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Invasive Cronobacter infection Among Infants 2024 Case Definition | CDC  
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Invasive  
Cronobacter  
infection Among Infants  
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Invasive  
Cronobacter  
infection Among Infants  
2024 Case Definition  
NOTE:  
A surveillance case definition is a set of uniform criteria used to define a disease for public health surveillance. Surveillance case definitions enable public health officials to classify and count cases consistently across reporting jurisdictions. Surveillance case definitions are not intended to be used by healthcare providers for making a clinical diagnosis or determining how to meet an individual patient’s health needs.  
CSTE Position Statement(s)  
23-ID-03  
Background  
Cronobacter  
spp. belong to the order  
Enterobacterales  
, which are Gram-negative bacteria.  
1  
Cronobacter  
spp. are opportunistic pathogens linked to illnesses and outbreaks of life-threatening necrotizing enterocolitis, meningitis, and sepsis in neonates, infants, and other susceptible populations.  
2  
In 2008, the bacteria were reclassified under the genus  
Cronobacter  
which replaced the former single species  
Enterobacter sakazakii  
.  
3  
To date, the most clinically relevant species are  
C. sakazakii  
and  
C. malonaticus  
, which are recognized as causing invasive disease in infants.  
2  
Clinical Criteria  
In the absence of a more likely alternative diagnosis, an acute illness in an infant characterized by an invasive infection, including but not limited to meningitis, cerebral abscess, sepsis, necrotizing enterocolitis, or urinary tract infection.  
Laboratory Criteria  
Confirmatory Laboratory Evidence:  
Isolation by culture of  
Cronobacter  
in a clinical specimen from a normally sterile site (e.g., blood or cerebrospinal fluid).  
Supportive Laboratory Evidence:  
Isolation of  
Cronobacter  
spp  
.  
in a clinical specimen from a non-sterile site (e.g., stool or rectum, urine, skin, respiratory secretions, or broncho-alveolar lavage, etc.)\*.  
Note  
:  
The categorical labels used here to stratify laboratory evidence are intended to support the standardization of case classifications for public health surveillance. The categorical labels should not be used to interpret the utility or validity of any laboratory test methodology.  
\*  
Whether and how public health conducts follow-up for isolation of Cronobacter spp. from a non-sterile site in the absence of clinical disease is at the discretion of the jurisdiction.  
Epidemiologic Linkage  
Epidemiologic risk factors within 7 days prior to illness onset in an infant:  
Consumption of powdered infant formula (PIF) implicated as the source of infection,  
OR  
Exposure to a non-PIF product, such as breast milk, implicated as the source of infection,  
OR  
Residing in a congregate setting (e.g., a neonatal intensive care unit [NICU]) with an active  
Cronobacter  
outbreak.  
Criteria to Distinguish a New Case from an Existing Case  
A new case should be enumerated when:  
An infant was previously reported but not enumerated as a confirmed, probable, or suspect case, but now meets the criteria for a confirmed, probable, or suspect case,  
OR  
An infant most recently enumerated as a suspect case with supportive laboratory evidence with specimen collection date for that classification within 90 days  
‡  
prior but now meets the confirmed case classification,  
OR  
WGS results indicate that a new positive specimen and a prior positive specimen are genetically distinct.  
‡  
This time frame may be revised in future position statements if more information indicates a different period is more appropriate.  
Case Classification  
Suspect  
Meets clinical criteria  
AND  
supportive laboratory evidence,  
OR  
Meets clinical criteria  
AND  
epidemiologic linkage criteria.  
Probable  
Meets clinical criteria  
AND  
epidemiologic linkage criteria  
AND  
supportive laboratory evidence.  
Confirmed  
Meets clinical criteria  
AND  
confirmatory laboratory evidence.  
Comments  
CDC requests that all  
Cronobacter  
isolates be forwarded to the Enteric Diseases Laboratory Branch for further characterization, available at:  
https://www.cdc.gov/laboratory/specimen-submission/detail.html  
.  
References  
1. Forsythe, S. J. (2015). New insights into the emergent bacterial pathogen Cronobacter. Food Safety, 265–308.  
https://doi.org/10.1016/b978-0-12-800245-2.00013-7.  
2. Forsythe, S. J. (2018). Updates on the  
Cronobacter  
genus. Annual Review of Food Science and Technology, 9(1), 23–44.  
https://doi.org/10.1146/annurev-food-030117-012246  
.  
3. Iversen, C., Mullane, N., McCardell, B., Tall, B. D., Lehner, A., Fanning, S., Stephan, R., & Joosten, H. (2008).  
Cronobacter  
gen. nov., a new genus to accommodate the biogroups of  
Enterobacter sakazakii  
, and proposal of  
Cronobacter sakazakii  
gen. nov., comb. nov.,  
Cronobacter malonaticus  
sp. nov.,  
Cronobacter turicensis  
sp. nov.,  
Cronobacter muytjensii  
sp. nov.,  
Cronobacter dublinensis  
sp. nov.,  
Cronobacter  
genomospecies 1, and of three subspecies,  
Cronobacter dublinensis  
subsp.  
dublinensis  
subsp. nov.,  
Cronobacter dublinensis  
subsp.  
lausannensis  
subsp. nov. and  
Cronobacter dublinensis  
subsp.  
lactaridi  
subsp. nov.  
International journal of systematic and evolutionary microbiology  
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58  
(Pt 6), 1442–1447.  
https://doi.org/10.1099/ijs.0.65577-0  
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NNDSS receives and shares case data from state, local, and territorial health departments to help public health monitor, control, and prevent serious diseases.  
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