Washington County Fair Case Discussion
October 11, 2005- Notes transcribed by Jeff Griffiths, M.D., M.P.H.

Questions you will ask (because you have to answer them)

Who
What
Where
When
How
Why

What behaviors were involved?
Do the cases have something in common?
What is the natural history of the reported disease?
What is the "normal" amount/number/volume of cases of bloody diarrhea / HUS?
How common is bloody diarrhea? (nonspecific syndrome with specific causes)
How was the diagnosis made?

Point: epidemic may be in the eye of the beholder.
Query: are outbreaks and epidemics synonymous? (outbreaks more localized in many people's minds; epidemics are pointedly where the observed outweigh the expected… connotation of one being more "scary" than the other)

E. coli O157:H7 isolated from one child. Case provides data on the organism. Query: is this worth investigating, and why or why not?

Is this fair traveling around? Does it have every year, did it happen last year? Was there a specific vendor or shop or restaurant involved?

Other questions – how good is surveillance for this, and how obvious is this syndrome of HUS? What about the fairgrounds, is the place involved beyond any vendor of foodstuffs?

[epi: what was source and means of transmission?]

Discussion about needing approvals for CDC team to visit NY, etc.
What is difference between descriptive and analytical epi? A: descriptive allows hypothesis generation, analytic *tests* hypothesis. So usually start with descriptive epi.
0. who do you need on your team? What kind of resources do you need? Be cognizant of cultural factors, community mores, etc.
1. confirm the diagnoses
2. Need a working case definition! Use only lab confirmed, or use a definition based on a syndrome… try to define systematically so have a consistent set of cases to work with.
3. develop an hypothesis.
4. evaluate site, water supplies to area, etc.

Question 5. Decisions and Preparation

Epi Issues

- Case definition
  - Attended fair
  - Developed bloody diarrhea after the fair
  - Do we need lab confirmation?
  - Do we need to age restrict? Limited resources.
- Control definition
  - Attended fair without diarrhea
  - Did not attend fair but did have bloody diarrhea?
- How wide a net has to be cast to elicit or find other cases? “Knife edge” of getting more cases versus/hand causing panic.
- What kind of data has to be collected?
- How will you put the data together? (Epi Info)

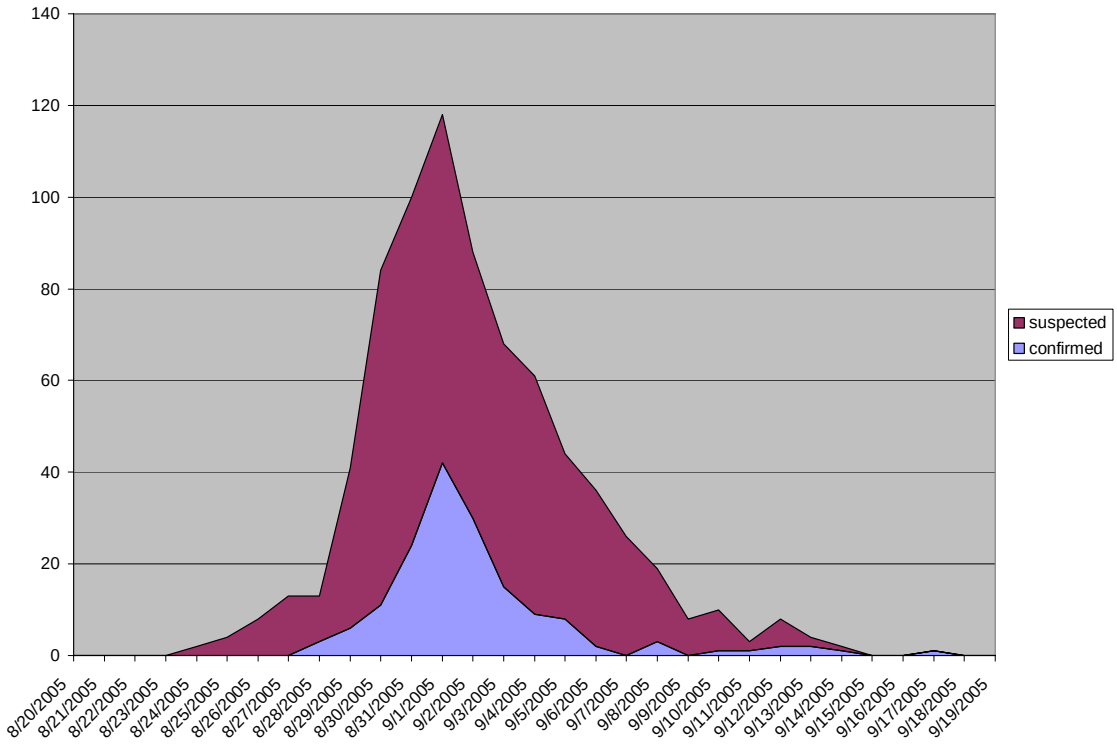
Supplies and Equipment

Investigative Team composition, role, responsibilities

DATA

Median age 28, 58% female, 65 hospitalized, 11 children had HUS, 2 died (one child, one elderly man).

EPIDEMIC CURVE (will plot off line)



Cases of diarrheal disease by date of onset, Washington County Fair NY 1999

Case control investigation

What is the water supply? Is it not regulated because it doesn't serve people for "enough" days? (non-community system)
Food sources?
Petting zoos?
Hand-to-hand, okay, fecal-oral, porta-potties….
Are employees more at risk than fair-goers?
Are there cases in Vermont?
Always remember the ice….

Now moving from descriptive epi to analytic
Case-control versus cohort… which one?
Okay, settle on case-control analysis. Who will be our controls? Determined in large part by the hypothesis to be tested.

- People who did not attend fair.
- People who did attend the fair but did not develop the illness of interest. How do you find them? (have to get controls who attended fair because the hypothesis is a differential exposure).

- Control selection is not trivial… you have to avoid "overmatching" – you want to find out if cases or controls had higher odds of having visited a vendor or eaten a foodstuff.
- Telephone survey – people won't answer the phone! Or answer surveys, or may not have a land line!
- AD/BC is odds ratio result. 26*48/9*6 = big number (OR > 23. This is big).
- 14*52/5*18 for the chicken vendor example.

E. coli 0157:H7 found in well 6, the distribution pipe, and the outlet pipe. Identical to isolate from a patient. Cow and manure storage area nearby, dorm housed 80 people.

How would you prevent this from happening again? What is "fix-able?"

Chlorinate water (not used for > 40 days/year)
Move well
Cover well head
Keep weather related water from flooding well

County fairs required to chlorinate water now.
Who had, and now has, jurisdiction.
attention to detail, daily testing