Dagny Olivares: In the next session of our *Vital Signs* Town Hall is the Q&A and discussion, so remember, you can get in the queue to ask a question or making a comment by pressing Star 1. Say your name when prompted. The operator will announce when it’s your turn. Please address your question to a specific presenter, or indicate that it’s a question for all.

I also encourage our listeners to take advantage of this opportunity to share their own strategy - your lessons learned, challenges, and success stories. You can pose questions to our presenters or even to each other. This is an opportunity for discussion, collaboration, and for us to question different methods, practices, and experiences with innovative approaches to reducing environmental risk of Legionnaires’ disease. Operator, we are ready for questions. Is there anyone on the queue?

Operator: We have no questions in the queue at this time, but as a reminder, it is Star 1 and please be sure to record your name.

Dagny Olivares: Since we have no questions in the queue, I’d like to start us off with a question for Dr. Fitzhenry. Dr. Fitzhenry, has cooling tower regulation been successful in reducing rates of Legionnaires’ disease in other parts of the world or in other parts of the United States?

Dr. Robert Fitzhenry: Hi, that’s a great question and maybe Laura will chime in after me and perhaps Bill has something to say too. So the answer is in some respects, “I don’t know,” because we haven’t evaluated our cooling tower regulation as yet. It was put in place
last year, and to see that it’s effective, we have to do two things simply - we have to look at the overall sort of health of the cooling tower systems that exists in New York City and see if there’s been any changes and so we have to have the right variables that we follow for that; and then the next part is to see how it effects our disease rates - our rates of Legionnaires’ disease.

We did speak and informally with other countries, other jurisdictions outside of the United States and they found that it may not have – they haven’t performed a complete evaluation … we’re not aware of a complete evaluation, but some anecdotal suggestions that in certain jurisdictions where the rates were increasing they saw a leveling off - but maybe Laura, maybe you’d like to add more to that?

Dr. Laura Cooley: Sure. I think you pretty much covered it Robert, but yes, I mean, there – I think there were some missed opportunities for a formal evaluation. Usually these programs, you know, come online after a really big outbreak and things are kind of crazy and there’s a lot of, you know, political issues and that kind of thing, but I think anecdotally there have been… there’s a feeling that even if the actual number of cases isn’t decreased, the size and number of outbreaks maybe, yes.

But, you know, I think one thing to mention is that one of the first parts of this -- this cooling tower regulation -- is to get all of the cooling towers registered and I think that’s a huge first step and I applaud New York City for kind of leading the way there and, hopefully, that’s something that can start happening elsewhere -- so that really helps once there is – there are signs of an outbreak, it can really help speed up the investigation.

Dr. Robert Fitzhenry: So this is Robert again. I probably have a – I’m going to make an extra statement and pose it as a question to Bill, in a way. You know, one of the jurisdictions that we talked to then they’ve had some sort of regulation in place for a long time. They may need to see a break – their problem analysis here rather than looking at a Cooling Tower and saying, “Oh, there’s a biofilm here,” or, “The water looks really muddy.”
Their problem now is just the communication between all the parties that are involved in maintaining the cooling tower, so the person who builds the cooling tower, the person who owns the cooling tower, the person who adds the disinfectant, the person who monitors the disinfection, so on and so forth, it’s a big team and CDC’s tool that they’ve released is going to be essential for this country and the response to Legionnaires’ disease.

But I was wondering, Bill, the 300 cooling towers that you mentioned, are those only in the United States? And what do you – what was your experience in getting a team to sort of work well in this issue?

Bill Gaines: No, that’s on a global basis. We had two workers contract the disease in the year 2000 and that’s when we began to put the program together and begin sampling. Especially with the question is, “Is it,” I think we didn’t sample for *Legionella* before, so I have no data to say, “Before and after the program.”

We, of course, did (unintelligible) counts, but I didn’t go back and check. So the team was put together for us at a corporate level, but it’s like Harry S. Truman, “The buck stops here,” Ford puts all control, all authority, at the plant manager level - so we – that’s who we hold accountable. I don’t know if that answers your question.

Dr. Robert Fitzhenry: That’s very interesting, thanks.

Dagny Olivares: And Operator, I believe we have some questions in the queue?

Operator: Yes. We have one from Connie Watson. Your line is open ma’am.

Connie Watson: Hello. This question is for Dr. Cooley. I’m curious in regards to testing patients to rule out Legionnaires’. Is it – should we culture all URI’s or just severe symptoms? I read something about severe symptoms, i.e., the patient ends up in ICU. What do you recommend?
Dr. Laura Cooley: Yes, hi. No, we wouldn’t recommend testing all patients. We do have criteria where we would recommend testing over a certain age like over 50 - those people are more likely to become infected. People with certain underlying medical conditions - chronic lung disease, smokers, and people who are, you know, compromised in any way either due to medications that cause them to be, you know, compromised or to underlying malignancies.

We would also recommend with certain risk factors -- so if someone has traveled within the first couple of – within the last couple of weeks, we would recommend and they have – they present with a pneumonia we would recommend testing. We also have whole pages of diagnostic keys on our CDC web site that could be helpful for giving a little bit more information.

Connie Watson: Perfect. Thank you very much.

Operator: We have another question. As a reminder, if you would like to ask a question, please press Star 1 and record your name at this time. Our question is from Daryn Kline. Your line is open sir.

Daryn Kline: Thank you. Yes, Daryn Kline with Evapco. This is for Dr. Fitzhenry. Do you have the test reports from the potable water sample at the cooling tower in your study there -- the Cooling Tower A at the hotel?

Dr. Robert Fitzhenry: We do.

Daryn Kline: Is that published?

Dr. Robert Fitzhenry: I don’t think so.

Daryn Kline: So wouldn’t that be helpful, I guess, concluding that it was not in the potable water, seeing that with the CDC report with 56% total to drinking water?
Dr. Robert Fitzhenry: So I just have to go back on the data. So, you know, the spread of the cases and the – looking at the epi curve and the exposure history, I mean, you know, is clearly, a cooling tower implicated. We did – there was testing of potable water systems during the outbreak by and the New York City data on that that we tested was negative.

Daryn Kline: Okay, thank you.

Dagny Olivares: Operator, do we have any more questions in the queue?

Operator: We have one other question. It’s from Dr. Obiese. Your line is open.

Dr. Obiese: Hi. We would like to know what is the impact or what you have learned from or how do you plan when you have constructions nearby? How much does that impact the plan itself? How did you prepare for those changes? Thank you.

Dr. Robert Fitzhenry: Laura?

Dr. Laura Cooley: Okay. I wasn’t sure who that directed to, so I’m sorry. Well, so that would be part of a water management program in a building. We would advocate that if there are changes to municipal water system that those parties would let building managers and owners know that there’s been some kind of change or brown water event or construction or water main break or anything.

If there’s anything, it’s really the responsibility then of the water management program team to know what’s going on outside their building that could affect the water inside their building and then that would become a part of their routine monitoring where they’re monitoring the parameters such as chlorine and temperature and those are the kinds of things that could be effected by outside events so it’d really be a part – it would just be an awareness that there are events and then a monitoring of all the parameters that they would normally monitor maybe more frequently when there’s construction or some kind of external event.
Bill Gaines: At Ford, if we know that there’s been a break, we will increase our (heterotrophic) plate count and free coring testing and then pull ahead the next quarterly *Legionella* sample. Unfortunately, oftentimes the municipalities don’t inform us.

Dagny Olivares: Operator, do we have any more questions in the queue?

Operator: We have one from Tom Bernier. Your line is open. Mr. Bernier, are you muted?

Tom Bernier: Yes, you, yes, I was, sorry. This is for Mr. Fitzhenry. The question is when you isolated the source in New York as Tower A, were you able to get a CFU count for that cooling tower?

Dr. Robert Fitzhenry: Yes, we were.

Tom Bernier: Do you have that handy? Just curious as to what CFU level was associated with that size of an outbreak.

Dr. Robert Fitzhenry: I don’t have the number right in front of me. I wouldn’t want to just give you any old number, but, you know, it – clearly, we were concerned.

Tom Bernier: Do you know if it was higher than the path con matrix for cooling towers? Was it over a 1,000?

Dr. Robert Fitzhenry: I don’t have that data right in front of me, I’m sorry.

Tom Bernier: Okay.

Dr. Robert Fitzhenry: Thank you.

Dagny Olivares: Dr. Fitzhenry, while you’re looking back at that study, I’m wondering was it hard to identify the cooling towers? I know you mentioned that part of the response with
moving towards cooling towers needing to be registered, but, prior to that, when you were doing your study. Was it difficult to identify the cooling towers?

Dr. Robert Fitzhenry: Yes. I mean, it was – we, as we said, the path to the cooling towers was that we – well, one, we wanted to respond very quickly, right? This was a, “Do it now,” rather than, “Think about,” sort of situation in a sense that, you know, the cooling towers that we knew that existed in the zone that we were interested in investigating we immediately went down and just, you know, sampled all of them, and at the same time, there were people back at the office sort of seriously trying to work out how to find all the cooling towers so we used the partial lists that I described where people get a tax break for putting water into the atmosphere rather than into the sewer system.

We used it -- the Department of Buildings -- and where people identified cooling towers as part of their plans for their building and then the registry was set up. But the thing was that during the outbreak, our Commissioner of Health issued an order for all cooling towers to be disinfected, so we were both trying to sample as many as we could find based on the lists and based on looking up using Google, Google images, essentially, and just walking the streets, so to speak.

Dagny Olivares: Sounds comprehensive. As a reminder to those on the call, you can get into the queue to ask a question or make a comment by pressing Star 1, state your name when prompted, and then the operator will announce when it’s your turn. So I think right now we’re waiting on more questions, I’d like to ask Mr. Gaines a question and specifically I’d like to know how ASHRAE 188 fits with Ford’s current practices.

Bill Gaines: 100% consistent. I sat on that committee.

Dagny Olivares: Okay, thank you. And implementing those current practices, what lessons did you learn that you can share with others?
Bill Gaines: A couple of things. One is, safety showers are engineered “dead legs” that required – they need to be flushed; otherwise, deplete themselves with usual chlorine, and can re-inoculate the main system. The other thing I’d watch out for is anything in parallel like a dual basket strainer. People will disinfect the system and they’ll have one of the strainers offline. They can be harboring bacteria and when they switch the strainers, they re-inoculate the system.

And lastly, is sampling. Had one plant – three hits in a row and that – is rare to get two in a row plus 5% of the time it will, they’ll get two in a row. And if we do, we increase 1/8 the degree of pasteurization or the degree of disinfection. But twice we got – some of them got three in a row and that’s when they called me in, and I walked up to the hot water tank and they had a rubber hose -- so, you don’t want any porous materials when sampling.

I also hit loop systems in portable systems because you can’t be sure of the direction of rate of flow -- so it’s very important to have short, straight runs as much as possible. The other thing a lot of – we hit a lot of janitor closets with, you know, a little three-gallon water tanks and I – many, many -- I don’t know how many -- but at least a 100 or more. The plants said, “You know, this is just a hassle to take care of this thing,” and they would pop it out, so what move a little water heaters are rarely used.

Dagny Olivares: Thank you Mr. Gaines. You know, you point out a number of sources that could be easily overlooked, I’m wondering, Dr. Cooley, in the toolkit that you discussed, what kind of recommendations or resources does – is CDC providing to help people ensure that they are – programs are comprehensive?

Dr. Laura Cooley: Great. Well, the toolkit really refers to the ASHRAE 188 document right now and kind of talks about, in general, systematic ways of going through your building water system and things you should look for to describe various systems so that you can sit down with your engineers or maintenance people and some blueprints and really work through all the potential places and we have an extensive list in there of all the
things where *Legionella* can potentially grow and spread to hopefully jog memories. We also have – so that’s in the role of primary prevention -- so preventing Legionnaires’ disease before it starts.

We also in our other hat as *Legionella* response, we have online – a – an environmental assessment tool in our CDC *Legionella* web page and it – so when – there have been cases and it’s believed that they are associated with a particular environmental source or buildings, it’s a very organized stepwise kind of checklist to go through it, I don’t know, 10 to 12 pages long of how to go through your water system, things to look – or go through your building, things to look for that potentially could be contributing to *Legionella* growth and spread.

Dagny Olivares: Thank you. I – operator, do we have any questions in the queue?

Operator: No ma’am, we have no questions.

Dagny Olivares: All right. Then if I may ask another question of Mr. Gaines, I’m wondering if you – what your procedures are if you get -- for repeat hits --- what you would do to follow-up and if you’ve actually had any repeat hits since implementing your current program?

Bill Gaines: Repeat hits are rare, but they do occur maybe two or three times a year only. And then the procedures, what have you do first you’ve got a hit that would cause some action depending on the level and the piece of the equipment. If you had a repeat hit, you would increase the intensity either a longer heat soak pasteurization -- hot or hotter temperature -- or – we do our disinfections and it’s something called PPM Hours just to the concentration times the time. So if you were at, say, 25 PPM hours in the first disinfection, you’d go to 50 PPM hours in the second -- so you would increase the intensity of the remedial action.

Dagny Olivares: Thank you. Operator, I think we may have a question in the queue now?
Operator: Yes. It’s from Steven Wickline. Your line is open.

Steven Wickline: Hi. My questions about the quarterly testing of the towers that they’re doing in New York. I was just wondering on that, was that frequency arrived at through risk assessment or best practices or was it specifically driven by 188?

Dr. Robert Fitzhenry: I mean, it was basically taking everything together. We discussed -- internally -- we discussed with it – we had an expert panel -- so and so forth and that’s – we felt was the best solution.

Steven Wickline: All right, thank you.

Bill Gaines: And speaking for Ford and sitting on the 188 Committee, there’s a balance. There is no science that we can put our finger on to say, “Quarterly versus semi-annually,” but there’s a balance in between enough data and spending too much money. When you put out these programs like the City of New York will, in fact, you’ve got to look at the economics -- so that’s that – that would put one to say, “You know, quarterly is a reasonable frequency.”

Dagny Olivares: Operator, do we have any more questions in the queue?

Operator: We have one from Barbara Kaplan. Your line is open. Ms. Kaplan, are you on mute? Ms. Kaplan, your line is open for your question. And we do have a follow-up from Daryn Kline. Your line is reopened, sir.

Daryn Kline: Thank you. Mr. Fitzhenry, I wanted to – you mentioned an expert panel – so to develop the quarterly testing it – who are the members of the expert panel?

Dr. Robert Fitzhenry: I can’t – I’m not going to list all the names of the expert panel -- I mean, I know some names, but not all and I think it would do disservice to some and not others -- but we searched far and wide and we pulled in whoever we could at the time.
Daryn Kline: Would that be members of the CDC?

Dr. Robert Fitzhenry: CDC were involved in discussions, but I would let Laura comment on that, if she wishes too.

Bill Gaines: Well, I’d say the easiest way just – is just go to ASHRAE 188 and the members are listed in the – Page 2 or Page 3 -- and we all run in the same crowds -- so we all end up seeing each other at different conferences.

Daryn Kline: Sure…

Daryn Kline: Yes, I was asking about the expert panel that New York City together. It wasn’t all 188.

Bill Gaines: Oh, no, I’m sure it wasn’t. I can’t speak to that. Yes, sorry.

Dagny Olivares: Dr. Fitzhenry? Shouldn’t – since we were talking about the program that you all implemented and the new law, you spoke a bit about evaluation during your presentation and in the early questions, but would you – can you say a little more about how your evaluation plan is to the new law?

Dr. Robert Fitzhenry: So the plan for the evaluation is that over the next, say, you know, three to five years, we’re going to – we – first of all, there’s a – the cooling towers will be inspected and part of the inspection is to collect data and that data will give us an understanding of the – what the cooling tower – health of the cooling towers in New York City looks like and that data will constantly be reviewed and I think an evaluation will take the format of a – sort of a long-term study of those variables and the changes, let’s say, in various bacterial counts whether that be *Legionella* or not and on the other side, speaking more as an epidemiologist, we’re – we will – the cooling tower legislation is essentially a public health intervention and we can compare before and after case rates and look at our data that way and see if the
intervention has had an impact on our case rates -- and we intend to sort of look at the environmental aspects and the epi. I don’t know if that’s a perfect answer, but that’s kind of what we’re trying to do.

Dagny Olivares: Well, I think, in this situation all information shared is good, and no one has perfect answers. I’d like to take the chance to give a final reminder for folks that you can enter the queue to ask a question by pressing Star 1.

Operator: We have two questions. We have one from John Hanlon. Your line is open.

John Hanlon: Thank you. This is for the gentlemen from New York City Health. Sir, can you talk a little bit about heterotrophic plate counts and *Legionella* counts and is there a correlation between the two or do you expect to see a correlation to the – between the two as more testing is done? Thank you.

Dr. Robert Fitzhenry: Well, that is a very interesting question. Thank you. So if you look at the literature, I think you should do your own literature review because I think there’s papers sort of looking at both ways and not all methodologies are equal, but what I can – what I think you can deduce just sort of logically is that you can have a situation where you have a high heterotrophic plate count and you have no *Legionella.*

You can have a situation where you have a low heterotrophic plate count, and you do have *Legionella.* But what we’re really concerned about with these test results is to look at a process control. So with the data supply and to have trigger points for the owners and people who are maintaining the cooling towers.

So the levels, so to speak, that are in place that would cause a trigger are – to give a parameter, a signal, for the owners and maintain – as people maintain the cooling tower to respond to what is a potential failure in their control of their cooling tower across all parameters so it wouldn’t be just these bacteriological parameters. It would
be other things like biocide addition and corrosion, conductivity, biofilm formation, etc.

And that’s what we’re, you know, the idea is prevention and so the idea is that all this data is a way for you to say, “Well, hold on. You know, my heterotrophic plate count has ballooned just recently. There’s clearly something wrong. I should respond to that. My *Legionella* counts have gone up. I should respond to that given the certain levels,” and so that’s really how we want people to view them -- and maybe Laura has something to say on that too?

*Bill Gaines:* If Laura doesn’t, I do. There is no correlation between the *Legionella* counts and heterotrophic plate counts I agree with you Robert that it changes and “dirty systems” should be looked more carefully at. There’s also no safe level of *Legionella*. I think the lowest is a 7 CFU per elemental from a grocery store mister; so there’s no correlation between that either, so I share Robert’s concerns and it’s all good statements I agree with.

*Dr. Laura Cooley:* I would say -- this is Laura -- that I agree with both Robert and Bill’s statements.

*Dagny Olivares:* Thank you. And operator - and you said there was a second question in the queue?

*Operator:* Yes. We have one from Nkolika Obiese. Your line is open.

*Nkolika Obiese:* Yes, I just want to know from CDC considering the increasing number of Legionellosis that has been reported and also knowing that the most of the cases go undiagnosed – pneumonia or committee of prior pneumonia. Is CDC planning to have something maybe in terms of surveillance to help catch the cases of pneumonia that could be *Legionella*?

*Dr. Laura Cooley:* You know, that is an excellent point. We feel pretty confident that once cases of Legionnaires’ disease are diagnosed that they’re reported usually because of electronic lab systems and that kind of thing -- but you’re exactly right we do worry
that *Legionella* – Legionnaires’ disease is underdiagnosed for multiple reasons and one of, you know, we don’t have any changes right now to our surveillance system plans.

But we do have messaging and as part of our recent *Vital Signs* to clinicians -- so be sure to consider a diagnosis of Legionnaires’ disease when someone has pneumonia specifically, you know, especially severe pneumonia with people with certain risk factors or certain exposures and we continue to recommend that and we continue to recommend testing via both a urinary antigen test and a respiratory culture – respiratory assessment for culture for the reasons that Robert mentioned before both to tie together the environmental sources and human sources and also to diagnose any Legionnaires’ disease that might be missed by the urinary antigen.

So yours is a good point and that’s also something we’re not sure that we understand. There are some regional differences with Legionnaires’ disease throughout the country and we’re not sure yet if there are truly differences in disease or if there are differences in testing patterns and that’s something that we do need to look into further.

Nkolika Obiese: We have another question. It’s from the same place. Based on the Ford experience, what is the ratio of reinfection on the towers that you observed? What were the expected numbers?

Bill Gaines: Which – would you ask that question again? The ratio of what?

Nkolika Obiese: Of reinfection or having a positive tower in the plant – in any given facility?

Bill Gaines: There’s no rhyme or reason whatsoever.

Nkolika Obiese: You don’t have that number? You don’t know how many you can expect on any given year?
Bill Gaines: Oh, oh. That is the data that I presented. Would say – suggest – to be 3-4% of all systems tested.

Nkolika Obiese: And they’re – okay. And there’s repeated positive data in the same tower?

Bill Gaines: That’s, like I say, that may happen two or three times a year.

Nkolika Obiese: Okay.

Bill Gaines: You can add Ford globally among the 300 towers. That is a rare instance. The other thing I should point out, we don’t speciate – we know that pneumophila is a vast majority of the cases and we know that some species won’t even produce the disease. But Ford doesn’t speciate with figure if one species has the opportunity and the conditions to let it thrive, then the pneumophila can as well.

Dagny Olivares: Thank you Mr. Gaines, and thank you to all of our callers who’ve had questions this afternoon and to our presenters for sharing their experience and expertise. Before we close, I’d like to ask that if you have suggestions for how we can improve these teleconferences, you can email those suggestions to ostltsfeedback@cdc.gov. That’s O – S – T – L – T – S feedback -- all one word -- at cdc.gov -- and we hope you’ll be able to join us next month.

The Vital Signs Town Hall will take place on Tuesday, July 12 and the topic will be Motor Vehicle Safety. Thank you again to everyone who attended the call, and most especially to our presenters. I’d also like to ask the presenters to remain on the line, but that will end today’s call. Thank you everyone and goodbye.

Operator: That does conclude today’s conference call. We thank you all for participating. You may now disconnect and have a great rest of your day.

END