

Establishment Subcluster Investigation Checklist

Your jurisdiction has multiple cases (e.g., *Salmonella*, Shiga toxin-producing *E. coli*) in a multi-state whole genome sequencing cluster that is most likely associated with a commercially distributed food item. Initial interviews reveal that multiple cases ate at the same restaurant (or catered event, cafeteria) in their exposure period – in other words, you have identified an **establishment subcluster**. You now have the ability to solve the multi-state outbreak, or at least contribute mightily to the national investigation, because the outbreak vehicle very likely is among the limited number of food items consumed by cases at the subcluster establishment. Therefore, all available resources should be committed to rapidly and comprehensively investigate the subcluster. The following is a checklist to help ensure that you are covering all the steps to conduct a successful subcluster investigation.

Case Investigation

- Include a specific question about the subcluster establishment (SCE) on the initial interview of all new cluster cases
- Reinterview all existing cluster cases to ask specifically about the SCE (encourage them to review credit card or bank statements)
 - Pinpoint the meal date at the SCE for all cases to the extent feasible (if a receipt or credit card statement is not available, record how confident the case is about the meal date)
 - Interview cases using the SCE's menu (and ask about additions or subtractions)
 - Identify and interview cases' SCE meal companions with the SCE menu and ask about illness status – to ascertain well controls and/or more cases

Gather Data from the Establishment

- Interview the SCE manager and chef/prep staff to obtain ingredient lists/recipes for menu items – sometimes a call to corporate can get you recipe info
- Obtain contact info for patrons/attendees from the SCE for the implicated meal dates – to ascertain well controls and/or more cases
 - Online orders
 - Credit card receipts
 - Reservations or attendee lists (for a catered event or cafeteria)

Conduct the Analytic Study

- Interview additional patrons with the SCE's menu
- Construct a clinical case definition for non-lab-confirmed cases (make it stringent/specific!!)
- Determine ingredient consumption for each case and control using their reported menu items
- Determine a frequency distribution of ingredients consumed by cases (critical even if you cannot obtain comparison group information)
 - Include every ingredient consumed by at least one case in the analysis
- Conduct an ingredient-specific case-control or cohort study if you were able to get control data
- Obtain sales data from the SCE (can also use online order data) and calculate background ingredient consumption rates at the SCE
 - Compare case ingredient consumption rates to background consumption rates in a binomial model

Start a Traceback

- Collect invoices for implicated or plausible ingredients and talk to EH/regulatory partners about tracebacks