

***Cronobacter* Infection Investigation Checklist for Local Health Departments**

Local health department staff should follow these steps, not necessarily always in order, when investigating reports of *Cronobacter* infection. For more detailed information refer to the *Cronobacter* Disease Chapter. *Cronobacter* infection is a Priority Level 3 disease and critical details should be entered into the Communicable Disease Reporting and Surveillance System (CDRSS) within 5 days.

- Review laboratory details to confirm the test result. If the case has not been submitted via CDRSS, create a case.
- Interview the parent/guardian via phone using the “Invasive *Cronobacter* Infections in Infants Case Report Form”. Do not fax the form to the physician or mail to the home of the case-patient for completion.
- Provide education to the family; additional information can be found on the NJDOH and CDC disease pages.
- Enter critical details (demographics, signs/symptoms, clinical status, additional laboratory information) into the CDRSS case.
- Enter relevant exposures (medical history, feeding history & infant formula preparation details, equipment cleaning details, and environmental details) into the disease-specific questionnaire sections within the CDRSS case.
- Inform the Foodborne and Waterborne Disease Unit at cds.fwd.epi@doh.nj.gov if an outbreak is suspected.
- Submit the completed “Invasive *Cronobacter* Infections in Infants Case Report Form” via email to the Foodborne and Waterborne Disease Unit at cds.fwd.epi@doh.nj.gov or fax to 609-826-5972 or 609-292-5811.
- Document dates/times of at least three attempts made to reach the parent/guardian into the *Comments* section within CDRSS if they remain unreachable.
- Determine *Case Status* based on [NNDSS case definitions](#) and mark *Report Status* as “LHD CLOSED” in CDRSS.



Invasive Cronobacter Infection in Infants Case Report Form

NOTE: Enter all dates as MM/DD/YYYY

ADMINISTRATIVE

Case state ID: _____ NNDSS ID: _____

Reporting state: _____ PulseNet ID: _____ Date form completed: ____/____/____

Was the case associated with an outbreak?

Yes No Unknown

Was the patient's parent or guardian interviewed?

Yes No Unknown

ILLNESS HISTORY

Date of onset of illness (MM/DD/YYYY): ____/____/____ Age at onset of illness (If <60 days, please describe age in number of days): _____ Days Months

Sex: <input type="radio"/> Male <input type="radio"/> Female <input type="radio"/> Other <input type="radio"/> Unknown	Ethnicity: <input type="radio"/> Hispanic or Latino <input type="radio"/> Not Hispanic or Latino <input type="radio"/> Unknown	Race (select all that apply): <input type="checkbox"/> White <input type="checkbox"/> Black or African American <input type="checkbox"/> Asian <input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Middle Eastern or North African <input type="checkbox"/> Other Race, specify: _____ <input type="checkbox"/> Unknown
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State of Residence: _____ State where illness occurred: _____

Was the patient hospitalized at the time of illness onset?

Yes No Unknown

Was the patient hospitalized as a result of this infection?

Yes No Unknown

Type of hospital setting:

Hospital intensive care unit PICU (select one):
 NICU Special care nursery Regular ward
 Newborn nursery Unknown

Admission date: ____/____/____

Discharge date: ____/____/____

Clinical syndrome (select all that apply):

Sepsis (bacteremia) Necrotizing Enterocolitis (NEC) Urinary tract infection Other (specify): _____
 Meningitis Skin or soft tissue infection Diarrhea Unknown

Complications (select all that apply):

Seizures Ventricular shunt
 Brain abscess Other (specify): _____
 Brain infarct Unknown
 Hydrocephalus

Death:

Yes, (MM/DD/YYYY): ____/____/____
 No

MEDICAL HISTORY

Birth history: <input type="radio"/> Cesarean delivery <input type="radio"/> Vaginal delivery <input type="radio"/> Unknown	Was the infant a: <input type="radio"/> Singleton <input type="radio"/> Multiple <input type="radio"/> Unknown	Gestational age (weeks) at birth: _____	Birth weight: _____ grams
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Did mother receive antibiotics during labor or delivery?

Yes (reason: _____ ; drug(s): _____)
 No
 Unknown

Previous diagnoses or treatments (select all that apply):

None Non-GI surgery (specify: _____)
 Mechanical ventilation Other: _____
 Immunocompromising condition (e.g. Primary immunodeficiency) Unknown
 Gastrointestinal (GI) surgery

Did the patient receive any medications by mouth or feeding tube in the 10 days prior to illness onset?

Yes No Unknown

If yes, please list oral medications given: _____

Has the infant ever been treated with steroids?

Yes No Unknown

Did the infant receive gastric acid suppressing medications in the 10 days prior to illness onset?

Yes No Unknown

FEEDING HISTORY

<p>How was the infant fed 10 days prior to illness onset? (Select all that apply)</p> <p><input type="checkbox"/> Bottle <input type="checkbox"/> Feeding Tube</p> <p><input type="checkbox"/> Breast <input type="checkbox"/> Unknown</p>	<p>If infant was fed via feeding tube, specify tube type:</p> <p><input type="checkbox"/> Nasogastric (NG) or Orogastric (OG) tube <input type="checkbox"/> Other</p> <p><input type="checkbox"/> Gastrostomy tube (G-tube) <input type="checkbox"/> Unknown</p> <p><input type="checkbox"/> Jejunostomy tube (J-tube)</p>	
<p>In the 10 days before illness began was the infant ever fed breast milk? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>If yes, what source(s) of breast milk? <input type="checkbox"/> Mother's milk <input type="checkbox"/> Donor milk <input type="checkbox"/> Informally shared breast milk <input type="checkbox"/> Unknown</p>		
<p>Was the infant exclusively breast fed? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>Was expressed breast milk consumed (i.e., pumped and fed through bottle or tube)? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>If yes, was pumped milk from multiple pumping sessions ever combined and then stored for later use? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>Was powdered infant formula or powdered breast milk fortifier used in the 10 days before illness began, including in the preparation of infant cereal? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>Did the infant consume liquid formula in the 10 days before illness began? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>Did the infant consume any solid foods, including cereal, in the 10 days before illness began? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>If yes, specify types of solid food: <input type="checkbox"/> Infant cereal <input type="checkbox"/> Purees <input type="checkbox"/> Solid table food <input type="checkbox"/> Unknown</p>		
<p>If infant cereal was consumed, type of liquid used for preparing infant cereal (select all that apply)</p> <p><input type="checkbox"/> Ready-to-feed Liquid formula <input type="checkbox"/> Powdered formula (mixed with water) <input type="checkbox"/> Water <input type="checkbox"/> Unknown</p>		
<p>Was water used to prepare infant formula? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>Type of water used for preparing infant formula (select all that apply)</p> <p><input type="checkbox"/> Public water system (e.g. tap water from a municipal system)</p> <p><input type="checkbox"/> Individual water system (e.g. private well, cistern)</p> <p><input type="checkbox"/> Nursery water (specify brand and lot number): _____</p> <p><input type="checkbox"/> Commercially bottled or distilled water (specify brand and lot number): _____</p> <p><input type="checkbox"/> Other (specify): _____</p> <p><input type="checkbox"/> Unknown</p>		
<p>Was the water boiled and cooled before adding to formula? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>How were formula and water mixed? (select all that apply)</p> <p><input type="checkbox"/> Shaken or swirled in bottle <input type="checkbox"/> Prepared in a formula-preparation machine</p> <p><input type="checkbox"/> Stirred with a utensil <input type="checkbox"/> Other (specify): _____</p> <p><input type="checkbox"/> Mixed in a blender <input type="checkbox"/> Unknown</p>		
<p>Was anything ever added to breast milk or formula (besides water) during the 10 days before illness? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown</p>		
<p>If yes, please select all that apply:</p> <p><input type="checkbox"/> Powdered fortifier (e.g., powdered formula or fortifier to boost nutrition) <input type="checkbox"/> Commercial infant milk thickener <input type="checkbox"/> Juice</p> <p><input type="checkbox"/> Liquid fortifier <input type="checkbox"/> Infant cereal <input type="checkbox"/> Other (specify): _____</p> <p><input type="checkbox"/> Vitamins or iron <input type="checkbox"/> Unknown</p>		
<p>Please provide infant formula preparation details (regardless of type)</p>		
<p>What frequency was formula prepared?</p> <p><input type="radio"/> Bottle/individual feed</p> <p><input type="radio"/> Batch</p> <p><input type="radio"/> Unknown</p>	<p>Where was prepared formula stored? (select all that apply)</p> <p><input type="checkbox"/> Refrigerator <input type="checkbox"/> Outside of refrigerator/cooler</p> <p><input type="checkbox"/> Cooler with ice or ice packs <input type="checkbox"/> Unknown</p>	
<p>Maximum storage time of prepared, refrigerated formula</p> <p><input type="radio"/> 0-24 hours <input type="radio"/> >48 hours</p> <p><input type="radio"/> 24-48 hours <input type="radio"/> Unknown</p>	<p>Maximum storage time of prepared, room temperature formula</p> <p><input type="radio"/> 0-2 hours <input type="radio"/> >6 hours</p> <p><input type="radio"/> 2-6 hours <input type="radio"/> Unknown</p>	<p>What temperature was formula at time of feeding?</p> <p><input type="radio"/> Warmed <input type="radio"/> Cold</p> <p><input type="radio"/> Room temperature <input type="radio"/> Unknown</p>

Was clean pump kit ever reassembled while still damp? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown		
Please provide environmental details		
<u>Please provide infant formula product details</u>		
Complete product name (including brand, type, and variety): _____		
Product manufacturer:		
<input type="radio"/> Abbott Nutrition	<input type="radio"/> Nestle USA	<input type="radio"/> Other, specify: _____
<input type="radio"/> Mead Johnson Nutrition/Reckitt Benckiser	<input type="radio"/> Perrigo Company	<input type="radio"/> Unknown
Type of product:	Size of container:	
<input type="radio"/> Powder <input type="radio"/> Liquid concentrate <input type="radio"/> Other, specify: _____	<input type="radio"/> lbs <input type="radio"/> grams	
<input type="radio"/> Ready-to-feed <input type="radio"/> Liquid fortifier _____	<input type="radio"/> oz OR <input type="radio"/> ml	
	<input type="radio"/> fl. oz	
Lot number(s), if known: _____		Use by Date: ____/____/____
Dates consumed: ____/____/____ to ____/____/____		<input type="checkbox"/> Unknown dates consumed
Complete product name (including brand, type, and variety): _____		
Product manufacturer:		
<input type="radio"/> Abbott Nutrition	<input type="radio"/> Nestle USA	<input type="radio"/> Other, specify: _____
<input type="radio"/> Mead Johnson Nutrition/Reckitt Benckiser	<input type="radio"/> Perrigo Company	<input type="radio"/> Unknown
Type of product:	Size of container:	
<input type="radio"/> Powder <input type="radio"/> Liquid concentrate <input type="radio"/> Other, specify: _____	<input type="radio"/> lbs <input type="radio"/> grams	
<input type="radio"/> Ready-to-feed <input type="radio"/> Liquid fortifier _____	<input type="radio"/> oz OR <input type="radio"/> ml	
	<input type="radio"/> fl. oz	
Lot number(s), if known: _____		Use by Date: ____/____/____
Dates consumed: ____/____/____ to ____/____/____		<input type="checkbox"/> Unknown dates consumed
Complete product name (including brand, type, and variety): _____		
Product manufacturer:		
<input type="radio"/> Abbott Nutrition	<input type="radio"/> Nestle USA	<input type="radio"/> Other, specify: _____
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Type of product:	Size of container:	
<input type="radio"/> Powder <input type="radio"/> Liquid concentrate <input type="radio"/> Other, specify: _____	<input type="radio"/> lbs <input type="radio"/> grams	
<input type="radio"/> Ready-to-feed <input type="radio"/> Liquid fortifier _____	<input type="radio"/> oz OR <input type="radio"/> ml	
	<input type="radio"/> fl. oz	
Lot number(s), if known: _____		Use by Date: ____/____/____
Dates consumed: ____/____/____ to ____/____/____		<input type="checkbox"/> Unknown dates consumed

Specimen Collection

Lab ID: _____	Specimen Source: <input type="radio"/> Blood <input type="radio"/> Cerebrospinal fluid (CSF) <input type="radio"/> Stool <input type="radio"/> Urine <input type="radio"/> Pharyngeal swab <input type="radio"/> Tracheal swab <input type="radio"/> Other clinical source (specify): _____		
Collection Date: ___/___/___	Results: <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Unknown	Test Type: <input type="radio"/> Culture <input type="radio"/> PCR <input type="radio"/> Another Method	Was antibiotic testing completed? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
If yes, antibiotics with intermediate resistance: _____			
If yes, antibiotics with complete resistance: _____			

Lab ID: _____	Specimen Source: <input type="radio"/> Blood <input type="radio"/> Cerebrospinal fluid (CSF) <input type="radio"/> Stool <input type="radio"/> Urine <input type="radio"/> Pharyngeal swab <input type="radio"/> Tracheal swab <input type="radio"/> Other clinical source (specify): _____		
Collection Date: ___/___/___	Results: <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Unknown	Test Type: <input type="radio"/> Culture <input type="radio"/> PCR <input type="radio"/> Another Method	Was antibiotic testing completed? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
If yes, antibiotics with intermediate resistance: _____			
If yes, antibiotics with complete resistance: _____			

Lab ID: _____	Specimen Source: <input type="radio"/> Blood <input type="radio"/> Cerebrospinal fluid (CSF) <input type="radio"/> Stool <input type="radio"/> Urine <input type="radio"/> Pharyngeal swab <input type="radio"/> Tracheal swab <input type="radio"/> Other clinical source (specify): _____		
Collection Date: ___/___/___	Results: <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Unknown	Test Type: <input type="radio"/> Culture <input type="radio"/> PCR <input type="radio"/> Another Method	Was antibiotic testing completed? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
If yes, antibiotics with intermediate resistance: _____			
If yes, antibiotics with complete resistance: _____			