 60 other nutrition researchers, food scientists, journal editors, university press officers, broadcast and print reporters, consumer groups, and food industry executives.

Based on the group's input, a set of guiding principles for communicating emerging science was developed. At the heart of these principles is the belief that food-related science can be effectively communicated in a way that facilitates public understanding.

The guidelines are designed to help ensure that sound science and improved public understanding ultimately guide what and how we communicate and to help communicators add context to new studies by asking questions that will help them put studies into context and identify the most important takeaways that will best inform the public.

General Guidelines for All Parties in the Communication Process

1. Will your communication enhance public understanding of diet and health?

- Is the study credible enough to warrant public attention?
- With the information you provided, will the public be able to properly assess the importance of the findings and whether they should have any immediate bearing on their food choices?
- Have you avoided an overly simplistic approach that may inappropriately characterize individual foods ingredients or supplements as good or bad? Have you helped the public understand how the food, ingredient, or supplement can be consumed as part of a total healthful diet, or why it should not be consumed?
- Have you appropriately

represented the study's overall conclusions and avoided highlighting selective findings that, on their own, might present a misleading picture?

2. Have you put the study findings into context?

- If the findings are preliminary and inconclusive, have you made that clear?
- If the findings differ with previous studies, have you indicated this and explained why? If the results refute previously released results, do you provide a weight of evidence comparable with the earlier findings?
- Have you clarified to whom the findings apply? Have you avoided generalizing the effects when the study was restricted to populations of a certain age or sex or with specific genetic, environmental, or other predisposing conditions?
- Have you included information about risk/benefit trade-offs of consuming or not consuming certain foods, ingredients, or supplements? Have you explained how these risks and benefits compare with other factors (e.g., level of physical activity, genetic history) that may also contribute to health?
- In explaining a dietary risk, have you distinguished between population wide estimates and individual risk? Have you cited statistics on absolute risk and not just relative risk, e.g., expressing an increase in incidence from "one in a million to three in a million" and not just as "three times the risk"?

3. Has the study or findings been peer reviewed?

- Has the study been peer reviewed by independent scientists or published in a peer-reviewed journal? At the same time, have you understood that although peer review is an important standard, it does not guarantee the findings are definitive or conclusive?
- If a study has not been peer reviewed (e.g., a paper presented at a meeting or convention), are the findings so important that they should be communicated to the public before peer review?
- Have you distinguished between actual study findings and editorials or commentaries that may have been written about the study? Have you clarified that an editorial is an expression of personal views and has not always been peer reviewed? Have you investigated how widely held these views are or whether the editorial represents a narrowly held opinion?

4. Have you disclosed the important facts about the study?

- Have you provided adequate information on the study's original purpose, research design, and methods of data collection and analysis?
- Have you acknowledged any limitations or shortcomings the study may have?

5. Have you disclosed all key information about the study's funding?

- Have you publicly disclosed all funding sources for the study?

- Are you reasonably confident of the study's objectivity and independence?
- Have you considered what the funders stand to gain or lose from the study's outcome?
- Have you allowed the validity of the science to speak for itself, regardless of the funding?

Communication Guidelines for Scientists

1. Have you provided essential background information about the study in your written findings, or to journalists or others requesting it, in a language that can be understood?

- Have you explained all details of the study, including purpose, hypothesis, type and number of subjects, research design, methods of data collection, and analysis and the primary findings?
- Are you reporting study findings consistent with the original purpose of the data collection?
- Were appropriate scientific methods of inquiry used? Did you disclose any study shortcomings or limitations, including methods of data collection? Were objective health measurements used to help verify self-reports?
- Was the study conducted on animals or humans? Are limitations of animal models in their applicability to humans noted?
- Have you waited to report the results until the study has been independently peer reviewed? If not, did you disclose to the media that the findings are preliminary and have not yet been peer reviewed?

2. Have you clarified dietary risks and benefits?

- Did you explain the dosage of a substance or the amount of food or ingredient that was linked to the health outcome? Is this amount reasonably consumed by the average individual?
- What was the original risk of developing the disease? Have you expressed the new level of risk as both absolute and relative risk?

3. Have you met the needs of the media?

- Are you available for media interviews the day before or after the release? Do you make every attempt to respond to media inquiries promptly?
- Does the news release prepared for the study communicate the primary findings faithfully and without exaggeration? Have you reviewed and approved the final version of your institution's news release?

Communication Guidelines for Journal Editors

1. Does your embargo policy enhance public communication?

- Do you make embargoed copies of the journal available to all journalists who agree to respect the embargo, not just a select group of reporters?
- Do you notify scientists whose studies will likely receive press attention when the embargoed issue is being made available?
- Do you provide the relevant articles from the embargoed journal

to study authors so they can preview other related work in that issue, helping them respond to questions?

2. Do you encourage responsible media reporting on study findings?

- If you issue a news release on an article in your journal, is it faithful to the underlying research? Does it provide adequate background information?

3. Have you considered the effect of the study findings on consumers?

- Have you considered what might be the effect of the study findings on the general public?
- Does the study warrant an accompanying editorial to help put the findings into context? If so, is the editorial content included in the news release?

4. Does your submission policy permit scientists to clarify results of abstract presentations with the media?

- Does your submission policy make it clear that scientists presenting abstracts should submit the complete report for peer review? Have you stressed they should not distribute copies of the complete report of the study, or figures or tables from that study, to the media before publication in a peer-reviewed journal?

Communication Guidelines for Journalists

1. Is your story accurate and balanced?

- Have you established the credibility of your primary source?

- Have you asked other reputable scientists and other third-party health sources if they believe the study is reliable and significant? Have these scientists reviewed the study?
- Do the third-party sources you are quoting represent mainstream scientific thinking on the issue involved? If not, have you made it clear that such opinions or commentary differ from most scientific perspectives on this topic? If only one or two individuals express such opposing viewpoint, does the amount of coverage given reflect that these are clearly minority opinions?
- Have you received and reviewed a copy of the study publication—not simply reviewed abstracts, news releases, wire reports, or other secondary sources of information?
- After reviewing the study results and limitations, have you concluded it still warrants coverage? Have you objectively considered the possibility of not covering the study?
- Are words that are used to describe the findings appropriate for the type of investigation? Cause and effect can be shown directly only in studies in which the intervention is the only variable modified between the experimental and control group.
- Is the tone of the news report appropriate? Do you avoid using words that overstate the findings, e.g., “may” does not mean “will” and “some” people does not mean “all” or “most” people?
- Are the headlines, photo images,

and graphics consistent with the findings and content of your article?

2. Have you applied a healthy skepticism to your reporting?

- In talking to sources and reading news releases, have you separated fact versus emotion or commentary?
- Do the study findings seem plausible?
- Have you used any hyped or “loaded” terms in the headline or body of a report to attract public attention, e.g., “scientific breakthrough” or “medical miracle”? Does the report indirectly suggest that a pill, treatment, or other approach is a “silver bullet”?
- Have you applied the same critical standards to all sources of information—from scientists, to public relations and press offices, to journals, to industry, to consumer and special interest groups? What does the information source have to gain if its point of view is presented? Have you considered a range of conflict-of-interest possibilities beyond dollars?

3. Does your story provide practical consumer advice?

- Have you translated the findings into everyday consumer advice? For example, if a study reports on the effects of a nutrient, have you considered identifying the foods in which it is most commonly found? How do action steps relate to the larger context of existing dietary guidance (e.g., Dietary Guidelines for

Americans, USDA Food Guide Pyramid, importance of balance, variety and moderation)?

- Have you provided credible national, state, or local resources from which consumers can obtain more information or assistance on the diet and health topic—especially if the findings present an immediate threat to public health and safety (e.g. foodborne or waterborne illness outbreak), such as brochures, toll-free hotlines, or online resources?

4. Is your reporting grounded in basic understanding of scientific principles? Are you aware of the difference between evidence and opinion? If not, have you consulted knowledgeable sources?

- Are you familiar with the scientific method of inquiry and various terms such as hypothesis testing, control groups, randomization, and double-blind study? Do you understand and communicate that the nature of science is evolutionary, not revolutionary?
- Are you familiar with different types of studies, why they are used and the limitations of each? Do you stay current on diet and health recommendations so that you can help identify the true significance of new findings?

Guidelines for Industry, Consumer, and Other Interest Groups

1. Have you provided accurate information and feedback to the media? Is your news release on the study in keeping with the findings, i.e., neither exaggerates or

oversimplifies nor disregards or sensationalizes the findings? Does it provide new insight or help enhance public understanding of the study results?

- Do you tactfully correct misinformation in the media? Do you provide scientific explanations of why the story is incorrect, not simply express opinions or judgements of a few individuals? Do you follow up with journalists to acknowledge an accurate, insightful story?

2. Do you adhere to ethical standards in providing diet and health information? Do you respect the embargo placed on a study, rather than attempt to scoop or “be first with” the news?

- Have you avoided promoting or writing news releases on studies that have not been peer reviewed? Have you acknowledged that results that have not been scientifically reviewed are preliminary findings and do not call for a change in behavior?
- Have you identified your organization's viewpoint and sources of funding?

TEMPLATE
Traditional and Social Media Contact List
 (For Internal Use Only)
 COUNTRY/AGENCY
 Last updated: DATE

NAME AND CONTACT INFORMATION	PRINT DAILY WEEKLY MONTHLY	RADIO	TV	WEBSITE	SOCIAL NETWORK	SOCIAL NETWORK	SOCIAL NETWORK	OTHERS
NATIONAL								
REGIONAL - SOUTH								
REGIONAL - NORTH								
REGIONAL - EAST								
REGIONAL - WEST								








Source: IFIC Foundation



EXAMPLE NEWS MEDIA CONTACT LIST

COUNTRY X/FSA

Last updated: SEPTEMBER 24, 2015

NAME AND CONTACT INFORMATION	PRINT DAILY WEEKLY MONTHLY	RADIO 	TV 	WEBSITE 	FLICKR 	YOUTUBE 	TWITTER 	OTHERS 
NATIONAL								
ABC News Contact Name Phone Email			✓	www.ABCnews.go.com		✓	@ABC @abcnews @ABCNews-Live	Facebook Google+
AGWEB, Agritalk Contact Name Phone Email		✓					@AGWEB @farmJournal	RSS Feed Pinterest Tumblr
CBS News Contact Name Phone Email	D	✓	✓	www.cbsnews.com/		✓	@CBSNews	Facebook RSS
NBC News Contact Name Phone Email	D		✓	http://www.nbc-news.com		✓	@NBCNews @NBCNightlyNews @NBCNew-PR	Facebook
New York Times Contact Name National Desk Phone Email	D			www.nytimes.com	✓	✓	@nytimes	Facebook RSS
REGIONAL - SOUTH								

Source: IFIC Foundation



7

REGULATING AND COMMUNICATING FOOD SAFETY: GLOBAL TO NATIONAL TO LOCAL

- Global Cooperation
- U.S. Regulation
- Case Study: *Salmonella* Cantaloupe Recall of August 2012

Regulating and Communicating Food Safety: Global to National to Local

Every corner of the world has differing practices in regulating food safety. But working together to share and understand best practices in regulation will lead to a healthful food supply in the long run.

When it comes to public health, countries around the world have good reason to work together. There are many approaches to regulating food safety globally that are respectful of regional cultures, religions, and customs, and may differ based on the local food-related risks and the existing regulatory infrastructure. The following is an overview of global cooperative efforts related to food safety regulation. As a country-specific illustrative example, we have used the U.S. food safety regulatory approach, including links from global to national to local agencies. Also see “Ensuring a Safe Food Supply: A Concise Guide to U.S. Food Regulatory System” in the Appendix. A case study on a 2012 *Salmonella* and cantaloupe recall illustrates the

U.S. process. Note that this is a summary overview only. For a detailed description of other countries’ food safety regulatory approaches, contact the lead government agency.

Global Cooperation

The WHO is the directing and coordinating authority for health within the United Nations (UN) system, providing leadership on many global health matters. As part of its mission, WHO assists countries to prevent, detect, and respond to foodborne disease outbreaks, and provides information to help consumers handle and prepare food safely.

In 1963, the WHO joined with another UN organization, the Food and Agriculture Organization (FAO),

An open, cooperative approach between the public and private sectors and among local, national, and global authorities is essential to ensure a safe food supply in the long term.

to launch Codex.¹ Codex currently comprises representatives of 185 countries who develop harmonized international food standards, guidelines, and codes of practice to protect the health of consumers and ensure fair practices in the food trade.

Codex member countries constitute 99% of the world's population. Codex standards are based on the best available science, assisted by independent international risk assessment bodies or ad-hoc consultations organized by the FAO and WHO. While the standards and practices adopted by Codex are voluntary for countries, they often become the foundation for national food safety legislation. Some countries adopt or officially recognize Codex standards as part of their national regulatory policy, and other countries consider Codex standards when establishing their national standards. In all of these scenarios, Codex standards have far reaching implications for resolving trade disputes.

In addition, the World Trade Organization (WTO) was formed in 1995 as part of a multi-country treaty to facilitate global trade.² With the advent of the WTO, the Agreement on the Application of Sanitary and Phytosanitary Measures was enacted, which provides standards for food safety and animal and plant health. While member countries may set other standards for food safety, they must be based on science.

U.S. REGULATION

American consumers spend more than \$1 trillion on food each year, nearly half of it in restaurants and other places outside the home. Federal laws dictate how federal agencies regulate food safety, in cooperation with state, local, and

international entities. However, food manufacturers, distributors, and retailers have basic responsibility under the law to ensure foods are wholesome, safe, and handled under sanitary conditions.

National Regulation

Federal responsibility for food safety rests primarily with the FDA, which is part of the U.S. Department of Health and Human Services (HHS), and the Food Safety and Inspection Service (FSIS), which is under the USDA.

The FDA is responsible for ensuring all domestic and imported non-meat food and beverage products—fruits, vegetables, grains, shell eggs, seafood, bottled water—as well as dietary supplements and exotic and game meats are safe and accurately labeled. The FDA oversees more than

80% of the U.S. food supply, as well as the appropriate use of veterinary drugs in agriculture. The Agency requires farmers and ranchers to follow recommended Good Agricultural Practices (GAP), and food producers and processors to follow Good Manufacturing Practices (GMP) to help minimize the risk of microbial contamination.³

The FDA Food Safety Modernization Act (FSMA),⁴ signed into law in 2011, enables the FDA to better protect public health by strengthening its mandatory compliance tools. This law, the most sweeping reform of U.S. food safety laws in more than 70 years, gives FDA new and enhanced mandates and authorities to protect consumers and promote public health. It also significantly enhances FDA's ability to oversee the millions of food products imported into the United States each year.

Some FSMA regulations are published, while others are in various stages of development.⁵ Highlights of the law, once fully implemented, include the following:

- *Preventive controls* — FDA has a legislative mandate to require comprehensive, risk-based preventive controls across the food supply.
- *Inspection and Compliance* — The legislation mandates certain inspection intervals based on the relative risk of the product.
- *Safety of Imported Foods* — FDA will implement new tools to ensure that imported foods meet U.S. standards and are safe for consumers. Importers must verify that their foreign suppliers have adequate preventive controls in place to ensure safety.

FSMA

The **Food Safety Modernization Act** is an example of how the food safety system is evolving to meet the needs of today's global environment. As noted by FDA Deputy Commissioner for Foods and Veterinary Medicine, Michael Taylor, The "(U.S.) Congress mandated a paradigm shift to prevention—to establishing a modern system of food safety protection based not on reacting to problems but on preventing them from happening in the first place." (*Food Safety News*, March 17, 2015)



FDA will be able to accredit qualified third-party auditors to certify that foreign food facilities are complying with U.S. food safety standards, and will have the power to deny entry of products into the United States.

- *Response* - FDA will have mandatory recall authority for all FDA regulated food products.
- *Enhanced Partnerships* — FSMA recognizes the importance of strengthening existing collaboration among all food safety agencies — federal, state, local, territorial, tribal, and foreign — to achieve public health goals. It directs FDA to improve training of state, local, territorial, and tribal food safety officials.

The FSIS is the public health agency within the USDA that enforces the laws requiring federal inspection and regulation of meat, poultry, and processed egg products. FSIS inspectors maintain a presence in more than 6,200 establishments nationwide, working to prevent foodborne illness and protect public health. Establishments cannot conduct slaughter operations if FSIS inspection personnel are not present. FSIS inspectors verify that food industry establishments implement a Hazard Analysis and Critical Control Points (HACCP) plan.

HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production all the way through to the finished product. FSIS also conducts routine pathogen verification testing⁶ to monitor effectiveness of HACCP programs and minimize the risk to

public health from contaminated products. In 2014, FSIS collected and analyzed approximately 84,700 domestic microbiological samples, 3,140 microbiological and residue import samples, and 460 in-commerce microbiological samples. FSIS also tests for residues of veterinary drugs, pesticides, metal, and chemical contaminants of public health concern based on tolerances established by FDA and the EPA.

In 2014, FSIS began the implementation of a new Poultry Inspection System and launched stronger performance measures to reduce *Salmonella* and *Campylobacter* in poultry products. The new standards may help prevent an estimated 50,000 illnesses annually from those two pathogens.

In addition, FSIS regulates the importation of meat and poultry products from other countries. First, the country's food inspection system must be deemed equivalent⁷ to that of the U.S. system. Then, a select number of food processing facilities are designated as eligible to export products to the United States. Products from those facilities then go through port-of-entry re-inspection by FSIS personnel to verify, on an ongoing basis, the equivalence of that country's inspection system. FSIS conducts recalls for meat and poultry products contaminated with pathogens, as well as products that are mislabeled, contain undeclared allergens, or are deemed adulterated.

The EPA establishes maximum allowable limits for pesticide residues⁸ that remain in or on food or feed after harvest or slaughter. These allowable limits, or tolerances, are based upon scientifically conducted risk assessment of the residues. Worst-case

estimates of the amount of residue that might be present if the pesticide is used in the manner allowed by law are used in the risk assessment.

TOLERANCE

A **tolerance** is defined by the U.S. Environmental Protection Agency as “the maximum amount of pesticide residue that may legally remain on or in treated crops and animals (and animal products such as milk or eggs) that are to be sold for food or feed.”⁸ Tolerances are enforced by the FDA and FSIS. In addition, the FDA and USDA monitor pesticide residues in foods, and typically find that the vast majority of foods sampled are below tolerance.⁹

The U.S. Department of Homeland Security (DHS) heads the national effort to address possible terrorist threats to the United States, including threats to the food supply. DHS works in close partnership with FDA, FSIS, state departments of agriculture, and other government and private entities at the state and local levels to carry out its critical mandate. One way in which DHS carries out its mission with respect to the food supply is its support and leverage of expertise through the Centers of Excellence, including University of Minnesota's National Center for Food Protection and Defense and Texas A&M University's National Center for Foreign Animal and Zoonotic Disease Defense.

National Health Surveillance and Education

The [CDC](#) is the leading national public health institute in the United States, which conducts epidemiological investigations of foodborne disease outbreaks to determine the cause and minimize the spread of illness. In collaboration with FSIS, FDA, and¹⁰ state health departments, CDC administers the Foodborne Diseases Active Surveillance Network, or FoodNet,^{10,11} which has been tracking trends in infections commonly transmitted through food since 1996.¹² FoodNet conducts population-based surveillance for laboratory-confirmed infections caused by *Campylobacter*, *Cryptosporidium*, *Cyclospora*, *Listeria*, *Salmonella*, Shiga toxin-producing *Escherichia coli* (STEC)

O157 and non-O157, *Shigella*, *Vibrio*, and *Yersinia* in 10 sites covering approximately 15% of the U.S. population (an estimated 48 million people in 2012).

The CDC also hosts PulseNet, a national network of laboratories throughout the United States. Through the network, foodborne illness cases are linked together, facilitating faster detection and characterization of outbreaks. DNA fingerprinting of bacteria is used to identify specific strains in illness cases. All of this data is continually compared with data from previous years in order to track trends and identify changes. PulseNet has not only facilitated faster and more efficient recalls, but also provided rich information for the food industry to use in refining operations on an ongoing basis.

State and Local Regulation

State and local regulatory agencies play key roles in ensuring that the U.S. food safety system is seamless from the field to the processing plant to the restaurant kitchen and beyond. More than 3,000 state, local, and tribal agencies have a role in regulating retail food and food service industries. They inspect and oversee more than 1 million food establishments—restaurants, grocery stores, cafeterias, and other food outlets—applying science-based food safety principles in order to minimize the incidence of foodborne illness.¹⁴ The FDA assists local regulatory agencies and industries by providing the Food Code,¹⁵ guidance, training, program evaluation, and technical assistance.

Local and state health departments, as well state departments of agriculture, conduct food safety activities

that range from risk assessment to management to communication. Health inspection reports for restaurants and other food service establishments are disseminated, and public health alerts and advisories are issued. These agencies provide invaluable assistance to the CDC to define and stop the spread of foodborne disease outbreaks, facilitated by their geographic proximity to the source of the outbreak. Public health departments assist in the ongoing investigation that establishes the food source, and communicate with the public as the investigation continues. Coordination with the food industry is critical, as grocery stores and restaurants may also be the first to hear about a potential foodborne illness.

Critical to the success of any food safety risk analysis program is effective coordination and teamwork. To this end, the FDA partners with state programs on Rapid Response Teams (RRT).¹⁶ Through cooperative agreements, the RRTs work to innovate effective food emergency response models. Formal programs that have been established include the Integrated Food Safety Systems (IFSS), the National Response Framework, and the Council to Improve Foodborne Outbreak Response (CIFOR). There are 18 RRTs in action throughout the United States.

In support of the integration of food safety efforts among various organizations, the International Food Protection Training Institute developed the IFSS Toolkit.¹⁷ The toolkit provides a hands-on guide for self-assessment, prioritization, and improvement of an organization's integration with other agencies and/or disciplines that carry out food

Foodsafety.gov

Food safety education is an important part of helping consumers avoid and, if necessary, report an episode of foodborne illness. Information can be accessed in many ways, including online and through smartphone applications. **Foodsafety.gov**¹³ provides a centralized online government location for food safety and food recall information, including guidance for consumers who want to report potential foodborne illness or contaminated food.

safety functions. Just as risk analysis is an ongoing process, assessment of effectiveness in addressing food safety issues is critical for regulatory and public health agencies, the food industry, and others.

Summary

While global cooperation on food safety risk analysis is critical, collaboration and concerted action by national, state, and local authorities is also critical for both prevention of and rapid response to food safety issues and incidents. In addition, food companies and food industry trade associations play important roles in all stages of risk analysis, providing unique perspective on critical steps for prevention and response, effectively managing food safety risks, and helping to disseminate important information during foodborne illness outbreaks, and recall situations to minimize illness and protect the public. As discussed in Chapters 4 and 5, effective communication is a critical ingredient in protecting the public from potential food safety risks.

The following is a case-study scenario of a food safety recall that occurred in the United States, which highlights the need for preparation, as well as the value of cooperation—between multiple levels of government, regulatory and health officials, and government and industry—to serve and protect the public.

Case Study: *Salmonella* Cantaloupe Recall of August 2012

In July 2012, a Kentucky district health department was contacted about illnesses following consumption of cantaloupe purchased from a local grocery store. When several people became ill, a foodborne illness outbreak was identified, and

Kentucky state epidemiologists confirmed the illnesses were caused by *Salmonella newport* and *Salmonella typhimurium*. Eventually, 24 states were involved in the outbreak.

Kentucky state epidemiologists used the CDC's PulseNet system to match the strains of *Salmonella* causing the illnesses and provided the data to the CDC for confirmation. Federal, state, and local health departments located the source of the cantaloupes in Indiana, a neighboring state, through a trace-back investigation from retail back to farm.

On August 17, as a result of the initial investigations by the Indiana and Kentucky state health departments, Chamberlain Farm Produce in Indiana contacted its distributors to recall all of its cantaloupes from the marketplace. On August 22, although the federal investigation was incomplete, the company voluntarily recalled all of its cantaloupes grown and sold that season, as a precautionary measure. Although distributors and grocery stores had been asked five days earlier to discard all cantaloupe received from Chamberlain Farms, the recall now made it known to consumers. As per the FDA's instructions, the company sent its recall news release to the Associated Press, which then provided notifications to local and national networks and websites.

Between August 14-16, the FDA worked with Indiana state and local health departments to conduct a thorough investigation of the fields and packing facility. On August 28, test results from samples taken at the farm confirmed two strains of *Salmonella* that were implicated in the confirmed illnesses.

Traceback

A product traceback is an investigation conducted to identify potential product routes backwards from any point in the supply chain starting at the farm. In the case of a foodborne disease outbreak, the traceback is conducted to locate and isolate the source of contamination.

The FDA posted the company's release on the FDA recall website and used social networks, including Facebook, Twitter, Flickr, LinkedIn, and blogs, to notify the public of the recall.

Lessons Learned:

- This situation was a well-coordinated response by all state and local health departments, and the FDA and CDC.
- Appropriate epidemiological testing resources were readily available – and quicker than in previous food recalls – to determine the strains of bacteria that caused illness.
- Both traditional and emerging social media communication networks were used effectively to announce the recall.
- Collaborative investigation efforts of state, local, and federal public health and regulatory agencies indicated that cantaloupe originating from Chamberlain Farms Produce, Inc. of Owensville, Indiana, was the source of this outbreak.



As the world's food supply becomes increasingly globalized, food safety and security regulations have evolved, and global cooperation has shifted from opportune to imperative. An open, cooperative approach between public and private sectors and among local, national, and global authorities is essential to effective communication about the food supply.

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Appendix

Social Network Platforms

Examples

Twitter (www.Twitter.com) is designed to be a rapid-fire exchange of thoughts and ideas. Therefore, it is limited to 140-character posts. These short bursts of information are called “tweets.” Users can include links to images and other content and enter “hashtags” using the “#” sign as a way of categorizing messages and taking part in conversations (for example: #foodsafety or #safefood). The media in particular use Twitter to broadcast breaking news. If you like another user’s tweet, you can “re-tweet” that information. If others re-tweet your information, their followers may decide to follow you. This is how you build a base of followers.

When you create a Twitter account, one of the first things you will do is choose a Twitter username, widely referred to as a “handle.” All Twitter handles begin with the “@” sign. If you want to talk to someone on Twitter, use his or her handle in your tweet. For example: “@JoeSmith you might be interested in this blog post on #foodsafety <link>”

Facebook (www.Facebook.com) - On Facebook, individuals and organizations can set up pages where they can post information, questions, fun facts, videos, and photos in their “Status Update” to communicate with their “friends” or “fans.” Individuals “friend” each other and “like” organization pages.

Pinterest (www.Pinterest.com) is a pinboard-style photo sharing website

that allows users to create and manage theme-based collections such as events, places or things, interests, recipes, and more. Pinterest’s mission is to “connect everyone in the world through the ‘things’ they find interesting.” Users can browse others’ pinboards for inspiration, “re-pin” images to their own collections, and “like” photos. You can create “boards” based on topics of interest, such as “food safety” or “safe food.” You can share videos and links to anything on the web, including blog posts, as long as there is an image included.

Blogs — A blog is a series of regular entries or “posts” published on the web in reverse chronological order by an individual or group. Bloggers who are successful in gaining a following have one or more themes that they regularly post about, and their posts are unique, personal, and interesting to read. You may have your own personal blog or you may be asked to contribute to your organization’s blog.

Blog posts can be any length, but keep in mind that people are busy and shorter posts take less time to read. You can write more succinctly or break up a topic into a “series” of shorter posts. In general, 500-700 words is an ideal length and gives you enough room to make your key points, provide valuable tips to the reader, and link to additional information.

A Note About Personal Webpages: Many people also use their blog as their website, with additional pages

APPENDIX – TOOLS AND TEMPLATES

- Social Network Platforms
- Best Practices for Effective Risk Communication
- Template: Food Safety Risk Communication Worksheet
- Example: Food Safety Risk Communication Worksheet, Norovirus
- Example: Food Safety Risk Communication Worksheet, Heavy Metals
- Template: Key Resource List
- Template: Media List
- Ensuring A Safe Food Supply: A Concise Guide to the U.S. Food Regulatory System

Best Practices for Effective Risk Communication

National Center for Food Protection and Defense

<http://www.ncfpd.umn.edu/Ncfpd/assets/File/pdf/NCFPDRiskCommBestPractices.pdf>

- **Risk and crisis communication is an ongoing process**
 - Incorporate risk communication into the policy development process
 - Continuously evaluate and update crisis communication plans
 - Conduct pre-event planning and preparedness activities
 - Address existing, emerging and anticipated issues
 - Determine how to reduce risk, plan an initial response, update regularly
 - Conduct practice exercises and drills
- **Foster partnerships with publics [referred to in the Framework as “audiences.”]**
 - Identify your “publics” [audiences]
 - Build positive relationships with key publics [audiences] before a crisis occurs
 - Publics (audiences) could include consumer groups, racial and ethnic communities, stakeholders, etc.
- **Collaborate and coordinate with credible sources**
 - Establish strategic relationships and networks before a crisis
 - Identify subject area experts
- **Meet the needs of media and remain accessible**
 - Recognize that the media is the primary channel to the public (audience)
 - Participate in media training
 - Remember that the media is not the enemy
- **Listen to public’s concerns and understand audience**
 - Respond to the public’s beliefs whether or not they are accurate
 - Monitor a full range of communication formats: hotlines, letters to the editor, radio talk shows, public forums, blogs, etc.
- **Communicate with compassion, concern and empathy**
 - Enhances credibility and perceived legitimacy
 - These characteristics do not preclude professionalism
- **Demonstrate honesty, candor and openness**
 - Without openness, the public will seek information from less accurate sources
 - Recognize that situation involves risk sharing
- **Accept uncertainty and ambiguity**
 - Acknowledge inherent uncertainty of crisis and risk
 - Assure that accurate and reliable information will be shared as soon as it is available
- **Give people meaningful actions to do [self-efficacy]**
 - Helps restore sense of control over an uncertain and threatening situation
 - Present as must do... should do... could do...

for “About Me,” “Contact,” etc. There are free sites that allow you to create your own blog/website (www.wordpress.com). Or, you can still opt to purchase your own web address (or domain name) and have a website designed to include a blog.

Ideas

- Connect with media, colleagues, organizations and influencers of interest to you.
- Build relationships by communicating often and sharing useful information.
- You can use all of the social media platforms to share blog posts

and links to research articles, photos, or anything else on the web that helps identify you as a credible expert. The more you talk about food safety and reference the compelling body of research, the more comfortable people will be with the concept.

- Share what you are doing, such as attending events and conferences. Find what the “hashtag” for the event is and use it.
- To access content of interest to you, follow people and hashtags on Twitter and subscribe to relevant blogs.
- Host/participate in “chats” on

Twitter or Facebook to “meet” new people and share your expertise.

- Write articles or commentaries on food safety. Include links and images, as well as personal anecdotes, such as a recent farm tour to examine safe food growing strategies, to establish a connection with the reader.
- Read other blogs and comment on them – don’t forget to compliment and share balanced information. Do more than just correct; encourage those who are doing a good job, so they will keep doing it!

FOOD SAFETY RISK COMMUNICATION RESPONSE WORKSHEET
 (To be completed by food safety risk communicator)
 COUNTRY "X"/Lead Communicating Organization:
 Last updated:

Agency or person(s) completing this worksheet:

Circle the type of situation and Type of problem	Crisis or Non-crisis			
	Contamination	Disease outbreak	Food recall	Other (specify) _____

Describe situation and problem to be remedied using communications:

Risk Communication Goal(s):

Key messages and supporting points:
Main Message #1:
Main Message #2:

Key Message #1:	Key Message #2:	Key Message #3:
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Publicly Available Resources:

Audiences <i>(complete table for those that apply in this specific situation)</i>	Audience's Concerns/Worries	Objectives <i>(What do we want to achieve?)</i>	Tactics/Actions <i>(How will we achieve it? How will we address their concerns/worries?)</i>
GOVERNMENTAL AUDIENCES			
<input type="checkbox"/> Internal: People within the AGENCY			
<input type="checkbox"/> Internal: Other federal govt. agencies in COUNTRY			
<input type="checkbox"/> State, departmental, or provincial govt. agencies			
<input type="checkbox"/> Global partners: other countries' food safety and health agencies COUNTRY "X"			
<input type="checkbox"/> Other _____			
OTHER STAKEHOLDERS			
Vulnerable populations (explain) <input type="checkbox"/> Urban populations			
Vulnerable populations (explain) <input type="checkbox"/> Rural populations			
Other consumers of food <input type="checkbox"/> Urban populations			
Other consumers of food <input type="checkbox"/> Rural populations			
Other consumers of food <input type="checkbox"/> Foreign-speaking populations			
<input type="checkbox"/> Doctors/health professionals			
<input type="checkbox"/> Community organizations			
<input type="checkbox"/> Reporters			
<input type="checkbox"/> Scientists/Researchers			
<input type="checkbox"/> Industry (food processors, manufacturers)			
<input type="checkbox"/> Industry (farmers, producers)			
<input type="checkbox"/> Advocacy Groups involved in the issue			
<input type="checkbox"/> Other _____			
<input type="checkbox"/> Other _____			
<input type="checkbox"/> Other _____			
<input type="checkbox"/> Other _____			

(All information in this example is fictional)

FOOD SAFETY RISK COMMUNICATION RESPONSE WORKSHEET

(To be completed by food safety risk communicator)
 COUNTRY "X"/ Lead Communicating Organization: CXFSA
 Last updated: August 25, 2015

Agency or person(s) completing this worksheet: **COUNTRY "X" FOOD SAFETY ADMINISTRATION (CXFSA)**

Circle the type of situation and Type of problem	Crisis or Non-crisis		
	Contamination	Disease outbreak <i>Norovirus</i>	Food recall
Other (specify) _____			

Describe situation and problem to be remedied using communications:

Norovirus is a very contagious virus and the leading cause of reported foodborne illness outbreaks in Country X. It is also the leading cause of acute gastroenteritis (vomiting and diarrhea) both in Country X and worldwide. There are 20 million cases in Country X each year. Norovirus is a serious public health risk because it spreads easily and is difficult to destroy.

Symptoms begin one to two days after contact with the virus and usually last for two to three days. During that time, norovirus can cause extreme distress, including vomiting and/or diarrhea many times a day. People are most contagious when they are sick with norovirus illness, and during the first few days after they recover from norovirus illness. For more information about norovirus go to <http://www.cdc.gov/features/norovirus/>.

A person can get norovirus from an infected person, contaminated food or water, or by touching contaminated surfaces. The most common way to get norovirus is coming into close contact with a person who is ill with norovirus. An ill person who works with food can make many people very ill if they touch food or drinks. While ill with norovirus, people can shed billions of virus particles via human waste. About 70% of food-related norovirus outbreaks happen when an infected food worker prepares food. Norovirus can contaminate food when:

- Infected workers neglect to wash their hands thoroughly after using the bathroom or vomiting, then directly touch food, drinks, or food contact surfaces;
- Surfaces, such as counters or utensils, are touched by an infected person, then come into contact with food, drinks, or another food handler's hands;
- Vomit, even tiny droplets or mist, from an infected person travel through the air and land on food or surfaces that touch food, and
- Food comes into contact with water contaminated with human waste, such as crops irrigated with or seafood harvested from contaminated waters.

To prevent the spread of norovirus:

- Wash hands thoroughly with soap and water before handling, preparing, or eating food.
- Wash hands thoroughly after using the bathroom, or changing diapers.
- Wash fruits and vegetables, and cook seafood thoroughly
- When sick and for at least 2 days after symptoms stop, do not prepare food or care of others who are sick
- Clean and disinfect contaminated surfaces and wash laundry thoroughly.
 - After throwing up or having diarrhea, immediately clean and disinfect contaminated surfaces. Use a chlorine bleach solution with a concentration of 1000–5000 ppm (5–25 tablespoons of household bleach [5.25%] per gallon of water) or other disinfectant registered as effective against norovirus. See EPA's Registered Antimicrobial Products Effective Against Norovirus (Norwalk-like virus)[11 pages].

An outbreak of 15 illnesses has been detected in City Z, a major tourist area. The source has been traced to a worker at Restaurant R who became ill with the virus and displayed symptoms while at work approximately 5 days ago. Since then, 4 other workers at the same restaurant, 3 of their family members, and 7 patrons have become ill with the virus. The CX Health Dept. continues to receive reports of new illnesses. One ill restaurant patron was visiting City Z 3 days ago and returned to his home City K just 30 kilometers away when he began showing symptoms. The people in City Z and City K have not yet been notified of an outbreak. CXFSA learned of the illnesses and began its investigation this morning.

Risk Communication Goal(s):

- To be the official source of information about the norovirus outbreak
- To be a trusted source of information regarding norovirus prevention

Key messages and supporting points:

Main Message #1: An outbreak of norovirus has been traced back to Restaurant R in City Z. Fourteen people who live in City Z, and 1 person who have visited the city in the last week, have become ill with norovirus. If you live in or have visited City Z in the past seven days, you may be at risk.

Main Message #2: Although most people recover fully from norovirus, it is highly contagious and the young children and the elderly can become severely dehydrated from vomiting and diarrhea. Older adults or young children with symptoms of norovirus should seek medical attention.

<p>Key Message #1: If you live in or have visited City Z, you may be at risk for norovirus</p> <ol style="list-style-type: none"> 1. All of the ill persons work at Restaurant R, are family members of workers, or ate at Restaurant R in the last 3-5 days 2. Norovirus is a virus that can cause extreme distress, including vomiting and/or diarrhea many times a day 3. Symptoms begin 1-2 days after contact with the virus and usually last for 2-3 days 4. Norovirus most commonly resides in fecal material and vomit. A person can get norovirus from an infected person, contaminated food or water, or by touching contaminated surfaces 5. You are most contagious when you are sick with norovirus illness, and during the first few days after recovery from the norovirus illness. 6. However, people may be contagious even though they do not feel sick because the virus can be in the stool before symptoms show and for 2 weeks or more after symptoms are gone. 	<p>Key Message #2: The spread of norovirus is preventable</p> <ol style="list-style-type: none"> 7. 3 tips to preventing the spread of the norovirus: <ol style="list-style-type: none"> a. Wash hands thoroughly with soap and water especially before handling, preparing, or eating food, and after using the bathroom, or changing diapers b. Wash fruits and vegetables, and cook seafood thoroughly c. Clean and disinfect surfaces, especially those used for food preparation, cooking and eating 8. Should you or someone you care for become ill with symptoms of norovirus, prevent the spread of the virus by taking these additional 3 steps: <ol style="list-style-type: none"> a. When sick and for at least 2 days after symptoms stop, do not prepare food or care of others who are sick b. After throwing up or having diarrhea, clean and disinfect surfaces and wash laundry thoroughly c. Standard food service and home sanitizers do not kill norovirus. When disinfecting, use a chlorine bleach solution with a concentration of 5-25 tablespoons of household bleach per gallon of water, or use other disinfectants registered as effective against norovirus 	<p>Key Message #3: Health authorities are acting to minimize the outbreak</p> <ol style="list-style-type: none"> 9. Restaurant R has been closed since yesterday when local health officials learned of the outbreak and began interviewing employees 10. According to federal regulations, the restaurant will have to undergo rigorous cleaning and disinfecting procedures 11. State health authorities will inspect Restaurant R after it has been disinfected, and require that it provide employees with proper hygiene training before it is allowed to reopen 12. CXFSA recommends a multi-part approach in retail establishments to prevent foodborne illness. These include employee training and proper hygiene, proper food handling, cooking and storing, and responsible sourcing 13. CXFSA recommends food service operations have rigorous cleaning and disinfecting procedures in place and employees trained to carry them out. These guidelines include stopping all food preparation and service, wearing personal protective equipment while cleaning the area, and using a disinfectant that is effective in killing norovirus
<p>Publicly Available Resources: For more information about the current norovirus outbreak in City Z, go to countryxfsa@fsa.gov . For more information about norovirus go to http://www.cdc.gov/norovirus/</p> <p>Proper clean-up procedures, guidelines for home clean-up, and effective norovirus disinfectants are provided at See EPA's Registered Antimicrobial Products Effective Against Norovirus (Norwalk-like virus)[11 pages].</p>		

Audiences <i>(complete table for those that apply in this specific situation)</i>	Audience's Concerns/Worries	Objectives <i>(What do we want to achieve?)</i>	Tactics/Actions <i>(How will we achieve it? How will we address their concerns/worries?)</i>
GOVERNMENTAL AUDIENCES			
<input type="checkbox"/> Internal: People within the CXFSA	<ul style="list-style-type: none"> • What is the CXFSA doing? 	<ul style="list-style-type: none"> • Inform others in our agency about the outbreak • Populate a webpage with specific outbreak information and links to general norovirus info 	<ul style="list-style-type: none"> • Include in monthly meetings with agency heads • Ask IT dept. to assist with outbreak webpage development
<input type="checkbox"/> Internal: Other federal govt. agencies in COUNTRY X	<ul style="list-style-type: none"> • What is CXFSA doing? • What is our role? • How will it affect what we do? 	<ul style="list-style-type: none"> • Coordinate with CX Health Dept. to receive latest illness numbers 	<ul style="list-style-type: none"> • Hold daily conference call with CX Health Dept., the State Dept. of Health covering City K and Z, and the local health depts. for these cities until further notice. Share illness numbers and investigation progress
<input type="checkbox"/> State, departmental, or provincial govt. agencies	<ul style="list-style-type: none"> • What is the CXFSA doing? • How will it affect what we do? • Do we have a role? If so, what? And why? 	<ul style="list-style-type: none"> • Notify all State health depts. • Ask local health depts. in City Z and K to assist communicating 2-6 and 7-8 	<ul style="list-style-type: none"> • Use disease alert bulletin to share information • Include local health depts. in City Z and K in morning conference calls
<input type="checkbox"/> Global partners: other countries' food safety and health agencies COUNTRY A COUNTRY C	<ul style="list-style-type: none"> • What is the problem? • How does it affect our country? • What is CXFSA doing to prevent it from affecting us? • How can we work together to protect people in both countries? 	<ul style="list-style-type: none"> • Inform of the Main Messages, and 1-6 • Explain what can be done to reduce spread in own country 7-8 • is being done to reduce risk 9-11 • Minimize impact on tourism 	<ul style="list-style-type: none"> • Email disease alert bulletin to countries with which we have an agreement to share such information, or to those who are sources of tourists.
<input type="checkbox"/> Other _____			
OTHER STAKEHOLDERS			
<input type="checkbox"/> Vulnerable populations (older adults and young children) in City Z and City K	<ul style="list-style-type: none"> • What is the issue? • Why am I at risk? • How do I prevent exposure? • How will I know if I have been exposed? • What should I do if I am exposed? 	<ul style="list-style-type: none"> • Inform about the issue with Main Messages and 1-6, and what to do, 7-8, public resources 	<ul style="list-style-type: none"> • Distribute press release to TV and radio stations that are broadcast in City Z and K – provide a video of proper hand washing • Ask local health depts. to send copy of press release to nursing homes and day care facilities in City Z and City K
<input type="checkbox"/> All other populations in City Z and City K	<ul style="list-style-type: none"> • What is the issue? • Am I at risk? • Is my family at risk? • How do I prevent exposure? • How will I know if I have been exposed? • What should I do if I am exposed? 	<ul style="list-style-type: none"> • To ensure that the general populations in City Z and City K are aware of the outbreak • Inform about key messages, 1-9, public resources 	<ul style="list-style-type: none"> • Distribute press release to TV and radio stations that are broadcast in City Z and City K - provide a video of proper hand washing
<input type="checkbox"/> All populations in a 100 km radius of City Z	<ul style="list-style-type: none"> • What is the issue? • Am I at risk? • Is my family at risk? • How do I prevent exposure? • How will I know if I have been exposed? • What should I do if I am exposed? 	<ul style="list-style-type: none"> • Inform about all key messages, 1-9, public resources 	<ul style="list-style-type: none"> • Distribute press release to TV and radio stations that are broadcast within 100 kms of City Z - provide a video of proper hand washing
<input type="checkbox"/> Foreign-speaking populations in City Z and City K	<ul style="list-style-type: none"> • Same as other populations, but language needs and the ways information is received may be different 	<ul style="list-style-type: none"> • Inform about all main messages, and 1-9, public resources 	<ul style="list-style-type: none"> • Translate press release into foreign language • Distribute foreign-language press release to foreign language TV and radio stations that broadcast in City Z and City K - provide a video of proper hand washing

<p><input type="checkbox"/> Doctors/Health professionals in City Z and City K</p>	<ul style="list-style-type: none"> • What is the issue/risk? • Who is most at risk? • What are the symptoms? • How are the symptoms treated? • What should I do if I come in contact with someone who has symptoms? • Where do I find more information? 	<ul style="list-style-type: none"> • Inform about all key messages, 1-9; also include more scientific data and terms • Ask for their help in distributing information to their patients • Give them confidence to communicate about the issue • Public resources 	<ul style="list-style-type: none"> • Local health depts. in City Z and City K to email health bulletin to health professionals, clinics, hospitals in area, linking to online press release on CXFSA website
<p><input type="checkbox"/> Restaurant R</p>	<ul style="list-style-type: none"> • What are my regulatory obligations? • When can I reopen? 	<ul style="list-style-type: none"> • Inform and ensure compliance of messages 9-13, public resources 	<ul style="list-style-type: none"> • State health officials will personally visit Restaurant R, inspect and witness employee training • Provide “Ways to Prevent norovirus outbreaks from Food Contamination” sign to post in employee areas
<p><input type="checkbox"/> Industry (all food service outlets in City Z)</p>	<ul style="list-style-type: none"> • What are my regulatory obligations? • How do I comply with regulations? 	<ul style="list-style-type: none"> • Ensure that restaurants in City Z understand the important of good worker hygiene • Educate food service operators of regulations, 12-13 	<ul style="list-style-type: none"> • Provide restaurants with link to online, downloadable and printable “Ways to Prevent norovirus outbreaks from Food Contamination” sign to post in employee areas

(All information in this example is fictional)

FOOD SAFETY RISK COMMUNICATION RESPONSE WORKSHEET

(To be completed by food safety risk communicator)
 COUNTRY "X"/ Lead Communicating Organization: CXFSA
 Last updated: August 25, 2015

Source: IFIC Foundation

Agency or person(s) completing this worksheet: COUNTRY "X" FOOD SAFETY ADMINISTRATION (CXFSA)

Circle the type of situation and Type of problem	Crisis or <u>Non-crisis</u>		
	Contamination <u>Heavy Metals</u>	Disease outbreak	Food recall
Other (specify) _____			

Describe situation and problem to be remedied using communications:
 Certain heavy metals, including mercury (especially when it occurs as methylmercury), arsenic, lead, and cadmium have been identified by the COUNTRY X health and food safety authorities as possible food-related hazards. Although federal and state regulations, food industry practices, and monitoring activities are in place to ensure that exposure to these heavy metals remains within safe limits, the general public does not understand the risk and is not aware of these mitigation methods. As a result, periodically unofficial sources, such as media or social media, generate panic among the uninformed or misinformed public.

Risk Communication Goal(s): List 1-3 goals that pertain to communication only.

- To become the most trusted source of information about heavy metals.
- Reduce the number of media stories that report untrue or exaggerated information

Key messages and supporting points: (Note: This section is *based* on the Fact Sheets in Chapter 5 and the Message Map template in the Appendix.)

Main Message #1: : Certain naturally occurring heavy metals can be potential health hazards if consumed in large quantities.

Main Message #2: CXFSA has been researching heavy metals in our diets for more than a decade; the agency monitors levels very closely and works to ensure that consumers know how to maintain safe exposure limit to these heavy metals.

<p>Key Message #1: Mercury (especially when it occurs as methylmercury), arsenic, lead, and cadmium are all different, but some common characteristics exist</p> <ol style="list-style-type: none"> 1. They all occur naturally in our environment, including in the soil, air and water <ol style="list-style-type: none"> a. Depending on the heavy metal, it may be absorbed by plants and animals that we eat 2. In large quantities, each one may result in heavy metal poisoning may occur <ol style="list-style-type: none"> a. Symptoms and the potentially toxic level is different for each heavy metal (Communicator advised to define "large" - see publicly available resources) 3. In general, long-term exposure to toxic heavy metals may cause cancer and negatively impact the central and peripheral nervous systems and the circulatory system <ol style="list-style-type: none"> a. Symptoms and effects vary depending on the metal or metal compound, and the dose and length of exposure 	<p>Key Message #2: FIVE things people can do to keep exposure to heavy metals at safe limits:</p> <ol style="list-style-type: none"> 4. People of all ages, even infants, benefit from eating a varied, balanced diet. <ol style="list-style-type: none"> a. Eliminating individual foods or food groups would not completely eliminate exposure to heavy metals b. Conversely, the benefits of consuming a variety of foods from food groups, such as seafood, fruits, vegetables, and whole grains, outweigh any potential risks from heavy metals 5. Use cookware that is manufactured for food use <ol style="list-style-type: none"> a. Ornamental containers and utensils may have high levels of heavy metals and may not be appropriate for use in preparing or serving foods 6. Do not store foods in opened or reused, metal cans 7. Make sure that water used for drinking and the preparation of food meets drinking water standards for heavy metals; have information available about how to find out 8. For home gardening, have the soil tested for heavy metal contamination. (Have information available about how to do this) 	<p>Key Message #3: Much is being done to find the problem and prevent it from happening again</p> <ol style="list-style-type: none"> 9. Federal and state regulations and food industry practices work to ensure that exposure to these heavy metals remains within safe limits. (Have examples ready) 10. The Environmental Dept. of the federal government continuously monitors soils and water for these heavy metals 11. Country X Agricultural Dept. has also begun testing foods for these heavy metals to ensure that levels remain below the federal safety tolerances 12. There has been no increase in heavy metal levels in soils and water over the past x years
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Publicly Available Resources: For more information about each of these four heavy metals, go to www.countryxfsa.gov.cx

Audiences <i>(complete table for those that apply in this specific situation)</i>	Audience's Concerns/Worries	Objectives <i>(What do we want to achieve?)</i>	Tactics/Actions <i>(How will we achieve it? How will we address their concerns/worries?)</i>
GOVERNMENTAL AUDIENCES			
<input type="checkbox"/> Internal: People within the CXFSA	<ul style="list-style-type: none"> • What is the CXFSA doing? 	<ul style="list-style-type: none"> • Inform others in our agency about the outbreak • Gain internal support for campaign 	<ul style="list-style-type: none"> • Hold monthly meetings with agency heads
<input type="checkbox"/> Internal: Other federal govt. agencies in COUNTRY X	<ul style="list-style-type: none"> • What is CXFSA doing? • What is our role? • How will it affect what we do? 	<ul style="list-style-type: none"> • Inform Rural Development of our campaign • Get help to communicate with rural populations • Keep rural officers informed 	<ul style="list-style-type: none"> • Hold a meeting with Rural Development Agency • Hold weekly meetings to discuss progress and resolve challenges
<input type="checkbox"/> State, departmental, or provincial govt. agencies	<ul style="list-style-type: none"> • What is the CXFSA doing? • How will it affect what we do? • Do we have a role? If so, what? And why? 	<ul style="list-style-type: none"> • Inform of our plan • Invite to be a part of it • Identify ways to work together 	<ul style="list-style-type: none"> • Hold a phone conference call with these agencies • Hold weekly meetings to discuss progress and resolve challenges
<input type="checkbox"/> Global partners: other countries' food safety and health agencies COUNTRY Y COUNTRY Z	<ul style="list-style-type: none"> • What is the problem? • How does it affect our country? • What is CXFSA doing to prevent it from affecting us? • How can we work together to protect people in both countries? 	<ul style="list-style-type: none"> • Inform of the issue with main message 1, key message 1 and supporting points 1-3 • Explain what can be done to reduce risk, 4-8 • Minimize impact on trade, 12-15 • Use partnerships to strengthen our response • Better understand how others have communicated 	<ul style="list-style-type: none"> • Hold a call to share how others have communicated about this issue
<input type="checkbox"/> Other _____			
OTHER STAKEHOLDERS			
Vulnerable populations (Those who do not vary their diets. These tend to be older populations or children transitioning to solid food) <input type="checkbox"/> Urban populations	<ul style="list-style-type: none"> • What is the issue? • Am I at risk? Why? • How do I prevent overexposure? • How will I know if I have been overexposed? • What should I do if I am overexposed? 	<ul style="list-style-type: none"> • Inform about all main messages 1-2, key messages 1-2 and supporting points, but especially on 4 	<ul style="list-style-type: none"> • Distribute informational brochures in primary doctors' and pediatricians' offices • Editorial coverage in retirement and aging magazines • Work with cooking ware manufacturers to put a recognizable symbol on cookware that meets govt. standards. Promote symbol
Vulnerable populations (Those who do not vary their diets. These tend to be older populations or children transitioning to solid food) <input type="checkbox"/> Rural Populations	<ul style="list-style-type: none"> • What is the issue? • Am I at risk? Why? • How do I prevent overexposure? • How will I know if I have been overexposed? • What should I do if I am overexposed? 	<ul style="list-style-type: none"> • Inform about all main messages 1-2, key messages 1-2 and supporting points, but especially on 4 	<ul style="list-style-type: none"> • Ask rural community health clinics to convey information in brochures • Ask state partners to visit community health clinics monthly and report on how frequently clinic staff communicate information to populations
Other consumers of food <input type="checkbox"/> Urban Populations	<ul style="list-style-type: none"> • What is the issue? • Am I at risk? Why? • How do I prevent overexposure? • How will I know if I have been overexposed? • What should I do if I am overexposed? 	<ul style="list-style-type: none"> • Inform about all main messages 1-2, key messages 1-2 and supporting points, but especially on 4-8 	<ul style="list-style-type: none"> • Editorials in food of health section of 6 major city papers and 2 women's magazines • Social media posts on Agency Facebook. Link to the "consumer" section of the Agency website for more information • Send letter to University health professors providing latest information on heavy metals, so supplement to text book materials
Other consumers of food <input type="checkbox"/> Rural populations		<ul style="list-style-type: none"> • Inform about all main messages 1-2, key messages 1-2 and supporting points, but especially on 4-8 	<ul style="list-style-type: none"> • Billboards focusing on messages 5d and 5e • Posters in public waiting areas in government buildings

<p>Other consumers of food <input type="checkbox"/> Foreign-speaking populations</p>	<ul style="list-style-type: none"> • Same as other consumers of food, but language needs and the ways information is received may be different 	<ul style="list-style-type: none"> • Inform about all main messages 1-2, key messages 1-2 and supporting points, but especially on 4-8 	<ul style="list-style-type: none"> • Interviews on foreign language radio • Foreign language brochures to multilingual doctors. Look into offering free materials through a medical association.
<p><input type="checkbox"/> Doctors/Health professionals</p>	<ul style="list-style-type: none"> • What is the issue/risk? • Who is most at risk? • What are the symptoms? • How are the symptoms treated? • What should I do if I come in contact with someone who has been exposed/overexposed? • Where do I find more information? 	<ul style="list-style-type: none"> • Inform about all key messages, but include more scientific data and terms • Ask for their help in distributing information to their patients • Give them confidence to communicate about the issue 	<ul style="list-style-type: none"> • Assign one or more government scientist or doctor to call or email before sending brochures. Provide them with talking points and/or a draft email • Mail brochures and include ideas on how to talk to patients about this issue; include personal cover letter from a govt. health official, encouraging them to educate their patients
<p><input type="checkbox"/> Community organizations</p>	<ul style="list-style-type: none"> • How does this affect our community? 	<ul style="list-style-type: none"> • Inform about all key messages, especially 4-8 	<ul style="list-style-type: none"> • Ask local health authorities to talk to churches and community centers about distributing brochures
<p><input type="checkbox"/> Reporters</p>	<ul style="list-style-type: none"> • Why should my readers, listeners or viewers care about this? • Why should I tell them about this? 	<ul style="list-style-type: none"> • Gain their trust as the official source of information on this issue. Main message 2, 12-15 • Educate them about the correct information 1-8 • Gain their help in communicating the correct messages 	<ul style="list-style-type: none"> • Call 6 major city newspaper and talk to food or health writers about doing a story • Contact 2 foreign language radio stations that cover rural areas and ask to record a brief interview or run a public service announcement • Contact AARP Magazine, Aging, and Prevention, and Good House Keeping magazines about running stories on the issue
<p><input type="checkbox"/> Industry (food retailers, distributors, processors, and facturers)</p>	<ul style="list-style-type: none"> • What are my regulatory obligations? • How does this affect my operations? 	<ul style="list-style-type: none"> • Ensure companies know and are complying with the govt. regulations 	<ul style="list-style-type: none"> • Send letter to all registered or licenses food manufacturer informing them of the regulations and directing them to the website for more information • Develop an “industry” section to the website
<p><input type="checkbox"/> Industry (farmers, producers)</p>	<ul style="list-style-type: none"> • What are my regulatory obligations? • How do I protect my own family who also eats what I grow? 	<ul style="list-style-type: none"> • Ensure companies know and are complying with the govt. regulations • Include messages 5a-5g too 	<ul style="list-style-type: none"> • Send agricultural cooperatives or city agricultural groups information about regulations and ask that they distribute to local farmers

Key Resources for CXFSA	
Last updated: August 25, 2015 People, agencies or groups who may assist or inform us when needed (Alphabetical in each category)	
GOVERNMENT AGENCIES	
COMMUNICATION	
FOOD SAFETY ORGANIZATIONS	
HEALTH/MEDICAL ORGANIZATIONS	
FOOD AND AGRICULTURAL ORGANIZATIONS	
SCIENTIFIC ORGANIZATIONS	
OTHERS (TBD)	

EXAMPLE
NEWS MEDIA CONTACT LIST
COUNTRY X/FSA
Last updated: SEPTEMBER 24, 2015

NAME AND CONTACT INFORMATION	PRINT DAILY WEEKLY MONTHLY	RADIO 	TV 	WEBSITE 	FLICKR 	YOUTUBE 	TWITTER 	OTHERS 
NATIONAL								
REGIONAL - SOUTH								
REGIONAL - NORTH								
REGIONAL - EAST								
REGIONAL - WEST								

Source: IFIC Foundation

ENSURING A SAFE FOOD SUPPLY: A CONCISE GUIDE TO THE U.S. FOOD REGULATORY SYSTEM



COMPILED BY: IFIC

Your source for reliable, science-based food safety and nutrition information and consumer insights

QUESTIONS? 202/296-6540 www.foodinsight.org

MAIN AGENCIES RESPONSIBLE FOR FOOD REGULATION



UNITED STATES DEPARTMENT OF AGRICULTURE:
FOOD SAFETY AND INSPECTION SERVICE

Contact: phone 202/720-9113
<http://www.fsis.usda.gov>

Mission:

- Ensure that the nation's commercial supply of meat, poultry, and processed egg products is safe, wholesome, and correctly labeled.

Food Regulatory Responsibilities:

- Enforces food safety laws governing domestic and imported raw and processed meat and poultry products, and processed egg products and establishes regulatory requirements to implement these laws.
- Inspects meat and poultry slaughter and processing plants and egg processing plants, and imports.
- Requires HACCP* systems at meat and poultry plants.
- Requires meat and poultry plants to conduct microbial testing and sets microbial criteria for certain foods.
- Develops labeling requirements for meat, poultry and processed egg products and verifies accuracy of labeling.
- Educates consumers about safe food handling, food labeling, and food defense. Operates meat and poultry hotline: 1-888-MPHotline
www.askkaren.gov



DEPARTMENT OF HEALTH AND HUMAN SERVICES (DHHS):
FOOD AND DRUG ADMINISTRATION

Contact: phone 888/INFO-FDA (888/463-6332)
<http://www.fda.gov>

Food Safety Centers/Offices Missions:

- **Center for Food Safety and Applied Nutrition (CFSAN):** Ensures food supply is safe, sanitary, wholesome, and honestly labeled.
<http://www.foodsafety.gov/list.html> (800/723-3366)
- **Office of Regulatory Affairs:** Protects consumers and enhances public health by maximizing compliance of FDA regulated products and minimizing risk associated with those products <http://www.fda.gov/ora/>

Food Regulatory Responsibilities:

- Enforces food safety laws governing domestic and imported food, *except* meat, poultry, and processed egg products.
- Regulates about 80 percent of U.S. food supply, including produce, dairy products, seafood, processed foods, shell eggs, and animal feed and pet food.
- Develops policies and regulations for nutrition labeling and standards for foods, dietary supplements, infant formula and medical foods.
- Approves food and animal feed additives and affirms their Generally Recognized As Safe status.
 - Inspects food production establishments and food warehouses.
 - Requires HACCP* systems at processing plants for seafood and juice.
 - Sets microbial criteria for certain foods.
 - Develops Good Manufacturing Practices (GMPs) and Good Agricultural Practices (GAPs) and other production standards.
 - Educates consumers about safe food handling practices, cooking, food labeling and food defense systems.



ENVIRONMENTAL PROTECTION AGENCY (EPA)

Office of Prevention, Pesticides and Toxic Substances (OPPTS)

Contact: phone 703/305-7090 <http://www.epa.gov/pesticides/>

Mission: To protect human health and the environment.

Food Safety Responsibilities:

- Ensures that pesticides used in food production are safe.
- Establishes tolerances, the maximum amount of pesticide residue that may remain on or in treated crops, animals and animal products.
- Ensures proper use of pest management techniques used on crops.
- Establishes regulations and standards for safe drinking water.

*Hazard Analysis and Critical Control Point (HACCP) systems identify, evaluate and control food safety hazards.

ENSURING A SAFE FOOD SUPPLY:

A CONCISE GUIDE TO THE U.S. FOOD REGULATORY SYSTEM



OTHER AGENCIES		
Agency	Contact	Food Regulatory Responsibilities
<i>Department of Agriculture</i>		
Agricultural Marketing Service (AMS)	202/720-8998 www.ams.usda.gov	Provides standardization, grading, certification, auditing, and inspection for six commodity programs. Administers the National Organic Program.
Agricultural Research Service (ARS)	202/720-3656 www.ars.usda.gov	Conducts research to ensure high quality, safe food and other agricultural products, and to assess the nutritional needs of Americans.
Animal and Plant Health Inspection Service (APHIS)	202/720-2511 www.aphis.usda.gov	Determines and implements standards for the care and treatment of animals. Safeguards agriculture and natural resources from risks associated with the entry, establishment, or spread of animal and plant pests and noxious weeds.
Center for Nutrition Policy and Promotion (CNPP)	703/305-7600 www.cnpp.usda.gov	Develops and promotes dietary guidance that links scientific research to the nutrition needs of consumers. Administers the <i>Dietary Guidelines for Americans</i> , which include food safety recommendations.
Food and Nutrition Service (FNS)	703/305-2281 www.fns.usda.gov/ fns/	Provides children and needy families better access to food and a more healthful diet through food assistance programs and comprehensive nutrition education efforts. Administers National School Lunch Program.
National Agricultural Library (NAL) USDA/FDA Food Safety Information Center	301/504-5719 www.nal.usda.gov/ fnic	Maintains a database of computer software, audiovisuals, posters, games, teachers' guides and other educational materials on preventing foodborne illness. Helps educators, food service trainers, and consumers locate educational materials on preventing foodborne illness.
<i>Other Agencies</i>		
Centers for Disease Control and Prevention (CDC) DHHS	404/639-3534 (800)311-3435 www.cdc.gov	Conducts surveillance of foodborne illness and investigates multi-state outbreaks in cooperation with FDA or USDA (depending on the product) and state agencies where the outbreaks have occurred. Conducts National Health and Nutrition Examination Survey (NHANES) on the health and nutrition of the U.S. population.
Center for Veterinary Medicine (CVM) FDA / DHHS	240/276-9300 www.fda.gov/cvm/	Regulates the manufacture and distribution of food additives and drugs that will be given to animals.
Department of Homeland Security	202/282-8000 www.dhs.gov/ index.shtm	Coordinates partnerships among federal agencies, state and local leadership, and private industry to protect the nation's food and agriculture supply from terrorist attacks, major disasters, and other emergencies.
Federal Trade Commission	202/326-2222 www.ftc.gov	Enforces a variety of laws that protect consumers from unfair, deceptive, or fraudulent practices, including deceptive and unsubstantiated advertising.
National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) Department of Commerce	301/713-2334 www.nmfs.noaa.gov	Provides a voluntary Seafood Inspection Program that inspects and certifies fishing vessels, seafood processing plants, and retail facilities according to federal sanitation standards. Works cooperatively with FDA's Office of Seafood, and uses FDA criteria to evaluate seafood products and processes.



STATE REGULATORY AGENCIES

These entities – including state departments of health and agriculture – work with FDA, USDA, and other federal agencies to implement food safety standards for all foods produced within state borders. The laws and standards they enforce are encouraged to coincide with either federal laws or uniform model codes such as those created by the Association of Food and Drug Officials. State agencies inspect restaurants, grocery stores and other retail food establishments, as well as dairy farms and milk processing plants, grain mills, and food manufacturing plants within local jurisdictions. In addition, they can halt the sale (embargo) of unsafe food products made or distributed within state borders. Food products that cross state lines (interstate shipment) are subject to federal jurisdiction.



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ISSUE RESPONSIBILITY BY FEDERAL AGENCY

Issue	Agency
Animal and plant diseases/pests	APHIS
Animal feed additives	CVM
Fish and seafood products (except catfish)	CFSAN, NOAA/NMFS
Biotechnology	APHIS, CFSAN, EPA
Eggs (processed): regulation and inspection	FSIS
Eggs (shell): regulation and inspection	CFSAN
Food and color additives, ingredients	CFSAN, FSIS
Food labeling	CFSAN, FSIS
Food recalls	CFSAN, FSIS
Food security/protection/defense	USDA, CFSAN, DHS
Foodborne illness education	FSIS, CFSAN, CDC
Foodborne illness outbreaks/surveillance	CDC
HACCP	CFSAN, FSIS
Imported food	CFSAN, FSIS
Inspection of food animals	FSIS
Inspection of food processing plants (non meat)	CFSAN
Inspection of meat and poultry slaughter facilities and processing plants	FSIS
Irradiation	CFSAN
Microbial standards	FSIS, CFSAN
National Organic Program	AMS
Packaging requirements	CFSAN, FSIS
Pesticides (enforces tolerances established by EPA)	CFSAN, FSIS
Pesticides (establishes tolerances)	EPA
Pesticides (regulates development, distribution, promotion, handling, storage, use, disposal)	EPA
Safe food handling practices	CFSAN, FSIS, CDC
School meal programs	FNS
Veterinary (animal) drugs	CVM

ADDITIONAL RESOURCES:

CONTACT IFIC FOR MORE INFORMATION

International Food Information Council Foundation
 Phone: 202/296-6540
<http://www.foodinsight.org/>

Gateway to Government Food Safety Information
<http://www.foodsafety.gov/>

Partnership for Food Safety Education
 Phone: 202/220-0651
<http://www.fightbac.org/>

Council for Agricultural Science and Technology (CAST)
 Phone: 515/292-2125
<http://www.cast-science.org/>

Children's Food and Beverage Advertising Initiative (Better Business Bureau)
<http://www.bbb.org/us/childrens-food-beverage-initiative/>

Congressional Resources

Senate Committee on Agriculture, Nutrition & Forestry
 Phone: 202/224-2035
<http://agriculture.senate.gov/>

Senate Committee on Appropriations
 Phone: 202/224-7363
http://appropriations.senate.gov

Senate Committee on Health, Education, Labor and Pensions
 Phone: 202/224-5375
<http://help.senate.gov>

U.S. House of Representatives Committee on Agriculture
 Phone: 202/225-2171
<http://agriculture.house.gov/index.shtml>

U.S. House of Representatives Committee on Appropriations
 Phone: 202/225-2771
<http://appropriations.house.gov/>

U.S. House of Representatives Committee on Energy & Commerce
 Phone: 202/225-2927
<http://energycommerce.house.gov/>

Industry Groups

Food Marketing Institute (FMI)
 Phone: 202/452-8444
<http://www.fmi.org/>

Grocery Manufacturers Association (GMA)
 Phone 202/639-5900
<http://www.gmaonline.org/>

National Restaurant Association (NRA)
 phone 202/331-5900
<http://www.restaurant.org/>

Consumer Advocates

Center for Science in the Public Interest (CSPI)
 Phone 202/332-9110
<http://www.cspinet.org/>

Consumer Federation of America
 Phone: 202/387-6121
<http://www.consumerfed.org>

National Consumers League
 Phone: 202/835-3323
<http://www.nclinet.org/>



ABOUT IFIC AND IFIC FOUNDATION

Based in Washington, D.C., the International Food Information Council (IFIC) and its educational arm, the IFIC Foundation, communicate science-based information on food safety and nutrition to health and nutrition professionals, educators, journalists, government officials and others. Both are supported primarily by the broad-based food, beverage and agricultural industries. They have established partnerships with a wide range of professional organizations, academic institutions and government agencies to develop and disseminate science-based information. www.foodinsight.org

Glossary of Food Safety Terms

Terms are defined here only as they relate to food safety and food safety communication, and may have applications in other industries (e.g., pharmaceuticals) that are not addressed. For additional definitions and details, please refer to the USDA Glossary of Agricultural Biotechnology Terms located on their website (www.usda.gov).

A

Adulterated – made impure by adding inferior materials or elements

Audience – Group of people who are the receivers of the risk communication. (WHO/FAO doc)

C

Center for Disease Control and Prevention (CDC) – The United States agency charged with tracking and investigating public health trends

Chemical Hazards – Cleansers, sanitizers, polished, machine lubricants, and pesticides that may contaminate food

Contamination – Unwanted pollution by another substance

Council to Improve Foodborne Outbreak Response (CIFOR) – A multidisciplinary working group convened to increase collaboration across the country and across relevant areas of expertise in order to reduce the burden of foodborne illness in the United States

Codex Alimentarius Commission (Codex) – Joint intergovernmental body of the Food and Agriculture Organization of the United Nations and World Health Organization with goals to protect the health of consumers and to promote fair practices in food trade

D

Department of Homeland Security (DHS) – a national effort to prevent terrorist attacks within the United States, reduce America's vulnerability to terrorism, and minimize the damage and recover from attacks that occur

E

Environmental Protection Agency (EPA) – protects human health and the environment by writing and enforcing laws passed by Congress

Epidemiological – study of data sources including vital statistics data, CDC data, health surveys, and disease registries in order to study factors associated with certain diseases or conditions

Exposure – condition of being exposed to harm

Exposure Assessment – process of estimating or measuring the magnitude, frequency, and duration of exposure to biological, chemical, and physical agents via food

F

FDA Food Safety Modernization Act (FSMA) – ensure the U. S. food supply is safe by shifting the focus of regulators from responding to contamination to prevention

Food Agricultural Organization (FAO) – specialized organization of the United Nations to eliminate hunger and improve nutrition and standards of living by increasing agricultural productivity

Foodborne Illness – a disease that may be transmitted to people by food

Food Code – United States model that jurisdictions nationwide use to develop food service sanitation standards

Foodborne Disease Active Surveillance Network (FoodNet) – tracks trends for infections transmitted commonly through food

Food Safety – handling, preparation, and storage of food in ways that prevent foodborne illness. the processes implemented by those who produce, process, distribute,

or prepare food (including consumers) to ensure that risk is minimized from microbial hazards chemical hazards and physical hazards (e.g., plastic, metal, bone, etc.).

Food Safety and Inspection Services (FSIS) – public health agency of the USDA responsible for ensuring the nation's commercial meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged

Food Standards – definition and standard of identity for any food or class of foods in which optional ingredients are permitted

Foreign Agriculture Service – A department of the U.S. Department of Agriculture that links United States agriculture to global partners to enhance export opportunities and global food security

G

Global Food Safety Initiative (GFSI) – A private organization, established and managed by the international trade association, the Consumer Goods Forum, under Belgian law in May 2000. The GFSI maintains a scheme to benchmark food safety standards for manufacturers as well as farm assurance standards.

Good Agricultural Practices (GAP) – specific methods applied to agriculture which create foods that are safe and wholesome for consumers

Good Handling Practices (GHP) – specific methods of handling foods after harvesting to minimize contamination

Good Manufacturing Practices (GMP) – system for ensuring that products are consistently produced and controlled according to quality standards

H

Hazard – situation that poses a level of threat to life, health, property, or environment

Hazard Analysis and Critical Control Points (HACCP) – based on identifying significant biological, chemical, or physical hazards as points throughout the flow of food from farm to table

Hazard Analysis and Risk-based Preventive Controls (HARPC) – task that food companies must perform to maintain safe food

Hazard-based Approach – the presence of a hazard deemed the food to be unsafe

Hazard Characterization – qualitative or quantitative evaluation of the nature of the adverse effects associated with biological, chemical, and physical agents which may be present in food

Hazard Identification – identifying hazards in facilities to determine risks throughout the lifecycle to employees, the public and the environment

I

ICEFRC – International Center of Excellence in Food Risk Communication

International Life Sciences Institute (ILSI) – a nonprofit, worldwide organization whose mission is to provide science that improves human health and well-being and safeguards the environment

Integrated Food Safety Systems (IFSS) – reduce the risk of illness due to food from production facilities; shifting FDA focus from responding to problems to prevention

M

Microbial Hazards – bacteria, viruses, and parasites which can contaminate food and cause foodborne illness

N

National Center for Food Protection and Defense (NCFPD) – multidisciplinary, action-oriented research consortium united to help make the nation's food system less vulnerable to biological and chemical attack

National Response Framework – a guide to how the United States responds to all types of disasters and emergencies

O

Outbreak (foodborne) – when two or more cases of a similar illness result from eating the same food

P

Pathogen Verification Testing – USDA program through which processes are tested for effectiveness in reducing pathogen contamination

Pesticide Residues – pesticides that may

remain on or in food after they are applied to food crops

Physical Hazards – objects that may be introduced or get into food such as shavings cans, wood, fingernails, staples, bandages, glass, jewelry, and dirt or natural occurring objects such as fruit pits and bones

Product Traceback – is an investigation conducted, upon discovery of a contaminated food, to locate and isolate the source of contamination

R

Rapid Response Teams (RRT) – work to innovate effective food emergency response models

Recall – notification of unsafe food to discard or return to manufacturer

Risk – situations involving exposure to danger

Risk-based Approach – a determination if the hazard is at a level that may have a negative impact on public health

Risk-benefit Analysis – the process of weighing the risks of an action or an exposure against the benefits of the same action or exposure

Risk Analysis – foundation for characterizing, preventing, addressing and communicating food-related human health risks

Risk Assessment – scientific process of hazard identification, characterization, exposure assessment, and risk characterization as part of the risk analysis process

Risk Characterization – estimates the probability of the occurrence and severity of known or potential adverse health effects in a given population

Risk Communication – the exchange of information among researchers, regulators, food handlers, and health professionals to help ensure a quality risk analysis, and to convey risk information and risk reduction guidance to the public

Risk Management – implementation of actions to limit public health risks as part of the risk assessment process

Risk Perceptions – personal feeling

or opinion that people make about the characteristics and severity of a risk

S

Secondary research – documents written after an event has occurred, providing secondhand accounts of that event, person, or topic

Stakeholders – people with a common interest or concern with something

Social Network – A web-based community of people often grouped into common interests

U

United Nations – intergovernmental organization promoting international cooperation and action on a range of issues

Unintended Consequences – outcomes that are not the ones foreseen and intended by a purposeful action

U.S. Department of Agriculture (USDA) – government agency that oversees the American farming industry

U.S. Department of Health and Human Services (HHS) – government agency whose mission it is to enhance and protect the health and well-being of all Americans, and to provides essential human services

U.S. Food and Drug Administration (FDA) – government agency that works to protect the public health by overseeing the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, nation's food supply, cosmetics, and products that emit radiation

V

Vulnerable Groups – those who may have compromised immune systems, young children and older adults, and those within a country that have been excluded from financial and social services for a variety of reasons

W

World Health Organization (WHO) – specialized agency of the United Nations concerned with international public health

World Trade Organization (WTO) – global international organization dealing with the rules of trade between nations



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FOOD INFORMATION
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www.foodinsight.org

Food Safety: A Communicator's Guide to Improving Understanding was prepared under a partnership agreement between the U.S. Department of Agriculture (USDA) Foreign Agricultural Service (FAS) and the IFIC Foundation to provide guidance on effective food safety communication. This partnership agreement does not constitute an endorsement of any products or organizations that support IFIC or the IFIC Foundation.

