Phage Typing Used to Track a Disease Case Study

Did you know thatpoultry farmers routinely use vaccines to keep their chickens from developing infectious diseases? This is especially true of larger farming operations. Here we describe an incident at a facility that produces vaccines for poultry. On November 25, 2006, a case of salmonellosis in an employee of such a facility was reported to the Maine Department of Health and Human Services (MDHHS). Because a similar case of salmonellosis had been reported 10 days earlier, the MDHHS began an outbreak investigation. Approximately one week prior to the first salmonellosis case, a spill had occurred in a fermentation room at the vaccine production facility, releasing 1 to 1.5 L of a highly concentrated culture of *Salmonella enterica* serotype Enteritidis (this bacterium is referred to as SE), that was being used in vaccine production. The room was unoccupied at the time of the spill, and afterward it was cleaned by a worker wearing a biohazard suit, hat, booties, mask, and gloves using 5% bleach and a commercial disinfectant effective against SE. That worker later reported the first case of salmonellosis.

Following the first two reported cases, the workers in the production area filled out a questionnaire asking about their work routines and whether they had experienced symptoms of salmonellosis (defined as three or more loose, watery stools in a 24-hour period) since November 1, 2006. Of a total of 26 employees who had been working in the room where the spill occurred, 18 reported illness. No illness was seen in the seven workers who had never entered the room. In addition to the cases from the vaccine facility, seven SE isolates from persons presumably unconnected to the plant were submitted to the MDHHS during that same time period.

* The employee who originally cleaned the culture spill reported having diarrhea for 1 day but taking no time off work. What is the importance of this fact?
* The CDC estimates that the 42,000 cases of salmonellosis reported yearly may be only 10% of the actual number of cases. Why do you think this may be true?