

Tips for Reporting Outbreaks to the National Outbreak Reporting System (NORS)

This document presents tips for reporting outbreaks to the Centers for Disease Control and Prevention (CDC) via NORS, addressing areas of the form that commonly generate questions. This is not intended to be a comprehensive guide; for complete guidance and additional detail please see the CDC NORS guidance document (“CDC Guidance,” <https://www.cdc.gov/nors/downloads/guidance.pdf>).

The NORS form and CDC guidance are periodically updated. Please check that you are using the current version of the form. Links to NORS forms, guidance, and appendices are available in the [CD Resources and Forms](#) section of www.michigan.gov/cdinfo.

Reporting Timelines

It is an accreditation requirement that NORS forms be submitted according to established reporting timelines:

Indicator 3.4

The local health department shall complete and submit the necessary foodborne or waterborne outbreak investigation forms.

This indicator may be met by:

For foodborne outbreaks, the local health department completes and submits the CDC 52.13 (foodborne) outbreak form to MDHHS and the Michigan Department of Agriculture and Rural Development (MDARD) [within 60 days of the date the first case became ill](#).

For waterborne outbreaks, the local health department completes and submits the CDC 52.12 (waterborne) outbreak form to MDHHS within 60 days of the date the first case became ill.

* [In the event that an investigation is still ongoing 60 days post first illness onset date](#), a preliminary 52.12 or 52.13 report (which includes data such as county of outbreak, onset date, exposure date, number of cases, and laboratory results) must be submitted to MDHHS within 60 days of the date the first case became ill; the completed final outbreak report form must then be sent to the appropriate agency(s) within 90 days.

NORS-Reportable Outbreaks

Per CDC, the definition of an outbreak reportable to NORS is “two or more cases of similar illness associated with a common exposure.” Unlike the Michigan Food Code definition of an outbreak, the NORS definition explicitly includes outbreaks with patients in the same household. For additional detail, see CDC Guidance p. 5.

If the investigation team determines that an outbreak meets the NORS definition, the outbreak should be reported to CDC via NORS. The NORS form collects information about laboratory, epidemiologic, and environmental findings that support your conclusions about the mode of transmission and outbreak vehicle. For details regarding outbreak vehicle classification and types of evidence, see tip sheet pp. 3-4.

Primary Mode of Transmission

The NORS 52.13 form is used to report outbreaks of illness that occur through a variety of modes of transmission. For additional detail on selecting a mode of transmission, see CDC Guidance pp. 7-10.

Not all sections of the form are applicable to all outbreaks. Use the guidance at the top of page 1 of the form to determine which sections of the form to complete.

The image shows the top portion of the NORS 52.13 form. At the top left is a purple tab labeled "General". The main title is "National Outbreak Reporting System" in bold, followed by "Foodborne Disease Transmission, Person-to-Person Disease Transmission, Animal Contact, Environmental Contamination, Unknown Transmission Mode". To the right is the CDC logo. Below the title is a paragraph explaining the form's purpose. Underneath, there are two input boxes labeled "CDC ID" and "State ID". To the right of these boxes is the text "Form Approved OMB No. 0920-0004". A purple bar below the input boxes contains the text "General Section – complete for all modes of transmission except water". Below this bar is the section "Primary Mode of Transmission (Check one)". It contains six options with checkboxes: "Food (complete General, Etiology, and Food tabs)" (checked), "Water (complete CDC 52.12)" (checked), "Animal contact (complete General, Etiology, and Animal Contact tabs)", "Person-to-person (complete General, Etiology, and Settings tabs)", "Environmental contamination other than food/water (complete General, Etiology, and Settings tabs)", and "Other/Unknown (complete General, Etiology, and Settings tabs)".

Example: When reporting a foodborne outbreak, complete the General (pp. 1-2), Etiology (p. 3), and Food (pp. 5-7) sections. The corresponding tabs appear at the top of applicable pages. Do not enter information into sections of the form that are not applicable to the route of transmission you have selected, because it cannot be entered into the electronic NORS interface.



Fillable NORS Forms

The fillable versions of the NORS 52.12 and 52.13 forms (when available) help to enforce data quality by limiting data entry to applicable sections of the form, and to acceptable values (when values are constrained by a pick list). For example, if you select “Food vehicle undetermined” or “Contributing factors unknown” in the Food section, you will be unable to enter any information about food vehicles or contributing factors, respectively.

Critical Variables

Some variables on the NORS 52.13 form are required to be complete for the outbreak to be reported; several other variables are important to enable analysis of the data at a national level. Please try to complete as much of the applicable sections of the form as possible, and make a particular effort to provide data for the following variables.

Missing information will trigger follow-up requests for data.

<u>Section</u>	<u>Critical Variables</u>
General Section (p. 1)	Date first case became ill (required), Date last case became ill, Estimated total primary cases (required),* Lab-confirmed primary cases,* Sex, Age, Primary Case Outcomes (Died, Hospitalized) and Number of cases for whom info is available*
General Section (p. 2)	HUS (Symptoms table)
Etiology Section (p. 3)	Is there at least one confirmed or suspected outbreak etiology (Y/N),* State lab ID (Isolates/Strains)* – bacterial etiologies only
Animal Contact Section (p. 4)	Type of evidence (reason) for undetermined, suspected, and confirmed outbreak vehicles,* Type of animal, Pet food or animal feed implicated, Setting of exposure, Prevention measures or recommendations used
Food Section (p. 5)	Type of evidence (reason) for undetermined, suspected, and confirmed outbreak vehicles,* <u>all variables</u> in the Food table*
Food Section (p. 6)	Contributing Factors

*See further guidance under “Tips for Individual Variables”

Outbreak Vehicle Classification and Types of Evidence

Food and animal vehicles are required to be classified as undetermined, suspect, or confirmed, and supportive evidence must be categorized and reported.

Undetermined vehicle (Animal Contact Section, p. 4; Food Section, p. 5)

For outbreaks transmitted via animal contact or food, but with insufficient evidence to implicate specific animal(s) or food(s), the vehicle is reported as undetermined. Select Animal contact or Food as the primary mode of transmission (p. 1), and “Animal/Food vehicle undetermined” in the corresponding section (p. 4 or 5). Enter the reason(s) supporting this conclusion (see Types of evidence below).

Food Section – complete for foodborne primary mode of transmission	
<input checked="" type="checkbox"/> Food vehicle undetermined	Reason(s) foodborne, but undetermined vehicle (enter all that apply from list in appendix E): Epidemiologic

Confirmed or suspected vehicle (Animal Contact Section, p. 4; Food Section, p. 5)

If the investigation team identifies specific animal or food vehicle(s) for the outbreak, use the CDC guidance below to classify the vehicle(s) as confirmed or suspected. Enter the reason(s) supporting this conclusion (see Types of evidence below).

- **Confirmed vehicle** — Evidence implicates a source of infection. For point-source clusters linked to a meal or a single event, at least one type of evidence is needed. When exposures occur in multiple venues or across multiple counties or states, at least two types of evidence are needed to ensure that the case-patients were exposed to a common vehicle.
- **Suspected vehicle** — At least one type of evidence provides considerable but not conclusive proof that an animal or food is the source of infection.

Types of evidence (Animal Contact Section, p. 4; Food Section, p. 5)

For an undetermined, suspect, or confirmed vehicle, report all of the types of evidence that were used to implicate the vehicle. Types of evidence are listed below with examples from CDC Guidance (additional examples on p. 30, 31 – animal contact; p. 35, 36 – food).

- **1 – Epidemiologic** — An animal or food exposure occurs more often in case-patients than in controls, or more often in case-patients than expected in the general population. Multiple unrelated case-patients report a common exposure venue, such as eating at the same restaurant, shopping at the same grocery store, or attending the same event before becoming ill.
- **2 – Laboratory** — The pathogen or pathogen subtype causing illness is found in a food item, restaurant, production facility, or farm suspected to be the source of the outbreak. The pathogen, or pathogen subtype, causing human illness is isolated from an animal or food worker to which case-patients were exposed through prepared food.
- **3 – Traceback and/or environmental investigation** — A common point of contamination is identified through reviewing records collected from restaurants, stores, or other venues where sick people ate, shopped, or visited, or through an environmental investigation or assessment conducted at a restaurant, production facility, or farm.
- **4 – Other data (specify in General Remarks)** — Select other data if there is evidence not covered by the previous three options. Provide further details in the “General Remarks” section. Do not select this option if the vehicle is confirmed.

Etiology section (p. 3)

Whether or not samples were collected and tested, be sure to answer question #6 (see below). Consult the [CDC criteria](#) for confirming an outbreak etiology. If you strongly suspect a particular etiology for an outbreak that you are reporting but have not met the criteria for confirmation, you can report it as a suspect etiology: enter “suspected” as shown below.

6. Is there at least one confirmed* or suspected outbreak etiology(s)?
 Yes No (unknown etiology) *If no, skip to next section*
 *See http://www.cdc.gov/foodsafety/outbreaks/investigating-outbreaks/confirming_diagnosis.html

Etiology <i>(Name the bacterium, chemical/toxin, virus, or parasite. If available, include the serotype and other characteristics such as phage type, virulence factors, and metabolic profile.)</i>						
Genus	Species	Serotype/genotype	Other characteristics	Etiology confirmed or suspected	# of lab-confirmed cases	Detected in~
<i>Escherichia</i>	<i>coli</i>	O157:H7	STX2 POS	suspected	1	1

~ Detected in (choose all that apply): 1 – patient specimen; 2 – food specimen; 3 – environmental specimen; 4 – food-worker specimen; 5 – water sample; 6 – animal specimen

Enter the types of specimens (patient, food, environmental, food worker, water, animal) from which the outbreak organism was isolated in the “Detected In” column. Note that

an outbreak can be reported as foodborne without isolation of the outbreak organism from food specimens. Similarly, it is possible to report an outbreak transmitted via water or animal contact without isolation of the outbreak organism from water or animal specimens.

For outbreaks with certain bacterial etiologies, additional laboratory testing is performed by MDHHS and CDC. PulseNet subtyping information is entered in the Isolates/Strains section, including: State lab ID (e.g, MI_CL17-xxxxxx), PulseNet Outbreak Code, and CDC PulseNet Pattern Designations. PulseNet designations are assigned by CDC and will be provided to the reporting jurisdiction for inclusion on the NORS form. In addition, results from the CDC National Antimicrobial Resistance Monitoring System (NARMS) program will be provided to the reporting jurisdiction and should be summarized in the Etiology section. If these results are not available when the NORS report is submitted, they can be added later.

Example:

5. Was antimicrobial susceptibility testing (AST) performed? Yes No Unknown
 If yes, where was AST performed? Clinical lab Public health lab CDC-NARMS Other Unknown
 If yes, were any antimicrobial resistant isolates associated with the outbreak? Yes No Unknown

Tips for Individual Variables

Number of Primary Cases (Primary Cases section, p. 1)

Per CDC, the estimated total primary cases should be **greater than or equal to** the sum of the lab-confirmed (A) and probable (B) primary cases (i.e., can't be less than A + B). Usually, Estimated total primary cases = A + B.

Example:

Number of primary cases	
A	Lab-confirmed primary cases 5 #
B	Probable primary cases 12 #
	Estimated total primary cases 17 #

Estimated total primary cases is a required variable, and is the maximum denominator for the rest of the Primary Cases section (including Sex, Age, Incubation Period, Duration of Illness, and Signs or Symptoms). In most cases, enter information about secondary cases in the Secondary Cases section on p. 2 only. Do not include well persons when reporting any of the variables that pertain to cases.

Geographic Location (General Section, p. 1)

If you select "Exposure occurred in a single state/county, but cases resided in multiple states/counties in reporting state," you must provide the names of the other states/counties.

Primary Case Outcomes (Primary Cases section, p. 1)

In this section, “Total # of cases for whom info is available” is the denominator for each outcome. For example, if 2/17 cases were hospitalized, no cases died, and 3 confirmed cases visited an ER (but you only have data for the 5 confirmed cases on whether they visited an ER), the outcomes section would be completed as follows.

Example:

Primary case outcomes	# Cases	Total # of cases for whom info is available
Died	0 #	17 #
Hospitalized	2 #	17 #
Visited Emergency Room	3 #	5 #
Visited health care provider (excluding ER visits)	#	#

Do not include secondary case outcomes in this section.

Traceback (General Section, p. 2)

A traceback is conducted by local, state, and/or federal authorities to determine where contaminated food or bottled water came from, as far back to its origin or source as possible. Although LHDs may fill in this section if they complete the traceback, typically it is filled in by MDARD staff. Indicate if a traceback was attempted, regardless of its success.

Example:

Traceback (For food and bottled water only, not public water)				
<input checked="" type="checkbox"/> Please check if traceback conducted				
Source name (if publicly available)	Source type (e.g., poultry farm, tomato processing plant, bottled water factory)	Location of source		Traceback comments
		State	Country	
	Lettuce	OH	US	Lettuce served at Restaurant X was traced by LHD and state regulators to common processor in OH who provided to other states with cases
	processing plant			

- **Source name (if publicly available):** Describe where the contaminated food or bottled water came from (i.e., grocery store, specific farm, processor, etc.). If the source name has not been made publicly available, do not include proprietary information, private facility names, or physical addresses.
- **Source Type:** List facility where food or bottled water came from (i.e., poultry farm, processing plant, bottled water facility).
- **Location of Source:** In what **State** and **Country** did contaminated food or bottled water originate?
- **Comments:** List which Agency conducted the traceback and any additional comments. Include any referrals of information to other agencies, such as FDA or USDA-FSIS.

Recall (General Section, p. 2)

Check the box if foods or bottled water involved in an outbreak were recalled. Type of item recalled could be the product (i.e., peanut butter) and Comments could include the brand and lot numbers.

Processing and Preparation (Food Section, p. 5)

Processing refers to modifications to a food before it arrives at the final point of use location. *Preparation* refers to modifications to the implicated food after it arrives at the final point of use location (often a retail establishment such as a restaurant or grocery store).

When describing implicated foods on the NORS form:

- The *method of processing* field refers only to the contaminated ingredient
- The *method of preparation* and *level of preparation* fields refer to the overall food items that were implicated in the outbreak

Please see an example completed Food Section on the next page.

Several of the fields in the Food Section are limited to options selected from lists in the NORS appendix (<https://www.cdc.gov/nors/downloads/appendix-e.pdf>).

Total # of cases exposed to implicated food (Food Section, p. 5)

Report only ill persons (cases) exposed to each implicated food item (i.e., do not count well persons who reported eating the food item).

Example:

Food Section – complete for foodborne primary mode of transmission			
<input type="checkbox"/> Food vehicle undetermined		Reason(s) foodborne, but undetermined vehicle (enter all that apply from list in appendix E): _____	
Food	1	2	3
Name of food (Implicated Food) (excluding any preparation)	Hamburger		
Confirmed or suspected vehicle	Confirmed		
Reason(s) confirmed or suspected (enter all that apply from list in appendix E)	1 – Epidemiologic, 2 – Laboratory, 3 – Traceback and/or environmental investigation		
Ingredient(s) (enter all that apply)	Ground beef, lettuce, tomato, cheese, bread		
Contaminated ingredient(s) (enter all that apply)	Lettuce		
Total # of cases exposed to implicated food	15		
Method of processing (enter all that apply from list in appendix E)	3 – Shredded or diced (refers to Contaminated ingredient = lettuce)		
Method of preparation (select one from list in appendix E)	4 – Cook and Serve Foods – Immediate service (refers to Implicated food = hamburger)		
Level of preparation (select one from list in appendix E)	3 – Foods eaten heat processed (refers to Implicated food = hamburger)		
Contaminated food imported to US?	<input type="checkbox"/> Yes, country _____ <input type="checkbox"/> Yes, unknown <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	<input type="checkbox"/> Yes, country _____ <input type="checkbox"/> Yes, unknown <input type="checkbox"/> No <input type="checkbox"/> Unknown	<input type="checkbox"/> Yes, country _____ <input type="checkbox"/> Yes, unknown <input type="checkbox"/> No <input type="checkbox"/> Unknown
Was product both produced under domestic regulatory oversight and sold?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown

Quick and Dirty

Quick and Dirty 2012 (An Epi Info™ 7 Based Program to Facilitate Outbreak Investigations) produces output that aligns directly with the formats required for several of the NORS form variables: Sex, Primary Case Outcomes, Age (Primary Cases section, p. 1); Incubation Period, Duration of Illness, Signs/Symptoms (p. 2); and Total # of cases exposed to implicated foods (Food Section, p. 5).

For more information about Quick and Dirty, contact your Regional Epidemiologist.

For more information or assistance with NORS reporting:

Katie Arends (MDHHS) Lisa Hainstock (MDARD)
517-335-8165 517-284-5701
arendsk@michigan.gov hainstockl@michigan.gov

Regional Epidemiologists (MDHHS)

http://www.michigan.gov/documents/MDSS_Support_Resources_87777_7.pdf