Something's Rotten at The Pink Panther

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Note: This case is entirely fictitious and does not represent real people, places, or events.

Overview: *A rural health department with a variety of funding, staffing, organizational, and leadership issues is caught between the demands of the state health department and a county commissioner whose restaurant is the source of a salmonella outbreak.*

Key terms:
Leadership: Team leadership, motivation, politics, human resources, communication
Descriptive: United States, public health, health promotion and disease prevention, epidemic/pandemic

Adams
Of the 33 county governments in one of America's smaller western states, Adams, only five of those counties, including Wayne County, operate their own independent health department. In Adams, public health authority is explicitly granted to the state health officer through statutory law; therefore, public health efforts in Adams are centralized at the state health department. However, informal precedent has been set by recent state health officers who have delegated certain public health responsibilities related to infectious disease, including infectious disease case follow-up and outbreak investigation, down to the five independent county health departments upon their request. In all other counties, these responsibilities fall on state-employed epidemiologists. Reportable diseases are first reported to the state health department and then are delegated to the county health department (based on the case patient's county of residence) for epidemiologic follow-up. Upon completed follow-up, the county reports epidemiologic information back to the state health department for state-wide surveillance and reporting to the Centers for Disease Control and Prevention (CDC). None of the county health departments in Adams employ epidemiologists, and in general, none of the counties have the capacity to routinely conduct epidemiologic surveillance of diseases or injuries at the county-level. The counties predominantly rely on the state to provide guidance when incidence of a disease is above baseline, when an outbreak is suspected, or when molecular epidemiology (such as pulsed-field gel electrophoresis [PFGE]) results indicate that a cluster of cases warrants further investigation. No formal legal arrangements (such as an MOU) are in place between the state health department and the county health departments. State statute is clear that when there is a disagreement over authority to respond to public health issues, the state health department has primacy.

Wayne County
Wayne County is located in the southwestern region of the state. Approximately, 16,000 residents live in the county with the majority residing in the county-seat, Waynesville (pop. 11,000). The land area of Wayne County is 4069 square miles (population density: 3.6 persons per square mile). Tourism is a primary industry for the county, as it is located in the vicinity of a national park and a popular state park. Because of harsh mountain winters, the majority of tourism revenue takes place during the summer months and the county population during summer months may double that in winter months. Ninety-six percent of the county residents are white/Caucasian. Wayne County has the largest percentage of registered libertarians in the state, and local/county policy often reflects a general distrust of government, especially state and federal government.

The Wayne County Health Department (WCHD) operates two clinics; the main office/clinic is located in Waynesville and the smaller clinic is located in the smaller town of Piney Butte (pop. 2120), which is 60 miles from Waynesville. The infrastructure of the WCHD can be found in Figure 1. The Wayne County Board of Health consists of five members, three appointed by the Board of County Commissioners and two by the Waynesville City Council. Board members are unpaid. The Board of Health approves an annual budget for WCHD, with appropriations from the City of Waynesville and Wayne County general funds, as approved each year by the Waynesville City Council and Wayne County Board of County Commissioners. Additionally, the Adams state health department provides WCHD with several essential staff, including two public health nurse positions and the preparedness coordinator. State funded positions within WCHD are indicated in blue on Figure 1. The Director of WCHD, Tom Lockman, reports directly to both the Board of Health and to the county health officer, Dr. Stewart Huntley. Dr. Huntley is employed by the local hospital as an emergency room physician. He receives a $20K/year stipend from the state health department to act as the county health officer. Tom Lockman was hired as the director of WCHD in 2000 after being employed by the department for 15 years as the director of the Environmental Health Section. He has a Bachelor's degree in environmental health sciences and is a registered sanitarian.

Functional departments within WCHD include public health nursing, environmental health, and family planning. The Environmental Health Section within the WCHD (WCHD/EHS) is responsible for inspections of restaurants, daycares, public swimming pools and spas, non-public water/wastewater systems. County environmental health specialists also conduct radon and lead assessments, respond to restaurant and other public nuisance complaints, provide county-wide vector management, and also conduct case follow-up (patient interviews) on cases of reportable diseases that are potentially food or water related. Garth Higgs is the director of WCHD/EHS and oversees three full-time, county-level environmental health specialists. All of the county's environmental health specialists, including Garth, are registered sanitarians. Garth's WCHD/EHS is often understaffed and the list of duties that the section is responsible for has grown, it seems like exponentially, since he replaced Tom back in 2000. Garth has been with WCHD for 13 years. When he first started at WCHD/EHS, epidemiologic follow-up was not on the to-do list and, even now, he's unsure why the powers-that be at the state health department are so uptight about requiring complete case follow-ups or why they insist on conducting analytic studies or having molecular epidemiology results during outbreak investigations. He has been doing environmental health investigations during outbreaks for 15 years and never needed an analytic investigation or molecular epidemiology to do his job in the past.

2008 Salmonella Outbreak, Wayne County, Adams

On August 17, the Wayne County Memorial Hospital laboratory reported a single case of laboratory-confirmed salmonellosis in a local resident to the state health department. The state foodborne disease epidemiologist, Nichole Cooper, received the report and notified Garth Higgs at WCHD/EHS to initiate case follow-up at the county level. As usual, Garth ignored Nichole's email notification until the next day, and then forwarded the case to one of his environmental health specialists, Teresa Poulson. Teresa has been employed at WCHD/EHS for a little over one year and completed her RS certification in June. She has an Associate's degree in biology. Garth's attitude towards conducting epidemiologic follow-up on sporadic cases of foodborne illness has rubbed off on Teresa, so she put the case on the bottom of a pile of paperwork on her desk – "it's not urgent". Meanwhile, Nichole has checked with the local hospital lab to ensure that the *Salmonella* isolate is on its way to the Adams Public Health Laboratory (APHL) for additional identification, serotyping, and PFGE analysis (as required by Adams state law).

The next day, Nichole received another report of a case of salmonellosis from the Adams County Memorial Hospital. She called the hospital lab, again, to confirm that they will send this isolate and all future *Salmonella* isolates to APHL. Identification of two cases of salmonellosis in one week from a single county in Adams is unusual, but not alarming. Still, she was concerned that these cases may prove to be related and she wanted to make sure that the molecular epidemiologic evidence was collected for surveillance. After receiving the second report, Nichole emailed Garth Higgs to notify him of the second case. This time, she copied Tom Lockman, the WCHD director, on the email so that he was aware that two cases have now been reported. Garth decided to assign follow-up on this second case to himself so that he could answer any questions Tom may have about the progress of case follow-up. However, he was busy, so he waited to start follow-up until the following day.

On August 21, several days had passed and Nichole had not heard back from WCHD/EHS regarding follow-up information on the two recent Salmonella cases. She was not surprised given WCHD takes an average of 12 days to complete case follow-up (state average is 3 days). She was crossing her fingers that the PFGE results from APHL did not show molecular-relatedness of these cases. If the PFGE results showed molecular-relatedness, there was a good chance that there were additional cases in the county that had not yet been reported and a local outbreak was a possibility. Later that day, Nichole received a third report of salmonellosis from the local hospital lab in Waynesville. So far, all confirmed cases were residents of Wayne County; two were from Waynesville and one was from Piney Butte. Nichole notified Garth Higgs of the third report and requested information on the previous two. Garth responded and informed Nichole that his staff have been busy and have not yet had a chance to conduct follow-up. Nichole notified the state epidemiologist and the county public health nurse manager about the increase in reported salmonellosis cases to give them a heads up and to ask them to keep her informed of any reports from healthcare providers or from the general public over the weekend. Nichole's email to the Wayne County public health nurse manager, Nina Shepard, was the first that Nina had heard of the cases, even though she and Garth Higgs both work for WCHD and their offices are located across the hall from one another.

At 4:00pm that Friday afternoon, the APHL PFGE microbiologist, Michelle Arnold, emailed Nichole with the PFGE report on the two initial cases from Wayne County. They were 100% indistinguishable using two restriction enzymes (*XbaI* and *SmaI*) and were confirmed as *Salmonella* serotype Muenster, a rare *Salmonella* serotype. The PFGE patterns on each isolate were uploaded into the CDC's national PFGE database, PulseNet. As part of Michelle's report, each recent isolate was compared to past Adams isolates and to isolates from other states that have been uploaded into PulseNet in the last 60 days. The PulseNet search did not identify any matches from Adams (data go back to 2000) and only a few sporadic matches in other states. The PulseNet search did not identify other cases that may suggest a multistate outbreak. Nichole recognized the importance of this molecular information; it is highly unlikely that these two Wayne County *Salmonella* cases were sporadic and unrelated. There was something going on in the County, and she wondered what the serotyping/PFGE analysis would reveal about the third *Salmonella* case. Upon receiving the molecular information from Michelle, Nichole immediately called Garth Higgs to report the findings. Garth was not in his office. Nichole attempted to call Tom Lockman, as well, and Tom was also not in his office. Nichole was unable to reach any WCHD/EHS staff after 4:00pm that afternoon, so she settled on an email notification set at high priority and requested that Garth call her on Monday morning to discuss an enhanced investigation protocol. At this point, WCHD/EHS had not provided any information regarding exposure histories and onset dates/times of the two preliminary cases.

Representatives from the three independent county health departments typically join state health department staff via teleconference every Monday at 9:00am for Epidemiology Grand Rounds. On Monday, August 24, Nichole was hoping that someone from WCHD/EHS would be on the call to give an update on the Wayne County *Salmonella* cases. However, this Monday, WCHD representatives were not on the call. After leaving another phone message for Garth Higgs, Nichole received a completed case follow-up form from WCHD/EHS via fax. Teresa Poulson had conducted the standardized interview with the first case-patient that day. As Nichole reviewed the follow-up form, she identified that the first case reported illness onset on Monday, August 10 at 6:00am. The first case patient reported eating at a popular local diner-type restaurant, The Pink Panther, in Waynesville on Friday, August 7 at approximately 7:00pm. She also reported eating eggs over-easy at home on the morning of Sunday, August 9. Teresa noted on the follow-up form that she felt that the undercooked eggs on Sunday morning were the most likely source and also noted that The Pink Panther was unlikely given her experience in doing inspections at the restaurant. Nichole knew that this information was not meaningful until she was able to compare the first case's exposure history with the exposure history of the second, and, even better, the third case. She was anxiously awaiting PFGE information on the third case and follow-up information on the other two cases. Nichole did not receive a call back from Garth Higgs or Tom Lockman that day.

At 8:00am on Tuesday, August 25, the Wayne County public health nurse manager, Nina Shepard, called Nichole to inform her that their Piney Butte office had received a complaint during the previous week against The Pink Panther diner in Waynesville. The nurses in the Piney Butte office had collected some basic information regarding the complaint, but had not reported the complaint to Nina until that morning. A married couple from Piney Butte had traveled on Wednesday, August 5 to Waynesville to visit family and had stopped at The Pink Panther to eat. The couple stops at The Pink Panther every time they are in Waynesville because it is the "best place to eat in town." The Pink Panther is known for using local beef in all of their hamburgers, which are made by hand, and for using cheese produced by a local dairy. The Pink Panther is also famous for their malts/shakes/frozen drinks. Furthermore, The Pink Panther is owned by a well-liked, local businessman named Joseph Smith. Joe Smith is a prominent member of the community in Wayne County and also serves on the Board of County Commissioners. The Piney Butte couple became violently ill within an hour of one another with symptoms of diarrhea, vomiting, stomach cramping and fever on the evening of August 6. Both individuals reported eating The Pink Panther's specialty burger, the Super Gut Bomb, which has a ground beef patty, shaved ham, American cheese, lettuce, tomato, onion rings, and Pink Panther burger sauce (a mixture of ketchup, relish, mayo and secret seasonings), a side of fries, and a flavored malt. The couple decided to report the incident to the local public health clinic after hearing about others who had recently gotten ill after eating at The Pink Panther. The nurse manager explained to Nichole that she had tried to discuss the complaint with Garth Higgs, and that he had shrugged her off by saying, "Oh, those foodborne complaints never pan out to anything and aren't worth my staff's time to do a drop-in inspection. Just file the complaint away. We have more important things to do." Nichole explained to Nina that she had just received completed follow-up on the first case patient from Teresa, and that the first case had reported eating at the Pink Panther on August 7.

Later that day, Garth Higgs completed follow-up on the second *Salmonella* case and faxed the completed form to Nichole at the state. He had briefly asked Teresa what she had found on the first case, and she had responded that she thought the likely source was undercooked eggs. He did not think to review Teresa's completed follow-up form or to compare exposures among the two cases. The second case, a 10 year old Waynesville resident, had eaten at The Pink Panther on Saturday, August 8 after his soccer game. He subsequently developed symptoms on Monday, August 10 by noon. The boy

had also eaten at McDonalds, Burger King, and Taco John's during the week prior to his illness onset as well. Garth dismissed any potential relation between the Piney Butte food complaint and this second Salmonella case because "The Pink Panther is so popular that nearly everyone in the county eats there at least once a week". Besides, he had eaten there the previous Tuesday and had no problems. Garth had put the third *Salmonella* case aside, as the two previous cases appeared to be unrelated, in his opinion. So follow-up on the third case was still pending.

Once Nichole received Garth's follow-up on the second case, her red flag was raised. The epidemiologic evidence was mounting; The Pink Panther had a problem. Nichole notified the state epidemiologist and explained her concerns about complacency of WCHD staff. He suggested that she set up a conference call with Tom Lockman and Garth Higgs. Although the state health department has primacy over these issues, the state health department rarely steps in unless the county health department requests assistance. The state epidemiologist warned Nichole against taking the lead on the investigation and told her that "strong encouragement" would be enough to push WCHD to respond appropriately. That afternoon, PFGE results came in on the third confirmed case that showed a 100% match to the first two cases and a fourth case of salmonellosis in an Adams County resident was reported. The local hospital laboratory director had noted on the case report form that the patient's onset date was August 20 and indicated, "Pink Panther 8/18/08" in the comment field. Nichole reported this information to Garth Higgs, copying Tom Lockman, that day.

The conference call was set up for 8:00am on Wednesday, August 26. Tom Lockman, Garth Higgs, Teresa Poulson, and Dr. Stewart Huntley (the county health officer) joined Nichole on the call. Nichole outlined the current epidemiologic information as follows:

- Confirmed Case #1 – Waynesville resident, onset: 8/6/08, 6:00am, Pink Panther on 8/7/08 at 7:00pm, incubation period=11 hours.
- Confirmed Case #2 – Waynesville resident, onset: 8/10/08, 12:00pm, Pink Panther on 8/8/08 at 1:00pm, incubation period=37 hours.
- Confirmed Case #3 – Piney Butte resident, onset: unknown, follow-up pending, Pink Panther – unknown
- Confirmed Case #4 – Waynesville resident, onset date: 8/20/08 (suspected), Pink Panther on 8/18/08 (suspected)
- Probable Case #5 & #6 – Piney Butte residents, onset date: 8/6/08, Pink Panther on 8/5/08 at 11:00am
- Rumors of other illnesses in the community associated with the restaurant

After summarizing this information, Nichole stated that restaurant closure is warranted given the existing information. Immediately, Dr. Huntley jumped in and said, "You have a couple of cases. We don't know this is an outbreak yet. Everyone eats at The Pink Panther. Let's not ruin a man's business without having sufficient evidence that the problem is actually his. Besides Joe Smith is a county commissioner, if we screw this up, our department will hurt." Nichole informed Dr. Huntley of the widely-recognized definition of an outbreak, "Two or more cases that are epidemiologically-linked and who do not live in the same household but report at least one common exposure". "Additionally", she stated, "*Salmonella* Muenster is not a common serotype like Typhimurium. It is not likely that these are sporadic cases. And the PFGE results support that. The department will hurt more if it allows this outbreak to continue and there is no response". Tom Lockman asked Nichole what the state's approach would be. Nichole described the typical outbreak investigation process. "Efforts should be made", she said, "to identify other potential cases that have not yet been seen/tested by a healthcare provider or reported to the state health department, including those who may have been from out-of-town – we

call this active surveillance. The restaurant should be closed down, and environmental health specialists should be in the kitchen immediately to conduct an inspection, to review food preparation practices with staff, and to collect strategic environmental health samples for microbiologic testing. All employees should be interviewed using a standardized questionnaire to assess potential illness among food-handlers and also assess potential *Salmonella* risk factors among the employees. Also, all employees should be required to provide stool samples before returning to work to examine the possibility of a *Salmonella*-positive employee and to prevent further spread of the disease. Food shipments should be reviewed to assess the possibility of the restaurant receiving a contaminated food product; although, that is unlikely given the PulseNet results. And, an attempt should be made to conduct a case control study, which means collecting patron information from the restaurant and contacting as many customers as possible to assess illness status. Any ill patron should be tested for salmonellosis. Our state public health lab can do that testing for free. The analytic study should be conducted as soon as possible to minimize recall bias –we want to contact patrons as soon as we can so that they remember what they ate". Tom responded by saying, "That sounds like a lot of work for just a few cases of diarrhea". At the end of the conference call, WCHD officials went against Nichole's advice and determined that restaurant closure was not warranted yet. They also did not see the importance in conducting an analytic study. They did decide to send Teresa in to do a drop-in inspection and to notify Joe Smith of the potential problem.

After the conference call, Dr. Huntley decided that Joe Smith, as a small businessman, had the right to know about the potential problem at his restaurant prior to the inspector's visit, so Dr. Huntley called Joe to tell him about the four laboratory-confirmed cases and about the restaurant complaint. Dr. Huntley requested that Joe notify him (not the state) immediately if the restaurant staff received any further complaints. "We'd like to deal with this locally, if possible", Dr. Huntley told Joe. Joe Smith was not sure what to make of the information that Dr. Huntley provided to him. "I wonder if I will get sued?" he thought. After thinking for a few minutes, he decided to have his staff give the kitchen a thorough cleaning, "just in case". Teresa arrived at the restaurant at 3:00pm that afternoon to conduct the inspection. Joe did not indicate to her that he already knew about the problem. Teresa gave the restaurant an outstanding mark on her inspection report, and decided to have a late lunch there. "Heck", she thought, "this is the cleanest restaurant I have inspected in a long time".

By Friday, August 28, Garth Higgs was satisfied that Teresa's inspection report did not reveal a potential problem at The Pink Panther, and he had not heard of any new cases of salmonellosis in the county. He still had not completed follow-up on the third or fourth confirmed cases. "What's the point?" he thought, "we have already ruled out the restaurant as the problem". Little did he know things were about to heat up significantly.

On Monday morning the 31st, Nichole received a call from a family from Washington State that had been traveling through Adams during the week of August 17. They had initially called to complain about a campground near the national park that they believed to have contaminated drinking water. They got ill on August 22 shortly after consuming water from the campground pump. Four out of seven of their family members developed illness. Nichole used a standard questionnaire to gather information about their trip, and the interview revealed that the family had stayed in Waynesville on the night of August 19. The whole family had eaten at The Pink Panther, but had consumed varied menu items. Nichole was able to arrange testing for the family with the Washington Department of Health. While Nichole was interviewing the Washington family, Garth Higgs was wondering where Teresa was. She was late and it was a quarter-to-nine. "Teresa is never late," he thought, and right then he received a phone call from Teresa Poulson's husband. Teresa had been hospitalized late Saturday night with severe bloody

diarrhea and dehydration. Her symptoms began around midnight on Saturday, August 29. The ER doc took a stool culture and her sample came back positive for *Salmonella* species. Garth's heart dropped into his stomach when Teresa's husband told him that she ate at The Pink Panther on Wednesday after her inspection. Meanwhile, the local hospital infection control practitioner (ICP) contacted Nichole to notify her of a nine year old girl who was hospitalized over the weekend with severe gastrointestinal symptoms. She also reported Teresa's illness to Nichole. The results of girl's stool culture were pending, but the ICP felt that both illnesses were related and she had also been hearing a lot of people around town talking about getting ill after eating at The Pink Panther.

On August 31, Nichole arranged an urgent conference call with the state health officer, the state epidemiologist, Dr. Stewart Huntley, Tom Lockman, and Garth Higgs. After hearing Nichole summarize the current epidemiologic information, describe a typical outbreak investigation protocol, and give statistics on the number of cases that WCHD had completed follow-up, the state health officer told Tom Lockman, "If you do not act appropriately and if you do not act swiftly, the state health department has no choice but to claim primacy, to close this restaurant down, and to take control. Nichole will be on her way to Waynesville tomorrow morning to assist you with the technical aspects of the investigation. If you do not cooperate in accordance with her guidance, the lead authority in this investigation will be taken from you. Step up or get out of the way." Tom and Garth were angered with the state health officer's arrogance and patronizing tone. Tom felt stuck between pressure from the state health department to conduct a thorough investigation and likely pressure from Joe Smith and his colleagues on the Board of County Commissioners who could threaten his department's funding stream. Additionally, he had one staff member in the hospital. Garth Higgs was furious that the state was stepping in without invitation. How can a young, female epidemiologist provide any more expertise on outbreak investigations than him? "She's not even a health inspector", Garth hissed. Garth decided that it would be a good time to use up that leftover vacation leave he had saved up, and he told Tom that he was going to take a few days off to head to the lake to go fishing.

After the conference call with the state health officer, Tom Lockman decided that his professional integrity was on the line and that if he did not respond appropriately in the eyes of the state health department OR in the eyes of Joe Smith and the County Commissioners, he would lose his job. So he decided to turn to a leadership consultant agency that he had discovered at a recent conference, PH Leaders, Inc. PH Leaders, Inc. provided a special team of astute consultants to respond to Tom's request. Consultants instructed Tom to provide a list of relevant leadership questions that he hopes their consultation will answer. Here are the questions that Tom wrote down:

1. The outbreak has been ongoing for over two weeks. What direction should Tom take? Should he surrender due to lack of technical knowledge and allow the state health director to take over the investigation? Or should he move forward as the lead investigator and guide his staff through the investigation process with the assistance of Nichole?
2. What should Tom do with Garth Higgs?
3. What skills are Tom's staff lacking that are critical to investigating this outbreak?
4. How can Tom motivate his employees to follow the best practice guidelines spelled out by the state?
5. How can Tom facilitate more inter-department communication among his staff?
6. How can Tom ensure that his staff work cooperatively with Nichole, the epidemiologist from the state or other state personnel?
7. If Tom is to remain in charge of this investigation, who are the key stakeholders that need to be involved?

8. How can Tom keep the state health officer satisfied?
9. How can Tom garner support from all of the local players for his agency's investigation of Joe Smith's restaurant? How can Tom influence external stakeholders so that he can easily achieve his goals in stopping this outbreak and identifying its source?
10. How can Tom ensure that Joe Smith will not seek retribution on the health department for closing and investigating his restaurant through funding streams provided by the Board of County Commissioners?
11. How can Tom best inform the local community of the situation and garner support from its citizens?

Figure 1: Organizational Chart for the Wayne County Health Department, State of Adams, August 2008