Podcast Transcript

Common Foodborne Illnesses: History, Prevention, and Treatment Part 1

Episode 1 – Exploring the History and Impact of Foodborne Illnesses

The following transcript has been lightly edited for clarity. Elite Learning does not warrant the accuracy or totality of audio transcriptions provided by an independent contractor resulting from inaudible passages or transcription error. An occasional transcription error may occur.

Guest

Kirk Ornstein MSM, MS, RN, NCSN, CNL

Kirk Ornstein is a dedicated healthcare professional with a Master's degree in nursing, a Clinical Nurse Leader (CNL) certification, and a Nationally Certified School Nurse (NCSN). His extensive experience includes private duty, medical ICU step-down, pediatric nursing, camp nursing, school nursing, and field triage. He has also contributed to epidemiologic fieldwork focusing on foodborne illnesses and was a contact tracer for the NYS Dept. of Health. Kirk's expertise extends to nursing artificial intelligence in pediatrics, and he has a background in the pharmaceutical industry, developing medical education programs and offering insights into FDA regulatory approval processes.

Host

Leana D. McGuire, BS, RN

Leana Delle McGuire is an RN with 30 years in healthcare, including critical care, heart transplantation and management. She has been teaching for 12 of those years with extensive experience in leadership development and executive coaching. Leana also has a background in content development, visual performance, speaking (including on the TEDx

stage) and podcast hosting - both personal podcasts and corporate productions for various organizations. A novelist in her spare time, she also dabbles in music and painting.

Transcript

Episode 1 – Exploring the History and Impact of Foodborne Illnesses

LEANA McGUIRE, Host: Hello and welcome. I'm Liana McGUIRE, your host for this informative podcast on managing food borne illness brought to you by Elite Learning by Colibri Healthcare. Our subject matter expert today is Kirk ORNSTEIN. He's an RN, MSN and clinical nurse leader and a guy who's obviously really good at research. Welcome, Kirk. How are you?

KIRK ORNSTEIN, Guest: Thank you. Good, good. It's good to be here.

McGUIRE: Good to have you here. Now, obviously, food borne illness is pretty self-explanatory, but we want to know as much about it as we can. So, what's the history of foodborne illness or how far back might the first case have been?

ORNSTEIN: Well, it's an interesting question. Documentation, Historical diaries suggest that the first case was with Alexander the Great and 323 B.C., where it's believed that he died from typhoid fever, which is part of the salmonella family. You might wonder why we know that. There were royal diaries and at the time typhoid fever was rampant in that society.

So that's looked at being sort of the first case that they can document.

McGUIRE: Wow. That's pretty amazing. That is amazing. And what else can you tell us related to history?

ORNSTEIN: Well, one of the first food laws was the size of bread, which was basically the law of bread that was instituted by King John of England in 1202. Basically, they didn't want anything added to the bread, like peas or beans. Don't really know why, but that was the one of the first laws about that. And that sort of progressed through different environments where in the United States in 1785, Massachusetts, it passed a law similar to that, basically saying that acts against selling unwholesome provisions was illegal.

It's considered the first law in the United States, but it was meant to create an ability to punish people who basically sold bad produce.

McGUIRE: And unwholesome. I mean, you'd have to determine unwholesome. So, I'm sure that was quite the process from there. What was the next step in that?

ORNSTEIN: Well, we sort of get to the early 20th century and in 1906 they passed the Pure Food Drug Act and a Federal Meal Inspection Act. But what's interesting about that is that really came about because of Upton Sinclair's book, The Jungle. I don't know if anyone's read that. I don't know if it's required reading anymore. But basically, it was a fictionalized book about the meatpacking industry in Chicago.

And it describes the very unhygienic, dangerous environment that meat processing was undergoing. And through that publication, it brought awareness about this industry, and that spurred the development of these laws. They these laws were already in Congress at the time, but they couldn't get passed. Industry didn't want them. Congress didn't really push it. But when this became public, those laws were able to be passed.

McGUIRE: Wow. That is, I mean, really 1906 is a long time from 323 B.C. and the first case that we're aware of. So obviously and sadly, I'm sure a lot of people were lost in the time frame in between with this process. But

that's really interesting about the meatpacking. So, what other changes came about related to that when they just passed the law? But what happened with that law?

ORNSTEIN: Yeah, well, you know, at that time there was a lot of sorts of technological advances going on. What may seem very benign and simple to us now were brand new technologies, and one of those was canning. Obviously, canning was a way to preserve fruits and vegetables and transport them around the country to different communities. And that wasn't available at the time.

Everyone had their local produce, their own farms. But this came out of the Civil War, where obviously they had to transport food around and canning was utilized then. So, around 1919, the canning industry was really trying to push this as a viable source for communities to store food. But like most communities, new technology makes people uncomfortable. And so, we see that now.

And so, the idea of canning wasn't accepted the way that the canning industry had hoped. And at that time, there was a botulism outbreak between 1919 and 1820 that killed 18 people across the country. And just like the media, they picked it up. They ran with it. It became a national sensation. And all of a sudden, everyone was anti-canning.

And so, at the time, they tracked this back to canned olives in California, black olives in California. And as this got back to these canning industries, they realized that they were at a point where this could go very badly for them in the industry because the backlash was huge. And so, they put together their own research group to look into how to prevent this.

And they actually did the research, came up with regulations on how to make canning safer. And they actually joined with the California Health Department and allowed them to oversee this process. And so, it enabled them to have legitimacy behind what they were trying to do. But it also created a situation where now the industry was partnering with government agencies, and that was sort of the start of what we see today between the CDC, the FDA, USDA, and industry.

And so that became sort of the first real regulatory kind of process. And by 1925, this had expanded out too many, many other foods and products.

McGUIRE: It's really interesting that you bring that up because as soon as you started talking about the canning, I was thinking whether there had to be people that thought, there's no way that we're going to go with this. And, you know, it's interesting that when the government got involved, there was more trust that doesn't you know, things have changed a little since then.

I would say just because that trust level was, you know, they're always going to do the right thing for us. So that that's an interesting transition. So go ahead.

ORNSTEIN: I would say I think one of the things I sort of love about this story is because it still resonates today when you see a dented can in the supermarket. Everyone is like botulism, botulism. And, you know, it's one of these ancient stories, but somehow it still resonates today. You know, and there's some truth to it. But the reality is that even a dented can is okay, you're looking for a very specific sign.

You know, if it's dented along, seems are bad or if it looks like, you know, it's expanding with something it’s bad, but little dents. It’s okay.

McGUIRE: Good to know. Thank you for that. So, they have very strict regulations now for botulism, which, of course, is not the only foodborne illness. And I know that we're going to get into that in greater detail. But talk to me about outbreak investigation.

ORNSTEIN: All right. So, it starts with the debates, at the local level, with doctors who will diagnose these conditions. And if they are one of these reportable ones, such as botulism or E coli or that nature, it is then

reported to the CDC that happens through the national outbreak reporting system and then it goes to CDC. That information would then be fed into a system called Pulse Net, which basically is a storage database of DNA fingerprints of pathogens or foodborne pathogens.

And so, they'll match it or put it into this database and see if they get a match, meaning there's another case like this somewhere else. If it doesn't have a match and it's just one case from one local place, the CDC doesn't get involved. But if they find that there are cases in different states, then the CDC that becomes an outbreak that they investigate.

If that's not the case, then the outbreak states with the local Department of Health and they will do their investigation. The CDC also gets input from a number of other organizations that also submit information. But it's a long list of different groups that will submit information, but they have to compile it all and put it together, you know, and their job is to investigate, to research, to figure out preventative measures.

But they aren't the ones that are actually going to do, say, a food recall or an alert like that. That falls to either the USDA or the FDA, depending on what product they're talking about.

McGUIRE: It must be quite the process to nail it all down and figure out where it's come from in a hurry. I would think it would be necessary to do that right?

ORNSTEIN: Yeah, actually, it doesn't happen in a hurry. That's the scary part. From the time that somebody gets sick to the time that it gets to the CDC can be weeks. And, and honestly, these investigations can go on for years because these cases keep trickling in and they become part of this bigger investigation.

And there's some case we'll talk about, but there's nothing that happens quickly when it comes to these outbreak investigations.

McGUIRE: So potentially the product that was the issue could be long gone. And they've, you know, got something else on their assembly line that it's not present anymore. Hypothetically.

ORNSTEIN: It's very common that by the time they figure out the source, the products either are no longer sold, or it's already been consumed, not on the market, and there's nothing for them to do. And it happens all the time.

McGUIRE: Yeah, that is kind of sad. It is good that we have something in place regardless. I mean, the only one we know of during 323 B.C. was Alexander, right? Because he mattered. Apparently.

ORNSTEIN: That diary.

McGUIRE: Yeah, exactly. Right. Yeah. What about everybody else? Okay, so we talked about we talked about all of that. The laboratory disease surveillance that we confirmed. Was there something to do with that piece of involvement in this process?

ORNSTEIN: Well, there are a couple of things. So, there's the Pulse Net, which is a national laboratory network.

McGUIRE: Okay. Gotcha.

ORNSTEIN: And so, they're partnering with all the laboratories to get the information stored it, categorize it. And so that's coming from all over the country. And they're sort of a clearinghouse of that information. There's also Food Net, which is a little bit more of a surveillance group where they are partnering with local health departments and reporting on that way more of a surveillance aspect less of a reporting aspect.

And then there are a number of things like the National Antimicrobial Resistance Monitoring System, Laboratory Enteric Disease Surveillance. So, they're all sort of trying to get to the same place from different perspectives, really.

McGUIRE: Okay. Gotcha. And it all initially comes from a physician's report that someone has been found ill with that.

ORNSTEIN: Right. And that's actually one of those barriers because they don't always report. There are different societal environmental pressures that will keep this information from not making its way to the CDC.

McGUIRE: Wow. Okay. So, Kirk, what about statistics? Because, again, I know this isn't the only foodborne illness. And I understand that the reporting is not flawless by any stretch, but what kind of statistics do we have on foodborne illness?

ORNSTEIN: Well, the CDC right now lists 250 different food borne diseases that affect 48 million people. 128,000 are hospitalized, 3000 die. Now, one of the things you have to remember when we look at these numbers, is that these are all estimates, right? Partly because we never really know how big the problem is, because a lot of it doesn't get reported for different reasons.

But regardless, you see that it's a huge number of people that are getting sick from these different things. In our case, right now, we only are looking at a small subset of these pathogens, although they are the most common and extensive ones. There are many others that we won't even discuss.

McGUIRE: Right. Okay. Well, we will get into some specifically. So, CDC has actually identified some specific risk factors for foodborne illness. Is that correct?

ORNSTEIN: Right. Right. And these are these are really generic risk factors that affect whether it's foodborne illness or just sort of general health. But, you know, you're talking about immunocompromised individuals. You're talking about pregnancy. You're talking about elderly people and children. And so, each one has some issue related to their immunity that creates a vulnerability. Obviously, with children, it's their undeveloped immune system, pregnancy.

They have changes in their immune system due to pregnancy. Seniors have immune systems that aren't working as well as they might be, in addition to co-morbidities and medications that they're taking for these. And then obviously, the immunocompromised are just. Yeah.

McGUIRE: Just at risk for everything.

ORNSTEIN: For everybody. (Candace- FYI. delete this in my final transcript)

McGUIRE: For people like you and I, it may affect us, but not as. Not as severely.

ORNSTEIN: Right. And you'll see as we go through this that we talk about these deaths, they really are occurring in these risk groups. So, when we talk about, you know, that pathogen that is the most virulent or the most fatal, you know, they will be in those in those groups. You know, someone who's very healthy generally will survive these food borne illnesses without much effect, other than lots of vomiting and diarrhea.

McGUIRE: Right. Right. And I know vomiting comes to mind. First thing for most of us when we think about this. But there are some other side effects as well. Other than that, you mentioned diarrhea. Of course, those two are the most common that we think about. But there are others, correct?

ORNSTEIN: Yes. Yeah. There you see, you start with these basic symptoms of nausea, vomiting, diarrhea, as that generic sort of general symptoms that you're going to see across all of the different pathogens. And not all of them. But it's a very good sort of tool to look at. And that's what we're dealing with. But you will get into different things where you're looking at bloody diarrhea, you're looking at high temperatures, you're looking at severe dehydration, which is going to translate into cardiac issues and fluid balance issues.

And so, when you start to see those things, that's when a basic sort of stomach flu gets elevated to maybe we should go to the hospital right now. And so, when you're looking at these things, that's what you start to look

for, to distinguish between not so much between which pathogen made me sick or rather what needs medical attention and what doesn't.

McGUIRE: Right. And I'm also I'm making a lot of assumptions today, aren't I, Kirk? But I was going to say, I would also assume that if you're the mother of a young child or if you're someone who's elderly or you have an elderly parent, that just the let's wait and see approach to feeling sick to your stomach or having diarrhea probably isn't the best approach. Would that be correct?

ORNSTEIN: Right. It's true. When you are a vulnerable population, you need to take action earlier because in those cases the progression can be much quicker. And so, waiting for something like that puts you in a bad spot where the damage and recovery is very different. You know, so with those populations, you want to take action earlier. If you're a strong, healthy person, you can sort of wait and see what happens.

But for the most part, you know, it's for all of these it's this fluid loss. And I don't care who you are, that if you're losing lots of fluid, you can run into some serious problems. And that's initially the biggest issue that you'll run into.

McGUIRE: Right. You're losing fluid, but you can't keep any down. That's never a good scenario. So, we've covered the effects or who's most vulnerable. But what are some of the variables that affect food safety to begin with? I mean, we've talked about the canning piece, but there's way more involved than just canning, right?

ORNSTEIN: Right. Right. And you'll see that, again, these become generalized sort of concerns because they're going to affect all these different pathogens, although one pathogen might survive very low temperatures or one very high temperatures. The approach to safety becomes the same. So obviously, when you're looking at generalized sort of protection, you're looking at cooking temperatures, you look at personal hygiene, a lot of these pathogens are fecal-oral routes as far as transmission, clean utensils, basically how you store food outside of, say, the refrigerator or of it where if you leave something else out for an hour to well, that's going to be a problem.

The temperature is not right you know so it's those type of things that are important. Hand hygiene. You know, they affect all these different pathogens. And so that's really the most important thing about how you cook your food, how you store your food, how you prepare your food. And then basically that the health and condition of the person doing it.

McGUIRE: Right. Perfect. Well, that explains all the employees must wash their hands, signs that we see everywhere we go. And so, they should be. Absolutely. And so that's really interesting about the different how do we get away with sushi? This is my question. I mean, I just started thinking about all this stuff.

ORNSTEIN: We don't. It's somewhat of a risk, no matter what you think about it. It's raw and there's potentially an issue related to it. On top of it being raw, being stored raw, and served raw is an increased risk. The same reason why they'll tell you if you're pregnant, you can't have sushi. If you're immunocompromised, you can't have sushi.

So, it's the same issue that there is an elevated risk. But for most people, if you get something from the sushi, you are going to be okay. But those populations, it's not a risk you want to take.

McGUIRE: Okay. Let's talk about and again, we did talk about some of these already, but most of them are actually the generalization of main symptoms and pathophysiology. So, we've covered vomiting. We've talked about diarrhea, obviously, the fluid loss temperature. Is there anything else that we need to be aware of in this category?

ORNSTEIN: Well, I think one of the things we need to just recognize is that it doesn't take a lot as far as fluid loss to have problems. So, if you lose 10% of your body fluid, you're looking at changes in your ability to make

decisions. Sort of the mental capacity starts to decrease. If you lose between 15 and 25% of your body fluid, you're looking at death.

So, these things can happen very quickly and so, you know, when I say be aware of this fluid loss, it doesn't take much to start this process sort of falling apart physically.

McGUIRE: So, there are a few things that I'm curious about. And when it comes to food testing and, you know, market pressures and our current state of the economy in the world. So, what about globalization and just international travel? How does that contribute to our issues with foodborne illness or does it.

ORNSTEIN: Right. Yes, it does. There are really two parts to it. The first one is sort of the traveler. So, the traveler clearly can go somewhere and bring back whatever's there. And that becomes something that we're dealing with here. Generally, like we've seen, most of the things don't have person to person transmission, but they can still bring that back in.

The other real issue is globalization. So, we've gone from a society where we eat local fruits and vegetables to a society that wants to have access to everything all year and so signs now, we're getting crops that we normally grow here. We're getting them imported from other countries because we want to have our strawberries in the middle of winter.

And so now we have this issue of potential pathogens coming in from other countries that may be endemic there but don't really exist here. And so, you know, so that's creating those farms. We are now more interested in things like exotic foods. So now we're reaching out to those countries that have these foods that people want to try, that they're enamored with people that are foodies.

So, again, they're creating that problem. On top of it, you have the issue of storage and transportation of these products. I read one study where it estimated that less developed countries do not generally have refrigerated trucks. They've estimated that 10 to 20% of the trucks have refrigeration ones that don't, that they're being refrigerated or cooled with ice.

The ice is coming from water, local water that is potentially contaminated. And so, we had this shipping issue, transportation issue that adds on top of the problem with importing foods from other nations.

McGUIRE: Right. Interesting. And so, what about I mean, that's all really opens our eyes. And some of it I just naturally expected. Some of those things surprised me. But another issue that may or may not contribute and you can straighten me out on this is climate change. Is it have anything to do with this?

ORNSTEIN: Right. You know, yeah. So, the whole issue of climate change, everyone is the politics of it are a little difficult. But yeah, you know, as far as climate change goes, it can have a tremendous impact on many, many different aspects of food safety. You know, you start with just increase rain, you're going to have more contamination with waterborne pathogens.

You've got the issues with pest control. How is that going to be managed? We have an issue with pollinators. We hear everyone talking about that. That has issues. You've got issues with, say, grazing and encroaching populations. So, to lose places to actually let the animals graze because of, you know, growth of populations. You talk about water sources, you've got issues with livestock and heat stress, weather stress.

You know, all these things are causing all about cost and labor. And so, you know, you have all these different pressures that are that are going to affect how food is processed, delivered that for the most part, we don't really know how they're going to affect. You can see these things and you can talk about it, and they look obvious.

And I would expect these changes to occur and the problems to occur. But at the same time, no one really knows what that's actually going to be, and it creates a problem in trying to anticipate it. Now, I would anticipate what I've just talked about, like, I think those are the things that are going to happen.

McGUIRE: Sure.

ORNSTEIN: But what really happens, it's hard to know. So, trying to anticipate this and prepare for this is very problematic. You had issues with potentially emerging diseases. There was a study that looked at ice samples from the Arctic and they found 33 viruses in these core samples. 28 of them were unknown. So, you know, and so you wonder what's going to happen with that.

You sort of have to assume that some of that can affect the food supply and the food chain. But at the same time, we don't know. But we know that there are things that we've never seen before. And so those things are coming to fruition, and we will have to wait and see how they're going to affect it. The other issue we have right now is, is surveillance as we are involved in this sort of globalization of the food chain and food processing, we don't have a real surveillance system in place to look at what's happening in these other places with regard to food safety.

You know, so that's a problem. And we are trying to help the food industry or the food safety industry here trying to implement something like that. It's part of the part of the pulse net, which is part of the surveillance and reporting system here in the United States.

They are trying to implement the same thing across these sorts of developing countries. So that surveillance can be on par with what we have here. But right now, there's numerous problems with that, whether it's funding or cooperation. That is still very much in its infancy. And really, it's more of a proof-of-concept kind of situation.

So that's hopefully, you know, something that's going to get developed that creates, you know, addresses some of these problems.

McGUIRE: Right. And so, I hadn't even thought about, you know, I hear you talk about the Arctic ice cores, ice that this polar ice cap melting thing going on in my head and thought, man, what's in there? Yeah. It really, you know, gives you pause for thought, for sure. Yeah.

ORNSTEIN: You start to think of some of these, like, really apocalyptic movies, you see, and you sort of wonder, like, how close to that are we really? You start to think about it like maybe. But, you know, whether it happens or not, it has to be part of the thinking going forward to address these potential issues.

McGUIRE: Yeah. Agriculture to the right. This system. Agriculture is changing dramatically. Just farmland being taken over and I just see there's all kinds of new things that can happen. So, you talked about the technology or the Pulse Net. Is there any new technology, any other new technology surveillance that that we can look forward to? I can say that.

ORNSTEIN: So, you know, there are a couple there are a bunch of things going on. A lot of them are very much in the sort of experimental stage, and some are further along. One of the ones that is interesting, it's actually an outgrowth of the COVID pandemic is wastewater surveillance. So, what they were doing was they were sampling wastewater, and in the wastewater, they can identify certain pathogens.

In this case, they were using it to identify COVID. And that in one situation, they were able to identify and on a beginning outbreak in a community ten days before it actually showed up clinically. So, they knew it was there. They knew it was there. And it was just a matter of time before it just started showing up in hospitals.

And so that process sort of again, proof of concept, was working. And they show that they now have a national wastewater surveillance system and there's talk about trying to repurpose that for this foodborne illness

surveillance. And there's research going on and ways that Oklahoma University is just doing that. They are working with wastewater. They're identifying a number of different pathogens to sort of develop that surveillance process.

So, there's something very useful there. And I would think that it will become it will be a more implemented across the country as sort of there's more uptake on it.

McGUIRE: Excellent. Wow. That's good to know. I feel somewhat reassured at this point. What about food testing?

ORNSTEIN: Yeah. So, there are different places where they're testing food. So, meaning that you can test at the processing plant. You can test, you know, when it's outside the process. And so, there are a number of things going on there. One of the big ones is, is CRISPR, which I think people know is a genome process.

So, they're trying to use these gene editing techniques to identify pathogens or a pathogen's DNA. And the belief is that these are quicker, user friendly and applicable to many more pathogens than the current testing industry has available to them. So, like I said, there are a bunch of things. So, they even have things that are they're calling the electronic nose the idea behind this.

So, the idea behind this is that this is in the processing plants. Certain pathogens give off volatile organic compounds. And so, this electronic nose would identify these volatile compounds. And at that point, they'd be able to identify that, oh, this pathogen's there. The question is like, how many of these pathogens actually give off VOCs. So, they know of four right now.

So, E. coli, listeria, salmonella, and staph aureus all give off these boxes. And so that's one thing that you could use inside of the sort of the processing system. There are things that are called nanopore particles. So, these are similar. These are molecules that can be shaped particular to a pathogen. It's a little bit like the immune system with the lock and key or the antigen antibody situation.

And so, in this case, the researchers believe that they can actually tailor make all of these nanoparticles to identify particular pathogens. And so that's sort of, you know, in development, there's also things called bio sensing. This is similar, similar to that, except its actually using biological compounds. So, this is much closer to sort of the immune system where you have that antigen antibody situation.

So, they have targeted molecules. Then there's packaging. So now you can go further with this. You can take all these biosensors and the nanotechnology, put it into the packaging. On top of that address, you can address the issue with plastics. Plastic packaging potentially could be replaced with, you know, these different types of polymers like organic polymers.

So, one of them there are all these different names. There's ridiculously chemical names. I couldn't even begin to understand. But one of them that came up was starch. They literally can use starch as a packaging agent. What they end up doing is creating sort of a scaffold and put the starch. This particular starch compound can't even go into what that is.

But they create basically a package for that that can then be embedded with these different particles as well. So, you could have these anti-microbial packaging and with these particular nanoparticles or biosensors on top of it, this particular one with the starch, as I read it, it couldn't really be used like generic packaging like we see on whatever, but it suggests that you could spread it on like fruits and vegetables.

It's edible. So, you could have these packaging things with these nanoparticles or these, these biosensors and consume it all without having the issue of waste of plastic. And so, there's tons of things out there. You know how far this goes, where it's going to net out? I don't know. But, you know, it looks good as far as the future goes.

So, let's hope that all of this sort of pans out in a positive way.

McGUIRE: Yeah. So, I'm curious, is it individual companies that are doing these testing? You said Oklahoma in Oklahoma University. Oklahoma is what you said, correct? But individuals like food companies would probably be wise. That would be a good competitive edge, wouldn't it? To be able to come up with something like.

ORNSTEIN: It would be. Yeah, right. It would be.

McGUIRE: Speaking like capitalism.

ORNSTEIN: You would think. But I don't know if that's really the case. These are most of this is done sort of at university laboratory, stuff like that. One of the big problems with the food industry are that the producers of the food, these large companies, don't really want anyone inside their facilities. So, trying to get surveillance on site is very difficult.

McGUIRE: Sure.

ORNSTEIN: By law, they have to allow people in to test stuff and things like that, and they have to show that they're doing testing. But to have the type of surveillance that that we really need to have, they're highly resistant to that type of, you know, intervention, involvement.

McGUIRE: Sure. Okay. It's got that big brother element to it, doesn't it? A little bit, yeah.

ORNSTEIN: And the other thing is they don't want to spend the money on it. They don't see the value in it. They want to keep doing what they're doing without any changes.

McGUIRE: Yeah. Right. Exactly. Now, as far as tracking and this may be silly, but social media, I know, went through during COVID, which is obviously not a food borne thing, but during COVID, there was a lot of, you know, I've got it. My wife's got it. My you know, this kind of thing was going on. Is any opportunity for that to kind of help us throughout or has it.

ORNSTEIN: There's definitely the opportunity it has it has been used. I don't know if you remember that pink slime.

McGUIRE: Yes.

ORNSTEIN: Right. So that there was a what was it was ABC News reported on it and all of a sudden it blew up on the Internet and they were able to get 200,000 people to sign a petition for it. It had significant effects on food purchase and meat purchase. So, there's definitely that opportunity to utilize these different platforms. You know, they lend themselves to direct communication with people, to disseminating information very quickly can also be targeted and to get feedback from individuals, communities, things like that.

So, they're. So, it's definitely something that people are going to do. But, you know, as we've seen with all social media, the issue with misinformation is I don't know how, you would keep that from occurring. You know, so, you know, so at some point they got to figure that out. And general social media stuff before this could really have a significant effect.

But, you know, there's a place for it's got real time potentially real time surveillance, real time data, which is one of the problems we have. We see the idea that we can do an investigation outbreak investigation and then find the source. But by the time we find the source, the entire thing is over and there's nothing we can do.

It's a huge problem. So, trying to get real time data is paramount to improving these sorts of protective systems and protecting people.

McGUIRE: That pink slime scenario, that was pretty interesting stuff. There may be some people who are watching it who aren't aware of it. Anything you want to share or ways that they can find out more about that.

ORNSTEIN: So yeah, so this occurred in 2012. ABC put out a news article about it, I think was it March 7th, 2012, about this particular additive? I believe it's a stabilizing additive to meat, but it created this slime, literally this pink gunk that, you know, when you think about it, looks totally disgusting and nobody wanted it in their meat and just didn't want it there.

So, you know, so it had an industry purpose, but because it was so disgusting and it got reported on the news, it blew up on social media and, you know, they are just. So, and it had a real effect on these different companies where they lost money. There were companies that went bankrupt. So, the effect social media had was.

You know that's.

McGUIRE: Yeah, there you go. That's such.

ORNSTEIN: In 2012.

McGUIRE: Good example. It's a really good example. So, like you said, there is potential to raise awareness on social media. It's just where do we go from there? What about this Farm to Fork initiative? I know I go on Netflix and there's umpteen documentaries about that and, you know, I've watched some of them. Absolutely. But thoughts on that? Good? Bad?

ORNSTEIN: You know that. No, I think it's great. It sort of hearkens back to the beginning of what we're talking about with botulism at the turn of the century where, you know, nobody wanted to adopt canning because they were used to there, they knew where their fruits and vegetables came from. They could see it and it was you know, it was natural.

It wasn't adulterated, it wasn't modified. And so, the Farm to Fork initiative is that same idea, bringing the source of the food closer to where people consume it. So, I personally think that's great. You know, it runs into the problem, though. It's sort of the high populated areas, urban centers like how do you do that there?

Now, I think there's a way to do that because now farming is very dynamic. And how it's changing where, you know, you think about farming before it was like a big plot of land and that's why we had to farm. Now this has become very different with hydroponics and vertical farming and things like that, where suddenly, a side of a building can be a farm.

You know, so. So, these are type of things that could be used, you know, in sort of more densely populated areas. I think that the trick is to get buy-in from different community groups to do this because that the technology is there, the resources are there. But it takes a commitment to changing certain behaviors and looking at environments in a different way.

But definitely the sort of farm to fork thing could be applied much broader than it is right now.

McGUIRE: Okay. And organic. Is there a positive to organic? I mean, that's without pesticides. So, are we more vulnerable with organic or is it just all in the prep? Should we just, you know, concentrate on washing the food and prepping and cooking it effectively?

ORNSTEIN: Right. You know, it's kind of a mixed bag. I mean, the problem is, first, like, what's organic? You know, if it's coming from the earth, it's organic. But we know we can manipulate things and, you know, and call things that are that I wouldn't consider organic, organic. But I think in the true sense that organic foods are always going to be more beneficial to food safety in the big picture, you know where so say we're always talking about pollinators, and we know that that pesticides and chemicals are having an effect on these particular insects.

And so, you know, you lose your pollinators, you lose a lot of other stuff. So, the organic approach helps to address that issue. I think there are ways to farm where you're actually you can have different plants that support each other as far as protecting from pests. And so, it's a different way to think about it.

And people don't like to because it's a little more complicated. It takes more than just spraying, you know, spraying your crops with a pesticide or fungicide or whatever you want to do. But, but again, it addresses the issues, and it will mediate some of the problems that are going to occur with climate change. So, I think that although difficult to think about, may be difficult to implement, just like farming has changed and we can have these vertical gardens, we can do the same thing with this too, to create a situation where it's not as complicated as you want as it is right now.

And so, I think we have to go in that direction for food safety. Otherwise, you know, what we're doing right now is not food safety. So that's an ongoing problem and it's just going to get worse.

McGUIRE: I had a tour of a vertical farm. I got to tell you, that is that is impressive. It's fantastic. I love it. Now, last but not least, big question. What have we learned from the pandemic? What have we learned that we can transfer to our foodborne illnesses in order to try and manage those better?

ORNSTEIN: Right. Right. So initially, when I started thinking about that, I really wanted to come away with, okay, we've learned a lot and now we're going to apply this here. And I thought that and then I realized what the pandemic has shown me about the food safety industry is we are not prepared the same way that we weren't prepared for COVID.

We don't have the infrastructure to deal with something that did come up. You know, the surveillance isn't there. The cooperation between governments and industry is not there. You know, the ability to track is not there. It's just those same sorts of big institutions, whether it's hospitals or food safety or whatever happens to be isn't making the effort to protect the sort of food chain the way it needs to be.

And the horrible part is that we saw that with COVID, that that food chain is vulnerable at both spots and with what's changing as far as food in a global sense, those vulnerable spots are much more numerous now. And as I sit here and talk about how they are trying to set up systems to monitor food that's coming in from other countries to create some sort of standardized practice, they're nowhere near getting that done.

And so, although I'm like, oh, yeah, they're going there. Like they're not there, and will they ever get there? I don't see it, you know, because it goes back to things like, who's going to cooperate with who and who's going to put the money in because that because they can't see the immediate profit. And even though we know that saving food saves money, which you can look at as saved money is more profit, they don't look at it that way.

And so, so you are just you're running into the same problems we saw with COVID. You know, the issue with transparency is not there as much as we talk about it, it's not there. The food industry doesn't want to be transparent with what they're doing, you know, so. So, yeah, so I don't see I don't see an improvement right now.

I'm not sure how we will get there.

McGUIRE: And that that is the harsh reality. And it's interesting. Throughout COVID, I know one of the things that surprised me is all these little aspects of transporting food that just completely don't come into your mind was it was truckers who were transporting food across the country. They had mandatorily shut down all the rest stops, so they couldn't use the restrooms.

And, you know, you think about these tiny little things, but it affected the transportation of food. And they were really up in arms about it. It was really just one aspect. I thought, wow, you know, there's just so many intricate pieces when something like this happened.

ORNSTEIN: So, to that point, they you know, they've never really done that sort of gap analysis. Like, where is it? You know, we think about it, but no one really has systematically sat down and looked at all this and how it puts together. And it may be because it's just so complicated, you know. The article I was reading for sort of how climate change is going to affect farming and things like that.

They had these crazy schematics of arrows going every different way, affecting everything else. And you look at that, you're like that’s the reality. And how do you untangle that web?

McGUIRE: Yeah, that's right. And, you know, hopefully they're actively working at untangling that web and, you know, not waiting until the next disaster. That's the other piece that a lot of us have to think about. So, anything else you'd like to share with this on managing foodborne illness before we wrap up this episode.

ORNSTEIN: Well, you know, wash your hands. I mean, it goes back to those things that right now it's you know, we talk about these sort of big global issues, but the reality is right now, you to take care of things you can take care of and being aware of what's around you and how to stay safe and keep the people around you safe and really sort of working together.

And that is where we should be headed. And that's what I hope people get out of this. It's just a way to, you know, keep themselves and their families safe.

McGUIRE: Yeah. Great. Perfect. I'm going to wash my hands and have a cracker for supper. No ice, right? No, but it is just it's about being informed that you know this. And none of this is meant to scare people, but to be informed and having knowledge. Knowledge is power. And I think it's just important, especially for nurses when we deal with patients with these symptoms and these illnesses, food borne illnesses.

So, thank you so much, Kirk. I can't thank you enough. I mean, your knowledge, you're definitely a big-time subject matter expert. I enjoyed this conversation. And like I said, some of this I knew and some of it was a big surprise. And I know that's probably the case for a lot of our listeners. So, thank you for your expertise.

ORNSTEIN: Very welcome. Thank you for having me.

McGUIRE: And thank you for listening to our podcast series on managing foodborne illness. We encourage you to explore all of the many courses available on elitelearning.com as you move forward throughout your career. This is Liana McGuire for Elite Learning by Colibri Healthcare.