Inductive Analysis of Text Data

Inductive analysis allows for themes and linked ideas to emerge from the data. While specific questions or probes can be asked to try to bring attention to certain ideas, new ideas are likely to emerge from the conversation that were not predicted or brought to the conversation by the researcher. Inductive analysis allows for such unexpected ideas to be uncovered, and therefore, works really well during the formative stages of a research study.

The following are four interviews of physicians who worked in ETUs or hospital Ebola treatment wards. Read through each interview marking interesting statements and identifying codes/ideas that these statements highlight for you. There is space on the right side to write themes/codes. Once you have read through each and identified different ideas, write the list of codes/ideas in the space provided below.


Example:

<table>
<thead>
<tr>
<th>CODE</th>
<th>Description</th>
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<tbody>
<tr>
<td>CAUSE</td>
<td>The underlying cause of Ebola outbreak, including issues of resource limitations and limited capacity</td>
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<tr>
<td>RESOURCE LIMITATIONS</td>
<td>Subcode for CAUSE. Limited healthcare resources to address all patients who were infected and prevent further contagion</td>
</tr>
<tr>
<td>SKILL CAPACITY</td>
<td>Subcode for CAUSE. Limited skill capacity of healthcare providers</td>
</tr>
<tr>
<td>HUMAN RESOURCES</td>
<td>Subcode for CAUSE. Too few trained healthcare providers to address healthcare needs</td>
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Interview 1
Gender: Female
Country: Sierra Leone
Nationality: US

I: Given your experiences, would you agree with pleas for immediate intervention there [to address Ebola] in West Africa?
MD1: Definitely. Seeing this mobilization in the field I think it is the first steps to controlling this. I have seen so many young people die and for really lack of basic things. But human resources more than anything else. What is unique about this is the involvement of the health care workers. You don’t generally go into the office in the morning worrying about your own safety. I think one of the concerns working in the field right now is how do you balance your own safety with the survival of the patient.

I: How did that conflict play out in your mind while you were there?
MD1: You know, there were limited resources. There were a limited number of doctors. So when you have a large number of patients, the census of the Ebola treatment unit that I was at was between 80 to 100 patients there were about 4 or 5 physicians and the local nurses and other health care workers. It limited the amount of interaction you could have with the patients. You needed to prioritize who you could save.

I: Did you witness the death of healthcare workers when you were in Sierra Leone, people who worked with Ebola patients?
MD1: Yes. It was one of the hardest things I have seen, watching your coworkers get sick. We lost a physician, two nurses, two lab techs, and an ambulance driver. Part of why a lot of that was happening was because there were too many patients, people were working too hard, people were spread too thin, and that leads to the potential for mistakes. That is why these additional resources are so critical.

I: Were you scared?
MD1: I think you can’t not be. I think the first time you do anything you’ll be scared. I think as you get more comfortable that fear becomes more constructive it allows you to follow protocols more closely.

I: What medical shortcomings seemed most serious during your time in Sierra Leone?
MD1: Again, I think it was the lack of human resources. People survive this disease. For those who made it into our care in time, the mortality rate was less than 40 percent, and that is with the limited number of people and physical resources. The majority of people can survive this disease and that is with more resources and more hands. More hands within the Ebola Treatment Units, more hands to find people within the communities, more hands to keep the environment safe for healthcare workers.

I: What is your role going forward? Do you hope to head back?
MD1: That is my hope … Two things that I hope to do. One, is to contribute to infection control to help control transmission of disease both within the community and within the Ebola Treatment Centers. And two, to now serve, as someone who has been in the treatment centers and treated patients, to now serve as a mentor to others who are going in to treat patients for the first time to improve their comfort in dealing with the situation.
Interview 2
Gender: Male
Country: Liberia
Nationality: US

I: I want to get to your reasons for volunteering to go to Liberia and treat Ebola patients. But start with that suit because it was such a vivid image, and I'm curious what it was like from inside the suit, that experience of being a doctor trying to treat a patient and how challenging that must be when you're wearing triple latex gloves and what looks like a spacesuit.

MD2: Yeah, it's kind of interesting in that it is the mirror image of the suit that the doctor wears in the United States, which is a white coat. That's our uniform that identifies us. And the suit that we had to wear in Liberia prevented us from contacting our patients. And all of the sensory input that we get as part of our jobs as physicians were hampered by having to wear this. So it was as immediate a reminder of the limitations that were imposed on us while we cared for our patients.

I: You write about one part of the compound in such vivid language that it has stuck with me. And I wonder if I could get you to read just this one paragraph, this one scene. And it's a scene from behind the treatment unit.

MD2: (Reading) The clearing for the bodies is a little bigger than a basketball court. The gravesites are lined up in neat rows. The birds and insects assert themselves here, sometimes loudly. But even with this noise, there's a profound silence that hovers over it. I think it is one of the most beautiful places that I have ever been on Earth. I also think it is one of the most horrifying. There are about five rows of graves with the earliest victims buried in the first row, moving outward in time as the outbreak continued. I start to know the people behind the names at the end of the first row, and I stopped knowing them midway through the fourth.

I: And when you describe it as one of the most beautiful but also most terrible places you've ever seen, what do you mean by that?

MD2: When you go there, the beauty of the African jungle is immediately apparent. And when you look up, you see the cascading vines, you see the birds flying around, and you think to yourself, this is just a very profound place. And then you look down on the ground, and you see the mounds where all of the bodies are buried. And with that silence comes a horror of what the outbreak really meant in this community.

I: I want to ask you about one of the many patients you treated while there. You write about treating a 6-year-old girl who tested positive for Ebola. Her mother did not. And it fell to you to escort her away from her mother. What happened?

MD2: She was part of a small cohort of patients that we had to deal with where someone in the family would be positive and someone would be negative. And once a person is negative, we had them leave the unit. She was a 6-year-old girl, and she had contracted the virus, but her mother had not. And both the child and her mother were terrified about what lay ahead for both of them.

I: And the little girl did not survive.

MD2: She did not. She died four days after that move, and her mother was unable to go to the burial. And I think, in some ways, it encapsulates just how awful things could be during this outbreak and the kind of personal tragedies that people had to live through.

I: You're back now at your hospital in Massachusetts. Do you find yourself treating patients, doing your job in a different way as a result of the work that you did in Liberia?
MD2: I think it's made me sensitive to the limitations that are imposed on us and...

I: Explain that. What limitations?
MD2: Just making sure that you've made a connection with your patient. One of the things that we had to do for our patients in Liberia, in addition to just witnessing their illness and doing what doctors do around the world, which is try to use medicines to blunt the worst effects of an illness, is also to try to help manage their own anxieties and their fears. I would like to think that I had been aware of it before, but I think I understood the principle in a new way.
Interview 3
Gender: Female
Country: Sierra Leone
Nationality: Spanish

I: You played a prominent role in controlling the spread of Ebola in Sierra Leone. What do you feel you did well at that time?
MD3: I stayed. I showed commitment. That has definitely helped show the Ministry of Health that I’m serious about working together now. On the whole though, I’m not proud of what happened during Ebola. Nobody had the resources to adequately treat anyone, and thousands died needlessly. Often I felt like I was only making a horrific death more dignified.

I: That’s an incredibly honest answer. Do you feel you could have done anything differently?
MD3: For a long time, the international medical community denied it was an alarm situation. Normally it’s possible to contain infectious diseases like Ebola, because they mostly affect villages. This was different, though. Cases reached cities and went out of control. The first patient in Sierra Leone was identified at the end of May 2014. Within six weeks, the disease had spread all over the country. Sometimes I’ll sit and think about it. Perhaps I should have anticipated its scale of terror sooner and pushed harder for the Ministry’s attention. And internationally too. Everyone just fled. It felt like no one was listening.

I: What was your day-to-day role during that period?
MD3: No one had a clue how Ebola spread or how to properly identify a patient. There were no guidelines whatsoever apart from some developed in 1997, which I followed like my bible. I worked with the Ministry to set up the National Task Force, a group that met weekly to review new Ebola cases and develop guidelines. Over that period, we collected all sorts of information, like: How should we disinfect patients’ beds? What kind of protective clothing should medical staff wear? How should we dispose of waste? Should we use chlorine, or is soap and water enough?

I: Patients must have felt so angry about what was happening to them at that time.
MD3: Sierra Leoneans have an amazing ability to just accept that things are bad for them. They can’t picture what a high standard of care is like, so they never expect it. It’s really heart-breaking.

I: If a disease like Ebola threatened Sierra Leone again, would we be prepared to combat it?
MD3: Yes. Definitely. Our prevention control is better and, most importantly, there has been a shift in mindset among health care workers. Juniors are coming in with a real thirst to make a difference. But we’re still in trouble. It’s not just about health care; it’s also about society. The basics still need to be addressed: poor hygiene, crowded housing, bad water systems, no gloves in hospitals—the list goes on.

I: What do you most cherish and need to do your job well?
MD3: Staff. We need more expertise here, especially through local hires. We can’t always fill positions with international placements. We should be working with the Ministry to recruit local clinicians who can support the longevity of health care in Sierra Leone. Great steps are being made already. Last year, PIH got approval from West African College for the first medical training course here in Sierra Leone. We’ve since been able to establish a teaching suite at Koidu Government Hospital in Kono.

I: If you could snap your fingers and change one thing about health care in Sierra Leone, what would it be?
MD3: Make health care free for everyone. Even if it didn’t work properly at first, or ever, it would change a really damaging mindset that Sierra Leoneans currently have around health care. They’ve had too many disappointing experiences of spending money they don’t have, only to receive terrible medical care. People just don’t think to go to the hospital if they get sick.

I: Are there any patients who stick in your memory most?
It’s all the stupid deaths. If we’d had the very basics, that person wouldn’t have died. They’re the ones who stay with me.

I: What advice would you give to someone starting out in a similar line of work?
MD3: Doing this kind of work, in a culture often different to your own, requires maturity, good training, and a willingness to adapt to situations respectfully. I’ve often found there’s no right or wrong way to do something. There’s just a way, and it’s important to be flexible to that. Making assumptions on things will disengage colleagues and stunt change. I’m learning that every day.
**Interview 4**

Gender: Male  
Country: Liberia  
Nationality: Liberian

_I: Tell us about your first experience with Ebola?_  
MD4: It was June 13, 2014, in Redemption Hospital in Monrovia. That summer, we had a nurse who had been sick for a while. Sick enough to be admitted in our hospital. But our treatment didn't seem to be helping her; her symptoms were getting worse: diarrhea, severe abdominal pain, fever and weakness. On that particular Friday, she developed severe respiratory distress, and her eyes were menacingly red. One of my fellow doctors, a general surgeon, became suspicious of her condition. He said her symptoms were suggestive of Ebola. We kept a close watch on her, we tried to help her. We were treating her for malaria, typhoid and gastroenteritis. We didn't know it, but by then it was too late. The next morning I walked in to check on my patient. I could tell by the look in her eyes that she was filled with fear. I gave her reassurance, but shortly after ... she died. For me, her death was very personal.

_I: You say her death was very personal, can you explain._  
MD4: I was not trained for this. I had just graduated from medical school two years before. At this time, my total knowledge about Ebola came from a one-page article I had read in medical school. I perceived the disease as so dangerous, this one page in essence had convinced me to run out of the hospital. So when we determined that this patient had Ebola, I didn't know what to do. But I decided to stay and help.

_I: Once you realized you and others had been exposed to Ebola, what did you do?_  
MD4: Living every day as a high-risk Ebola virus disease contact during the worst of the outbreak was one of my worst experiences. I started counting 21 days every day. I lived every moment anticipating the onset of symptoms of the disease. I measured my body temperature several times. I showered with chlorinated water, more concentrated than actually recommended. I chlorinated my phones, my pants, my hands, my car. My clothes became bleached. Those days you were alone, people were so afraid of touching anybody. Everyone was counted as a potential contact. Touching would make them sick. I was stigmatized. But if that was what it was for me, who was symptom-free, imagine what it was for someone who actually had symptoms, someone who had Ebola.

Of course, it wasn’t just that one patient and it wasn’t just me feeling this way. Many people and the health professionals that were trying to help them had become high-risk contacts. Our health systems are fragile, we don’t have a lot of resources, and our health workers lack skills and training. More than 400 nurses, doctors and other health professionals became infected. Unfortunately, my friend, the general surgeon who correctly identified the symptoms in that first case became one of the casualties.

_I: What have been the lasting impacts of Ebola for you, your colleagues, and society in Liberia?_  
MD4: We counted survival from Ebola as a success: the end of suffering for the patient and fulfilling joy for families. Every discharge from the unit was a moment of jubilation. At least so we thought. For many Ebola survivors, society has been backing away, even as they struggle to lead a normal life. For these survivors, life can be compared to another health emergency. They may suffer debilitating joint and body pain. The suffering gradually decays over time for most. However, many continue to bear intermittent pain. Some survivors are blind, others have neurological disabilities. Some survivors experience stigmatization every day, in many ways. A lot of children are orphans.
Some survivors experience post-traumatic stress disorder. And some survivors lack opportunity for education. Even families can be split apart by fear of Ebola, too.

I: The international community paid attention to Liberia during the Ebola crisis, and continues to engage in some areas. What do you hope the world noticed?
MD4: In theory, Liberia’s public health services are free of charge. In practice, our health system lacks the funding and capacity to expand care to all at the point of need. Many survivors have waited many months to undergo surgery to heal their blinding cataracts. Few had to relive the traumatic experience, when their blood was retested for Ebola at the point of admission. Some survivors experienced delayed or deferred admission due to limited bed capacity. No bed available for one more patient. This is neither national policy nor officially condoned, but many people are still afraid of the sporadic resurgence of Ebola virus.

I: Were you ever afraid?
MD4: Was I afraid during the Ebola outbreak? Of course I was. But for me, the opportunity to protect our global health security and keep communities safe at home and abroad was an honor. So as the dangers became greater, our humanity became stronger. We faced our fears. The global health community working together defeated Ebola, and that... that is how I know that we can defeat its aftermath in our hearts, in our minds and in our communities.
Liberians are a resilient people. And we know how to rise to a challenge, even a devastating one. My best memories of the outbreak center on those many people who survived the disease, but I cannot forget the hard-working nurses, doctors, volunteers and staff who risked their own safety in service of humanity. And some even losing their lives in the process. During the worst of the contagion, one thing kept us making those perilous daily journeys into the Ebola wards. We had a passion to save lives.
Deductive Analysis of Text Data

The deductive approach applies an established code book to text (interviews, focus group transcripts, archive data like white and grey papers, newspaper articles, even patient charts and doctors notes). By applying codes to the text you are testing a hypothesis or an existing relationship.

Below is a codebook to apply to the same four interviews. Rather than looking for ideas, identify these ideas within the text. Complete the table below indicating the presence or absence of the ideas in each interview. ‘1’ indicates the presence of the idea; ‘0’ indicates that the idea does not exist. Once the matrix is complete, you can quantify the data, with some caution. Given that not every individual was asked the same thing, you cannot make a statement like: “of the physicians interviewed, X% indicated that resource limitations are the primary emergency in West Africa.” Instead it is better to say: “Physicians, both local and international, practicing during the Ebola epidemic of 2014/2015 frequently reported resource limitations as the primary challenge to health in West Africa.”

As with all quantitative data, the more text uncovered (in this case interviews) the more definitive statements can be made. Also the more statistical analyses can be performed, such as bivariate chi-square.

Codebook

Hypothesis: Physicians working in West Africa during the Ebola crisis of 2014/2015 offer different perspectives of the factors driving the epidemic relative to duration or experience working in the country.

<table>
<thead>
<tr>
<th>Interview/Code</th>
<th>Nationality</th>
<th>Experience</th>
<th>Limited healthcare resources</th>
<th>Limited healthcare personnel capacity</th>
<th>High cost of care to patients</th>
<th>Infrastructure</th>
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<tbody>
<tr>
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Now write a statement about the data. Do physicians with limited experience treating patients in West Africa have a different perspective of the fundamental causes of the high burden of the epidemic than physicians with more experience in the region? Be sure to include data to support your claim.