MDH Speaks: “Tensions in Delivering Safe Drinking Water” by Steve Robertson (12:49)

Anna Strain: “Thank you, Jessica and Fathi, and Lisa Strong for highlighting the collaborations that we have between the Lab and our epidemiology partners as it’s very important for all the work that we do. We do not work in a silo. We do not work separately, as is highlighted by other speakers as well. So now I want to welcome to the stage Steve Robertson. He's a geologist who has worked in various capacities in the drinking water program at MDH for over 25 years. He was raised in Maryland but has lived most of his life in Minnesota, where he's learned to really enjoy winter. So his talk today is on ‘Trust, Threats and Uncertainty; Tensions and Delivering Safe Drinking Water.’”

[applause]

Steve Robertson: “Hello and thank you for that introduction, Anna. Maybe I could have gone a little bit farther in making common ground by saying that, you know, while I do enjoy winter, I really, really dislike potholes [laughter]. But I'm not here to talk about potholes. I'm here to talk about drinking water. And I came with my prop here [holds up water bottle, audience laughs].

“Most of you receive drinking water through the community water systems, and these systems that deliver drinking water to your homes or your businesses benefit from years of inherited trust. Most people don't regularly give a lot of thought when they open their tap in the morning and consume the water in their home to their businesses; we open the tap, turn on the faucet, and clean, safe drinking water emerges generally at a low cost.

“But this is not a universal experience. A friend of mine who worked for many years in Africa where her children were born, is fond of recalling the story about the time after they returned to the States. As they traveled around, the kids would routinely ask if the water was safe to drink. They'd grown up in an environment where that trusted had yet to be earned.

“I'm going to describe to you today some of the history the drinking water systems have operated in within this country. It's a story of health. Science and Public Health have operated in tandem to make both incremental and episodic improvements in the delivery of safe drinking water. The trust that many of us have in public drinking water is one of the outcomes of these ongoing efforts. But that hasn't always been the case. In the early part of the 20th century, the lack of basic sanitation, treatment, and disinfection meant the drinking water was often the cause of significant disease outbreaks. Epidemics of typhoid, cholera and other waterborne illnesses were common. The advent of basic disinfection and other improvements in sanitary practices for drinking water has been cited as one of the biggest improvements in public health of the 20th century, and such advancements have served us well for many years. But eventually, other threats began to emerge.

Steve Robertson (con't): “The next episode of environmental protections for drinking water started in the 60’s and 70’s amid growing concerns about indiscriminate chemical usage and improper waste disposal practices chronicled in books like ‘Silent Spring,’ and highlighted by dramatic events like rivers catching on fire. That brought about increased concern about the environmental effects on public health. People began to wonder if these were isolated events or were they themselves maybe exposed to some of these contaminants. Concern and uncertainty about these events undermined the trust that was earned in the early part of the 20th century, and it led to substantial changes in the practice of environmental health.

“The Clean Water Act, the Safe Drinking Water Act, the Clean Air Act, and other significant federal legislation put into place regulations that to this day protect environmental health. The Safe Drinking Water Act in the U.S., and similar regulations in Europe and elsewhere, provide regular testing of drinking water, among other interventions. In other words, water quality standards have been established in the U.S. and around 100 of those water quality standards for which regular testing conducted by the Public Health Lab and others, helped to provide confidence that the water delivered to consumers by community systems safe for consumption. We're approaching 50 years of implementation of the Safe Drinking Water Act in the U.S.

“These episodic advances that I've just described helped to build a substantial public health infrastructure to support drinking water. And when I used the word infrastructure here, I don't mean just the pipes and the pumps that deliver water to our taps, but I also mean the human capacity, the regulatory oversight, the financial assistance. These systems work in tandem to help provide safe drinking water, but all individually work to deliver safe and sufficient drinking water. They work in tandem to support one another. We have a role to play in adapting these systems to meet future challenges. In modern industrialized countries, the net result is that immediate concerns about drinking water have receded. Threats like exposure to acute pathogens or common contaminants have largely been addressed. We can travel from place to place, confident that the water that we drink is safe to consume. But is that really true, everywhere, all the time?

“Some of you may remember the large harmful algal bloom in Lake Erie back in 2014 that caused the city of Toledo to shut down its community water system for several days. That was a dramatic and disruptive event for people who live in that area, but it's also an example of how the systems of testing and regulatory oversight worked to prevent environmental exposure to harmful contaminants. In contrast, many of you probably also remember the events of 2015 in Flint, Michigan. Their systems failed for multiple reasons. It was an active and vocal population that revealed those failures and demanded action. Those actions have resulted in substantial systems change, which we continue to feel to this day. Many of you may have also heard about contaminants of emerging concern like PFAS threatening your water supply, I'll talk more about that issue in a minute, but for now, I think it's important to recognize that these concerns are real and there's much uncertainty about them. I would also say that these multiple issues are creating another moment for drinking water protection that's going to drive future change.

Steve Robertson (con't): “So should you be concerned? Yes, I think you should be concerned, but I don't think you need to worry. You should understand that the mutually reinforcing layers of public health protection are acting to peel away successive layers of risk. There are literally thousands of people working every day to address these issues. Many programs and systems support this work.

“One example is the Contaminants of Emerging Concern, CEC, as they're known, are a reality in our modern industrial world. By many measures, maybe over 80,000 of these chemicals are in use in modern society, and they have a lot of very useful purposes: pharmaceuticals, pesticides, personal care, products. So there are many benefits of these, but we know that many inevitably get released into the environment. At that point, they shift from being compelled with a societal value to being contaminants that may impact our health. Contaminated waters have many negative effects, including on drinking water supplies.

“So what are we doing to address this emerging issue? Well, we're rapidly expanding our testing to find out where and at what levels these contaminants exist in our water supplies. The Public Health Lab is helping tremendously in this work and is at the forefront of scientific advancements, providing expert advice in developing new or adapting existing analytical methods to help us identify these emerging contaminants. And we're using these lab results to good effect to create new standards based on occurrence in concentrations in the environment. We're communicating with water systems so that they can alter their operations to limit public exposure if their water is contaminated, and we're working with partners to put into place technical and financial assistance so the systems can put into place treatment processes if that's necessary and when it's appropriate. We're providing risk communications and guidance to the public. And that means we need to put the risks into context. So, unlike waterborne illness outbreaks from long ago, today's threats typically do not present in an immediate or an acute public health concern, but we certainly want to minimize public exposures. It's unrealistic to expect that we can eliminate them altogether. Living within a certain threshold of risk is something we need to learn to do, but it's also something we do daily. We do it all the time. For example, when we get in a car and drive across town. A difference in this risk perception is that most people have independent control over how they drive their car, but not over the drinking water that comes out of your tap. Instead, public water systems that deliver water to your home need to earn your trust. Many very knowledgeable people work daily to manage the threats, minimize the risks and do so at a cost that's sustainable.

“Much of the practices of public health are invisible, and that's one reason why we're here today to talk to you. Many of us try to be transparent and accountable through tools like dashboards, reports, outreach. But the lessons of Flint are not lost on us. We need to learn to leaven the strictly scientific assessments that we make with public perceptions. Should these threats and associated risks undermine your trust in your drinking water? It's not for me to answer. Many of you drink water from different areas, and the threats in those areas are going to be variable, but you should certainly expect officials working to earn your trust. And you should start thinking about your water when you open your tap. Where's that coming from? Learn about the quality of the water that you drink. Express your concern about the quality and the quantity of the water to the leaders that represent you. Hold them accountable. Demand transparency because it's you, all of you, that keep public health practices grounded.

Steve Robertson (con't): “Thank you.”

[applause]