



KEY POINTS

for Successful Foodborne Outbreak Detection and Investigation

PRODUCT TRACING IN EPIDEMIOLOGIC INVESTIGATIONS OF OUTBREAKS DUE TO COMMERCIALY DISTRIBUTED FOODS

PART 2: CONDUCTING THE TRACE

Product tracing has emerged as an increasingly important part of the epidemiologic process for the identification of the vehicle in outbreaks due to commercially distributed foods; tracebacks conducted in this context are commonly referred to as “epi” or “informational” traces. A [white paper](#) was written to help standardize approaches used to conduct product tracing in this context, and to stimulate an increase in its use. Part 1 of this series provided a brief synopsis of when to use this tool and how to initiate the process. Part 2, targeted primarily at regulatory agencies, now addresses how best to accomplish this type of trace.

Regulatory agencies begin with a prioritized list of case exposures provided by the lead epidemiologist investigators (see [Part 1: When and How to Initiate](#)).

The trace determines whether a food item(s) consumed by multiple case-patients in a cluster has a source or distribution point in common. The process is conceptually straightforward: it is determining and documenting the producer, manufacturer, supplier, and distribution pathway(s) for the food item of interest.

1. Talk to the manager who orders food at the facility which provided the food to the case-patient.

- Much useful information often can be provided by a manager during a 10-minute phone conversation; this can be sufficient to advance the investigation even if in-person investigatory efforts are not possible.
- Make sure the manager is clear on the specific meal/purchase date(s) of interest.
- As the manager is providing information on the suppliers and shipments of the food item of interest, they should provide written (or ideally electronic) documentation.
 - Typically invoices from the distributor corresponding to the shipment(s) that could be associated with sale of the suspect food item, and corresponding bills-of-lading.

2. Interview “line-level” staff

- Speaking with the facility manager is a critical step in understanding how food items are used in a retail setting (e.g., ordering procedures, turnover rate), but it is equally important to interview “line-level” staff to determine if variations to a firm’s stated policies ever occur.

3. Retrieve invoices and bills-of-lading to reflect *all* food that *could* have been used.

- If a local agency is retrieving invoices and bills-of-lading for another agency to conduct the trace, remind them to ensure that the invoices reflect *all* food shipments and/or in-cash purchases that *could* have been used on the meal/purchase date of interest (but, ask which shipment is most likely).

4. To counteract poor record keeping at one or more facilities, for every point in a trace attempt to verify info using documents from one step upstream and one step downstream.

- This redundancy can prevent incomplete records at one node from breaking the trace.

5. Repeat this process with the previous entity that handled the food item in the supply chain, and so on, ideally to the level of farm and field.

6. The agency conducting the trace should create **timelines, flow charts, or diagrams illustrating the distribution pathways of the exposures that were traced.**

- Ideally, these documents should contain dates associated with key elements such as individual shipment dates, lot codes, date of receipt of product, etc.

7. Conduct a joint analysis with the epidemiologist investigators.

- Product tracing data are best interpreted through a joint analysis by the epidemiologist investigators and the regulatory agencies that conducted the traces.
- Analysis is an ongoing and fluid process that informs refinements in the traceback approach that may need to be made.
- Results of product traces must be integrated with all other investigation information to construct a coherent narrative of what happened.

8. When product traces are required in an epi investigation, the MOST CRUCIAL ASPECT IS SPEED.

- A key difference from a traditional regulatory product trace is that, in an epi investigation, timeliness is more important than complete standardization and up front documentation.

9. Even if an outbreak appears to be over, identifying the vehicle and source of contamination is still extremely valuable, and the speed of traces is still important in accomplishing this.

10. Even single cases from a given state can be exceedingly important in a multi-state investigation.

Additional Resources:

[Product Tracing in Epidemiologic Investigations of Outbreaks due to Commercially Distributed Food Items – Utility, Application, and Considerations \(http://mnfoodsafetycoe.umn.edu/wp-content/uploads/2015/10/Product-Tracing-in-Epidemiologic-Investigations.pdf\)](http://mnfoodsafetycoe.umn.edu/wp-content/uploads/2015/10/Product-Tracing-in-Epidemiologic-Investigations.pdf)

[Tracebacks \(http://mnfoodsafetycoe.umn.edu/food-product-tracing/\)](http://mnfoodsafetycoe.umn.edu/food-product-tracing/)

[Part 1: When and How to Initiate](#)



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