B. Generalized CIFOR Guidelines for implementing foodborne illness complaint systems

The CIFOR Guidelines included "Keys to Success" within each section to highlight activities, relationships, and resources that are critical to the successful performance of the function. These keys to success also form the basis for the CIFOR Guidelines Toolkit and worksheets developed to allow state and local health departments to conduct self-assessments of their outbreak detection and investigation procedures, and to implement appropriate recommendations (http://www.cifor.us/toolkit.cfm). The Keys to Success for Complaint systems are highlighted in Table 4, along with implementation strategies from the CIFOR Toolkit and recommendations from the MN COE Key Points for Creating a Successful Foodborne Illness Complaint System.

The keys to success for complaint systems, with implementation recommendations from the Toolkit and lessons learned from well-documented complaint systems provide the basis for operational guidelines that could be implemented by a variety of LHD structures (Table 5, Template for incorporation into a future edition of the CIFOR Guidelines).

An important principle is that foodborne illness outbreaks are usually detected through one of three ways: pathogen-specific surveillance of reportable diseases, reports of illnesses by healthcare providers or institutions, or consumer complaints of suspected foodborne illness. Thus, a successful complaint system should be linkable with pathogen-specific surveillance, and other reports of illness from healthcare providers or institutions.

All complaints require some level of follow-up. If a call is received by telephone, the complainant should be given some expectation for what follow-up is likely. If the complaint is received by text, email, or on-line reporting system, the complainant should receive notification that the complaint was received.

Complaints received by telephone should be documented with a standard intake form to record complainant information. For example, a model foodborne illness complaint form was developed by the EHSNET program (Appendix 1: https://www.cdc.gov/nceh/ehs/ehsnet/docs/ehs-net_foodborne_illness_complaint_form.pdf). Complaints received through other formats warrant follow-up to fully document the complaint. Questions should cover identifying information for the caller, detailed illness information (including exact time of symptom onset and recovery), suspected food product or establishment, names and contact information for the complainant and other members of the dining party (if applicable), and all potentially relevant non-foodborne exposures (See Appendix 1. Foodborne Illness Complaint Form).

When illness is limited to a single person or members of a single household, a 3-day food history should be obtained, focused on meals eaten outside of the home. Only 1 in 5 complaints with a known etiology is caused by an agent with an incubation period <24 hours, and people often identify an incorrect exposure as the cause of their illness (e.g., last thing they ate). When illness is reported among members of multiple households, information should be taken only for meals in common to members of the different households. Staff should attempt to contact and interview ill meal companions reported by the original caller about symptoms and food consumption. All information collected should be entered into the complaint database.

If the complaint is taken by the environmental health staff responsible for inspecting the food establishments that the caller mentions, they should evaluate the complaint considering the likelihood of a foodborne illness or outbreak, review the inspection history of the establishment, contact the establishment's manager, and determine the value of conducting an environmental assessment. If the complaint is received by communicable disease surveillance staff, the complaint information should be immediately (via fax or electronically) shared with the responsible environmental health staff.

Complaints involving multiple households, instances of multiple independent complaints about the same food establishment, reports of clusters of illness, and complaints involving multiple people in the same household that suggest an exposure outside the home, should be reported to and evaluated by supervisory staff as the complaints are received. The supervisor, or outbreak response team should evaluate the need to initiate an outbreak investigation based on the number of reported ill persons, reported symptoms and incubations from exposures of interest, whether or not illness was reported in multiple households, the presence/absence of other shared exposures, and whether other independent complaints were received.

To complement the review of individual complaints and patterns of complaints detected through the foodborne illness complaint system, communicable disease surveillance staff should conduct standard interviews for foodborne illness cases detected through pathogen-specific surveillance (e.g., Salmonella and Shiga toxin–producing E. coli). All food establishments that affected persons reported eating at within the 7 days prior to illness onset should be entered into the complaint database. As new information is added, the complaint system supervisor should examine a list of restaurants or other food establishments from both foodborne illness complaint and pathogen-specific surveillance streams to search for common establishments.

As noted by the MDH COE, "Consumer complaint systems are an effective surveillance tool for detection of foodborne illnesses caused by various agents, including reportable pathogens. Complaint systems can be used to enhance pathogen-specific surveillance and provide the primary means of outbreak detection for non-reportable and emerging pathogens for which clinical laboratory diagnosis is not available. The use of a complaint based surveillance system can also speed up investigations; investigators do not have to wait for cases to be reported through pathogen-specific surveillance. When complaint systems are in place, the lag time between illness and reporting to the health department is decreased, which can lead to more timely investigations and follow-up by health departments." (http://mnfoodsafetycoe.umn.edu/foodborne-illness-complaint-system/)

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Table 4. Keys to success for complaint systems and suggested implementation strategies modified from Toolkit and the MN Integrated Center of Excellence Key Points for Creating a Successful Foodborne Illness Complaint System.

ACTIVITY	TOOLKIT IMPLEMENTATION STRATEGY	MN-COE KEY POINTS RECOMMENDATIONS
Soliciting and receiving reports		
• Agency/jurisdiction has an established process for receiving reports about possible foodborne illness(es) from the public.	• Establish a formal system for receiving reports about possible foodborne illness from the public. • To increase reporting from the public, make the reporting process as simple as possible.	
• Public knows how to report possible foodborne illnesses to the agency/jurisdiction.	• Use one 24/7 toll-free telephone number or one website address that easily can be remembered or found in the telephone directory or by using an internet search engine. • Promote awareness of reporting system through agency website, social media outlets.	
• Agency/jurisdiction solicits reports of possible foodborne illness from other agencies and organizations likely to receive these reports (e.g., poison control center, industry) inside and outside the jurisdiction.	• Identify and regularly communicate with agencies, organizations, businesses and health care facilities that receive possible foodborne illness complaints and ensure that they have current contact information for reporting complaints. • Establish memos of understanding (MOU) to describe* methods for sharing information with other agencies or organizations that receive possible foodborne illness complaints such as a shared database that public health agencies can access and review. • Train food managers and workers about the importance of reporting potential foodborne illnesses among workers or customers and food code requirements for disease reporting. (http://cifor.us/documents/CIFOR%20Industry%20Guidelines/CIFOR-Industry-Guidelines.pdf) *MOUs were recommended to formalize interagency reporting processes.	Get stakeholder buy in: • Clearly describe how the complaint system will work – engage stakeholders to define roles for state and local health departments, and epidemiology and environmental health components of each. • Ensure that complaint information is made available to everybody who needs it. For example, in Minnesota, MDH epidemiology staff collect complaint information for the whole state and then send it to the environmental health jurisdiction (state or local, public health or agriculture) for each food establishment mentioned in a complaint, independent of whether an outbreak investigation is initiated at a particular establishment. Environmental health staff follow-up with complaints following their agency's standard procedures.

Table 4. *continued* Keys to success for complaint systems and suggested implementation strategies modified from Toolkit and the MN Integrated Center of Excellence Key Points for Creating a Successful Foodborne Illness Complaint System.

ACTIVITY	TOOLKIT IMPLEMENTATION STRATEGY	MN-COE KEY POINTS RECOMMENDATIONS
Soliciting and receiving reports		
• Agency/jurisdiction works with the local media to solicit reports of possible foodborne illness from the public.	• Routinely distribute press releases about food safety that include the telephone number or website address for reporting to encourage reporting by the public.	
Detection of clusters/outbreaks		
• Staff collects specific information about each possible foodborne illness report and records the information in an electronic data system.	• Use a standard process to collect information from individuals reporting a possible foodborne illness, including use of a standard interview form that solicits information on both food and nonfood exposures (See Appendix 1. Foodborne Illness Complaint Form). • Collect as much information as possible during the initial report. Food histories and other exposures are critical to detecting clusters. • Compile interview data in a log or database to facilitate examination of reports for exposure clustering, trends, or commonalities. A database with templates for rapid data entry and analysis will streamline the data management process and improve cluster and outbreak identification.	• Collect appropriate information from complainants. Do not limit the complaint system to information only about the restaurant that the complainant suspects. Only 1 in 5 complaints with a known etiology was caused by an agent with an incubation period <24 hours, and people often identify an incorrect exposure as the cause of their illness (e.g., last thing they ate). • Get details about symptoms, onset date and time, and recovery date and time. These are needed to determine the likely etiology and determine which establishment (if any) was the most likely source of illness. • Enter complaint information into an electronic database, immediately or within the same day.* • Develop a shared/centralized complaint system so that all agencies can evaluate all illness complaints. Experience gained by staff that review and evaluate complaints on a routine basis facilitates efficient, effective outbreak detection and investigation. *Timeliness of data entry was identified as a barrier to quickly identifying trends.

Table 4. *continued* Keys to success for complaint systems and suggested implementation strategies modified from Toolkit and the MN Integrated Center of Excellence Key Points for Creating a Successful Foodborne Illness Complaint System.

ACTIVITY	TOOLKIT IMPLEMENTATION STRATEGY	MN-COE KEY POINTS RECOMMENDATIONS
Soliciting and receiving reports		

• Staff regularly review reports of foodborne illness to identify cases with common characteristics or suspicious exposures that might represent a common source outbreak.	• Set up the reporting process so all reports go through one person or one person routinely reviews all reports to increase the likelihood that patterns among individual complaints will be detected.
	• As new complaints are received, review previous complaints to recognize multiple persons with a similar illness or a common exposure.*
	• Compare exposure information collected through the complaint system with data from pathogen-specific surveillance, when feasible**, to reveal potential connections between cases and increase the likelihood of detecting an outbreak.
	• Alert the appropriate regulatory authority when a commercially distributed food item is suspected. This will allow the agency to check complaint information against their databases (e.g., USDA/FSIS Consumer Complaint Monitoring System) to identify cases with similar characteristics or exposures. To alert the FSIS complaint management team directly, an email can be sent to ccms@fsis.usda.gov.
	*To standardize the review process, it was recommended that reviewing previous complaints should occur as new complaints are received, rather than the less well defined process of regularly (daily).
	**It was noted that complaint systems and pathogen-specific surveillance data are maintained by separate surveillance groups in many LHDs, and that the feasibility of routine comparisons of this type will have to be determined for each agency.
		• Review and respond systematically to complaints.
		• Centralization allows all complaints to be reviewed by the same epidemiology staff to determine the need for further investigation and facilitate a consistent response for the same types of complaints. It allows complaints to be cross-referenced to identify multiple independent complaints about a restaurant or event. City- or county-specific complaint systems are more likely to fail to recognize independent complaints that name the same restaurant, if the complaints are made to different city/county health departments.
		• Cross-reference restaurants named on complaints with those mentioned on pathogen-specific surveillance interviews:
		  • Allows detection of more Salmonella, and STEC outbreaks.
		  • Allows detection of Salmonella, and STEC outbreaks more quickly than is possible by pathogen specific surveillance alone.
		This is much easier to accomplish if complaint systems are centralized at the same level as pathogen-specific disease surveillance.

Table 4. *continued* Keys to success for complaint systems and suggested implementation strategies modified from Toolkit and the MN Integrated Center of Excellence Key Points for Creating a Successful Foodborne Illness Complaint System.

ACTIVITY	TOOLKIT IMPLEMENTATION STRATEGY	MN-COE KEY POINTS RECOMMENDATIONS
Responding to complaints		
• Staff review, evaluate and respond to complaints based on the likelihood of an outbreak and the risk posed to public health.	For individual complaints: • Collect a detailed exposure history for the 3* days before onset of illness. If clinical or laboratory evidence is available to suggest a specific agent with a longer incubation period, collect food history for the incubation period corresponding to the agent. • Train staff to give appropriate instructions to persons reporting a possible foodborne illness about prevention of secondary spread and seeking health care. • Guide staff on how to respond to and communicate with upset members of the public and dealing with death. • Decide whether to routinely collect clinical specimens from independent complaints or encourage patients to seek health care. When serious illness (e.g., bloody diarrhea) or a likely outbreak is identified, clinical specimens should be aggressively pursued. • Prioritize the investigation of establishments identified in individual complaints based on whether the complainant's illness is consistent with foods eaten at the establishment, whether a food preparation or serving problem was reported, and the number of persons (with no other shared food history) implicating the establishment. Past inspection history of priority and priority foundation violations may also prove informative.	If only one person was ill or all ill persons live in the same household: • Collect 3* days of food history. Outbreaks are frequently detected at food establishments or food sources identified 2 or 3 days back in the food history, and not at the food establishment that the complainant suspects. *Recommendation was made to collect a 3-day food history, to comply with the use of standard complete intake forms that include a 3-day food history template. In addition, most foodborne illness complaints are associated with agents that have incubation periods of less than 3 days. Incorporated into the recommendation is the guidance that If clinical or laboratory evidence is available to suggest a specific agent, collect food history for period corresponding to incubation period for the agent.

Table 4. *continued* Keys to success for complaint systems and suggested implementation strategies modified from Toolkit and the MN Integrated Center of Excellence Key Points for Creating a Successful Foodborne Illness Complaint System.

ACTIVITY	TOOLKIT IMPLEMENTATION STRATEGY	MN-COE KEY POINTS RECOMMENDATIONS
Responding to complaints		
• Staff review, evaluate and respond to complaints based on the likelihood of an outbreak and the risk posed to public health.	Responding to group complaints: • Investigate more aggressively reports of illness among groups who ate together than complaints involving only one ill individual or ill individuals all from the same household. • Investigate cases of serious illness (e.g., bloody diarrhea, neurological symptoms) more aggressively than cases of mild illness. • Focus interviews associated with group complaints on the event shared by members of the group. Be sure to determine whether the group might have had other exposures in common. • Obtain and test clinical specimens from several members of the ill group. Identifying an etiology will help investigators understand the outbreak, link it to other outbreaks or sporadic cases, and allow actions to be implemented to stop the outbreak and prevent additional illnesses or spread to the community. • While awaiting confirmation of the etiologic agent, use predominant signs and symptoms, incubation period, illness duration, and suspect food item to provide clues about the possible agent and better focus investigation activities. • If the presumed exposure involves food, collect and store—but do not test—food from the implicated event. Test only after epidemiologic or environmental investigations implicate the food. Contact the laboratory that will be conducting the testing for guidance on collecting, labeling, storing and transporting food specimens.	If a complaint reports ill persons from multiple households” • Collect info only on common meals or other environmental exposures (i.e., water). • Collect names and contact information for other ill people reported by the complainant; if they are reluctant to provide this information, ask them to give your telephone # to the ill people to call (and stress the importance of them doing so). Illness information from other ill people is critical in determining if an outbreak actually occurred, the likely etiology, and on which restaurant(s) an investigation should be focused. Respond systematically to complaints. • Complaints should be evaluated to determine if an environmental investigation is conducted. • Individual jurisdictions respond to complaints as they deem appropriate if the complaint doesn’t clearly signal a potential outbreak; responses can vary from no action to a call to the establishment to an inspection.

Table 4. *continued* Keys to success for complaint systems and suggested implementation strategies modified from Toolkit and the MN Integrated Center of Excellence Key Points for Creating a Successful Foodborne Illness Complaint System.

ACTIVITY	TOOLKIT IMPLEMENTATION STRATEGY	MN-COE KEY POINTS RECOMMENDATIONS
Responding to complaints		

• Staff review, evaluate and respond to complaints based on the likelihood of an outbreak and the risk posed to public health.	Responding to group complaints:
	• Store food specimens as appropriate to the sample. Refrigerate perishable food samples but keep foods that are frozen when collected frozen until examined. In general, if perishable food samples cannot be analyzed within 48 hours after receipt, freeze them (–40 to –80o C).
	• Collect and test foods for outbreaks suspected to involve preformed toxins (e.g., enterotoxins of Staphylococcus aureus or Bacillus cereus), because detection of toxin or toxin-producing organisms in clinical specimens can be problematic.
		If a complaint reports ill persons from multiple households"
		• If a complaint warrants the initiation of an outbreak investigation, the appropriate epidemiology and environmental health jurisdictions should be notified, and a conversation between appropriate agencies should take place to plan and initiate the investigation.
		• The clinical profile of reported illnesses (distribution of incubation periods, symptoms, and durations) is often suggestive of a particular etiology and should guide the EH assessment.
		  • E.g., short incubation, little or no fever - suggestive of foodborne intoxication, focus on time temperature abuse.
		  • E.g., norovirus profile, focus on food worker illness, handwashing, and bare-hand contact with ready-to-eat foods.

Making changes		
• Agency/jurisdiction has performance indicators related to complaint systems and routinely evaluates its performance in this Focus Area.		