UPDATE BACKGROUND

for Public Health Officials (PHOs)

At the end of the Outbreak Investigation activity, use this sheet to help lead a discussion on team strategies. Be innovative in the way you present this information, and make it interactive.

UPDATE #1

Salmonella Muenchen is the foodborne pathogen.

What does this tell us?

- This helps narrow down the type of food that may be contaminated.

Background

- *Salmonella* Muenchen is a rare species of *Salmonella* that's found in foods of animal origin.
- Most types of *Salmonella* live in the intestinal tracts of animals and birds and are transmitted to humans by contaminated foods of animal origin — raw and undercooked eggs, meat, poultry, seafood, raw milk, and dairy products.

UPDATE #2

Interviews with people in Seattle and Portland identified what foods the sick and well people ate.

What does this tell us?

- The one food that all the sick people ate was some form of orange juice.
- The people who did not get sick had not eaten a food containing orange juice.

Background

- In June of 1999, *Salmonella* Muenchen was found, for the first time, in unpasteurized orange juice.
- This was an important finding, because scientists had previously believed that the acidic nature of orange juice would inhibit the growth of bacteria.

UPDATE #3

Using pulse-field gel electrophoresis, the DNA from *Salmonella* Muenchen in the juices matched the DNA from the bacterium found in the stool samples of the people who were sick.

What does this tell us?

- This, along with statistical analysis of the information about the consumption of orange juice by the sick and well people, provides strong evidence that *Salmonella* Muenchen associated with the outbreak was also in the juice.

Background

- Health officials obtained unopened containers of the unpasteurized orange juice for testing. In addition, they tested surfaces in the restaurant (including the blenders used to prepare the smoothies) to see if they could recover the bacteria.
- The bacterial isolate was tested by pulse-field gel electrophoresis (PFGE). The DNA "fingerprint" pattern of the bacteria generated by this method was submitted to PulseNet, which electronically compared other patterns submitted by participating states.
- Through PFGE, health officials were able to match *Salmonella* Muenchen from the juice with the same strain of *Salmonella* Muenchen in the people who became sick in both Seattle and Portland.

UPDATE #4

The suspected orange juice from all of the food establishments came from the same manufacturer.

What does this tell us?

- This narrows down the source of the contaminated orange juice to a specific manufacturer.
- FDA can request a nationwide recall of the orange juice.

Background

- A traceback was ordered once the food was identified.
- The Washington State Health Department notified the FDA about the outbreak because an FDA-regulated product (orange juice) was a suspect in causing the outbreak.
- Once the association between the orange juice and the outbreak was identified, FDA initiated an investigation to trace the orange juice to determine the manufacturer and further investigate the case.
- FDA discovered that the orange juice was not properly processed. It was contaminated with the *Salmonella* Muenchen bacterium.
- Once the manufacturer was identified, FDA requested a nationwide recall of all the contaminated juice. The outbreak was publicized to the general public, since the contaminated orange juice was also sold to supermarkets and other retail establishments.
- At the end of this outbreak, there were 423 illnesses of *Salmonella* Muenchen, involving 22 states and 3 Canadian provinces over a 2-month period.