

5G CRISIS

AWARENESS & ACCOUNTABILITY



Science about Wireless and 5G

Guest: Dr. Sharon Goldberg

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Josh del Sol: Joining us on the summit today is internal medicine physician Dr. Sharon Goldberg. Sharon, welcome to the summit.

Dr. Sharon Goldberg: Thank you. Hi.

Josh del Sol: Thank you so much for being here for spending this time with us. People may already know you. Those that are familiar with 5G and the conversation from your testimony at the Michigan House Energy committee hearings on 5G. In late 2018. And so, I'm really looking forward to this conversation because with your background and your extensive knowledge and expertise in medicine in electromagnetic radiation.

We are going to give a very powerful set of grounded facts and perspectives today in this conversation. So really looking forward to dive in.

And I'm just going to share with our audience a little about your background. And then we'll get started.

Dr. Sharon Goldberg is an integrative internal medicine physician. She is one of a small, but growing number of physicians to have completed the advanced electromagnetic radiation course work with the Building Biology Institute. And by the way, Larry Gust is in the summit as well.

Dr. Sharon Goldberg: Great. He was one of my teachers.

Josh del Sol: Excellent. And has technical experience with electromagnetic field assessment and remediation.

Her background includes fifteen years as an academic hospital medicine physician, and medical educator. Responsible for the training of medical students and resident physicians at teaching hospitals in New York City and the University of Miami.

She has co-authored publications in the fields of dietary supplementation, autonomic nervous system assessment, and nutritional epidemiology. And Dr. Goldberg is an editorial member of the journal *Electromagnetic Biology and Medicine*.

So very extensive background.

We'll dive right in. How did you first become aware of the effects from electromagnet radiation?

Dr. Sharon Goldberg: Well, I was just like everyone else I didn't think twice about carrying a cell phone in my pocket on my body using it all of the time.

So about five years, and I was working at the University of Miami where my cell phone came from the Department of Medicine. So I was due for a new phone. I wanted an iPhone. I had a Blackberry. I brought the new phone home and I had a conference call that I did holding it on speaker like this for twenty minutes.

By the end of the call my finger was burning. It was like a neuropathic pain that a diabetic would get in their toes. Like a burning pain in my finger.

I thought, "Wow, this is not okay. What's going on?" So I started reading that night about electromagnetic fields from phones and health effects. And I was really shocked to find out that actually there was a lot of science to show that the conditions that we treated in the hospital and in internal medicine clinics; there's a lot of science to show that path of physiology overlaps with the effects of electromagnetic fields. So that was a big shocker for me, and an eye-opener.

The next morning, of course, I brought my phone back to my administrator and I asked her for a low SAR phone. Which I got the following week.

Josh del Sol: So a lessor radiation phone? So SAR, Specific Absorption Rate?

Dr. Sharon Goldberg: Exactly.

Josh del Sol: So a phone that microwaves less power, right?

Dr. Sharon Goldberg: Exactly.

Josh del Sol: Okay.

Dr. Sharon Goldberg: It's the amount of radiation per unit weight. It's a measurement. It's not such a great measurement, but it does measure something. In this case the phone that I had been given was an iPhone 5. Which I was told many years later was actually a high radiation phone. And then I switched it to one, at least on paper, is a lower radiation phone.

So that's how I got interested in it. That was five years ago. But that got me really interested in it because I had been like you mentioned I had been doing some research. And doing a lot of teaching with medical students and residents. And one of the things that is a big issue for all physicians is that our patients have just been becoming sicker, and sicker with every passing year.

Internal medicine used to be essentially geriatrics when I started twenty years ago. The young people that were hospitalized in the internal medicine wards all had a reason to be there. They weren't just there. When I say, a reason to be there, I mean they would be dialysis patients. They would have epilepsy. They would have autoimmune disorder or some type of acute infection. Or other issues. But everything was kind of clear and we knew why they were there.

What's been happening over the past twenty years is that internal medicine patients are becoming younger and younger. With more and more comorbid conditions. So like a longer list of diseases. That they come in. And longer medication lists.

So this has been a challenge for, I think all physicians, but also for medical educators who deal with medical students. Because in my last couple of years at the University of Miami, I saw something that I had never seen. Which is medical students would show up on our ward their first day for their clerkships. And they would look at how sick the patients were. And you could just see it in their eyes. They were burnt out already.

How can you teach someone to take care of a simple medical problem. Like abdominal pain in a patient who has a history of stroke, heart attack, cancer, this long list of problems. So that's how I got into it.

Josh del Sol: What are some of the common misperceptions in your view of EMF's? And EMF's, Electromagnetic Frequencies, Electromagnetic Radiation being interchangeable terms.

Dr. Sharon Goldberg: Yeah. So I think there a lot of misperceptions. A lot. I will mention two. The biggest one is that we keep hearing this controversy or debate in the scientific literature about whether or not electromagnetic fields, and I guess I'll speak specifically about microwave radiation. Because we're talking about 5G and wireless radiation. So we're speaking about microwave radiation now.

The misconception is that we don't have enough science to make a decision as far as whether or not we need to warn the public, and take action to lower exposures. And this is completely false. We have such clear evidence that microwave radiation, that it is what I would call a broad spectrum pathogen. So it causes all sorts of different diseases. And a multisite carcinogen. So it causes cancer in many different parts of the body.

We understand a whole bunch of basic mechanisms about why this would be. We understand that. So it's completely false from the scientific perspective when you hear, "Well, we need more research." "It's still a debate." There isn't anything to debate. That's I think the biggest misperception out there.

The other thing that I think people don't understand is we assume that there are health protective guidelines out there. That everyone sites the FCC guidelines for EMF, for microwave emissions as being protective of human health. Actually, this couldn't be further from the truth.

First of all, these guidelines, they are decades old. The reason they were set as high as they are is because when the conference of all of the people got together to figure out where they were going to set the limits. It was a time when the military needed microwaves for military telecommunications and for radar. It was very important.

If you go back, and I believe it was in the late '60's when they first set these levels. And they set them intentionally high to allow for military use. And it was important at the time because we believed that the country was under threat for nuclear war. And this was important. So that's where everything started.

But then the problem is that the guidelines were never revised. And so they're based on this false assumption that if microwaves, we call it the thermal effect. Essentially, what that means is if the level of radiation, if it's not enough to heat you, it's not enough to harm you. That we now know that's

completely false. And we actually knew in the '70's this was false. And I can show you. I have this book called *The Biological Effect of Microwaves* from 1976.

They actually write in this book that it's not enough to say that harm from microwave exposure has to do with thermal effect and nothing else. It's not true. They write it in there and that's from 1976.

So as far as the health protective guidelines go, these FCC guidelines that are cited all the time as an assurance of safety. They are not relevant to the chronic daily exposure that we see in our country. They only apply to exposures that are 30 minutes or less. So it's for a short term exposure. They were developed by engineers, and mostly people from industry in the military. And physicians and people with public health training weren't consulted.

So I think those are really the two big misperceptions. It's really important to understand that there are not guidelines now. That really no one is looking out for our health in a regulatory manner. There's no regulation. Because the guidelines are simply too high.

Josh del Sol: And only based on thermal effects, and they don't even look at all of those thousands of studies that are referenced in that book from the '70's, right?

Dr. Sharon Goldberg: Right. I have two things that I was going to show you. Here's another one right here, okay. I picked these because they are good. This is from the Naval Medical Research Institute from 1971. This is a bibliography of the effects of microwave radiation that they knew about in 1971. This is really easy to read. Essentially it's a bibliography. It's just sort of a laundry list of all of the effects that they were seeing in the '70's from microwave radiation. It looks like this. Does it show up? It's a list of effects.

The bottom line here is if you look at the way public health has deteriorated over the past twenty years. And I'm not saying that this proves that microwave radiation is the cause of everything. Obviously, it's not the cause of everything.

All I'm saying is that there is very compelling science to show that many, many of the chronic conditions that we see today are linked mechanistically. And are linked in the older science that is very accessible to anyone.

So to just give you an example. We have an epidemic of suicide in the United States now, depression and suicide. That's been going on. And we have states

that have a 50% increase in their suicide rates. And this is horrible. This isn't just because times are tough. I mean something organic is going on.

So if you look at this right here, well what does it say. There's a whole section on psychological disorders, page 9, section F. Human Behavioral Studies. What did they see? Number 1, neurasthenia. Which they explain as general bad feeling. Number 2, depression. Number 4, anxiety. Number 8, hallucinations. Number 11, increase irritability. Insomnia. Loss of memory.

And this isn't the only source. We know that the connections are there. So it's just a matter of blowing the dust of a lot of the older research and connecting it with our current health situation. And we really need to do this. We can't afford any more sick people. We can't afford to pay for it. We just can't afford it.

Josh del Sol: Yeah. We mentioned Larry Gust. President of the Board of Building Biology Institute. Who we talked to. For those who want to dive right into solutions, he goes step by step in how to make your home safe. Both from sources of EMFs in the home and outside of the home, and what to do. So highly recommend that talk for everyone.

We talked also with Dr. Ronald Melnick. Very compelling conversation. He was the designer of one of these many thousands of studies, but a very prominent study called *The National Toxicology Program Study on Cell Phone Radiation*. It was originally commissioned in the late '90's by the FDA. And when the results were finally published in 2016, and again in 2018, the FDA basically said, "We're not doing a risk assessment. We're not going to look at the data. We're not going to look at the results. It's not applicable to humans."

So what is your take on that?

Dr. Sharon Goldberg: Well, I think that really my most important take is that I don't see any point in funding research if we're just going to blow-off the results. When they're inconvenient. Which is essentially what happened. And from what I understand, and maybe this is not 100% correct, but I've asked a couple of senior people who have worked on these types of studies. I had a question for them about, "Well, has this ever been done before?"

Because the National Toxicology Program Studies are really the gold standard of exposure studies for toxicant in the United States. When you do a National Toxicology Program Study on an agent. If the study shows an association. What ends up happening is that that agent gets labeled and it gets listed on our ATSDR. The Agency For Toxic Substances. Hopefully, I'm not messing up what it stands for. And that's what has always happened.

I had asked them, “Well, is this the first that this has happened? How is it possible that we can have a positive NTP study showing clear association with cancer of the brain, and heart, and DNA damage, and cardio myopathy.” Which is a precursor to heart failure. “How is it possible that the study is done and then no actions are taken?” And I wasn’t able to get a good answer. The answer that I understood is that this is a first. That it’s a first time that a National Toxicology Program Study has been just disregarded completely.

So as far as the results being nonapplicable to humans, so that’s a really good question sort of from the research perspective. Really what they’re implying is that well, we need to redo the study and we need to do it on humans. That’s what they’re saying, right?

And this is really an important point about microwave radiation and our ability to research it as of 2019. Because we have so much basic science and clinical research, and it is so clear that there are harms associated with microwave radiation exposure it’s not possible to do human exposure studies. Because we know that these exposures are dangerous.

In other words in order to do a study on humans you have to go before an institutional review board with a whole proposal outlining what is your research plan. And part of that is well what does the existing research say about the exposure that you’re planning for your study participants? With microwaves they’re going to look and they’re going laugh. And they are going to say, “Well, no way we can’t approve this. It’s not ethical to expose a group of people, participants, to an exposure that we know causes DNA damage, blood brain barrier leakage, cell membrane leakage, calcium channel issues.” And on, and on. Any one of these basic effects is a really big deal. But we have a whole laundry list of affects that we know are associated with microwave radiation exposure.

So to answer your question, it’s really misleading to say that the results are not applicable. The only way to study this was with laboratory animals. It’s not possible to study with humans. So it’s misleading. That’s my long-winded answer.

Josh del Sol: What are your top health concerns about 5G?

Dr. Sharon Goldberg: Well, first of all when you look at the science on microwave radiation and cell towers in general, the distance from the antennae really matter. As far as clinical endpoints. As far as symptoms.

I think my top concern about 5G is that, and this is based on my understanding as a non-engineer. Is that what’s happening now is they’re

putting up these small cells and the justification for the small cells is that the millimeter wave technology, which is going to come later. So the highest energy microwaves don't travel very far.

So the base stations or the small cells, have to be placed closer to homes. But my understanding is what's being placed in these small cells it's not the millimeter waves. We're using our existing networks. And we are bringing them closer to homes.

So this is very concerning for health effects. So I think that's number one.

The second thing is that 5G is being rolled out with any kind of pre-market safety testing. And we hear from the FCC and from the wireless industry that, well maybe they haven't used these words, but they believe that it's safe. That there's no reason to believe that it's harmful. But when you really look at the scientific literature, I'm not sure what they're talking about. Because we've got plenty of studies of millimeter waves that show health effects. They show biological effects.

So we know that there are serious concerns for eye damage. So we know that millimeter waves are associated with cataracts, corneal damage. This is what the science says. So eye damage is a big one.

The other concerns are immune system effects. Because the science shows the effects on the immune system. Effects on endogenous opioids. So nervous system effects. Potentially mood effects. Likely mood effects. And the biggest one in my mind, well it's hard to rank them, but is what about the effects on bacteria. Because we know that millimeter waves have been shown to cause antibiotic resistance in *Staphylococcus* and *E.coli*. And so, I mean think about it, all of the superbug MRSA infections. That's stuff. But the *E.coli* infections that you see.

It actually kind of makes sense if you think about it just from the science perspective. Because the general effect of electromagnetic fields on living cells and living systems, is that when you expose them over time it induces a stress response. So with toxin forming bacteria, if they're put under stress for periods of time what do they do? They form toxins because that's how they defend themselves.

So that kind of mix is biologically plausible. Those are my concerns, really. That we have good scientific evidence to say that millimeter wave technology is harmful. And that we already know that the existing networks are harmful. So we shouldn't be bringing them closer to our houses, that just doesn't make sense.

Those are the main one.

Then, of course, it will lead to 24/7 mandatory radiation of the entire population. For instance, pregnant women, children, people with chronic conditions, elderly, we know that they're at a higher risk for having adverse effects. So there's no informed consent. And there's no way for them to opt-out of the exposure.

Josh del Sol: In this summit, Dr. Devra Davis actually goes through and names some of the specific studies and their conclusions. Studies that have been done about specifically millimeter wave radiation. Independent studies. And also, Sayer Ji talks about a briefing. He shares a briefing that he received detailing some pretty startling facts about the satellite component of 5G. And the plan. Which has been verified. It's fact now. It's not just some idea. But it's fact that the plan, according to the FCC and these corporations is for approximately twenty thousand satellites to be launched by the end of 2020.

Amazon, OneWeb, and SpaceX being three of the leading companies. And five million watts I believe was the approval for each one of these.

Do you want to touch on that? The satellite component of 5G and how significant of a threat is that even just by itself?

Dr. Sharon Goldberg: Well, I think that the whole concept, I think what it all comes down to is that if you can't expose humans to microwaves in a lab, in a controlled environment. If you can't even do that ethically. Because we have so much evidence of harm. None of these technologies should be getting rolled out.

This is illegal. There are all sorts of laws that are supposed to protect us from being experimented on. But this is human experimentation. This is experimenting with the planet. It's experimenting with human health. With the health of our insects. Our birds. It's just unconscionable.

Josh del Sol: What do you say to the FCC and industry claims that there is no proof of harm from 5G, or microwave, or millimeter wave radiation?

Dr. Sharon Goldberg: Well, I think that they need to read the literature. That's what I have to say. It would be pretty easy, I'm sure, for a lot of the people that you're interviewing for this summit. If we had an hour or two to sit down with these people. But I'm sure they don't need to hear from us.

The studies are out there. They're accessible to people who want to access them. And yes, EMF science, it requires a bit of training to understand and to interpret studies. But it's not rocket science. It's not. This is pretty black and white stuff. This isn't something that's open to interpretation.

We know that DNA damage is a really bad finding. We don't want DNA damage. We don't want our cell membranes to leak. We don't want all of these things that we see, we don't want corneal damage, immune system.

The bottom line is that microwaves, they interfere with normal housekeeping functions of the body. That's really just sort of the ultimate take-home message. When you microwave a population of people, they get sick. Because the body isn't able to just do its thing. All of these different mechanisms, these different, our physiology has to be able to remain intact. And it's not. That's really the bottom line.

The satellites, I just don't understand how it's happening. But it's very scary.

Josh del Sol: Yeah. You mentioned millimeter waves radiation, the science that links to eye damage, the corneal damage. And also, skin damage. But the industry is claiming, and that should be enough right there obviously, but the industry is claiming that the effects from millimeter waves don't go deeper than the skin. What do you have to say about that?

Dr. Sharon Goldberg: Well sunlight doesn't go deeper than the skin, right? We know that sunlight exposure sets off a whole cascade of events in the body. Neuro/hormonal processes, Vitamin D production, mood effects. So that argument could be debunked by a first-year medical student. It doesn't make sense.

Josh del Sol: And we know Dr. Devra Davis talks about a specific study about sweat ducts and how they act as helical coil antennae's to transmit that energy deeper into the body. So that's another aspect that blows that claim out of the water.

Dr. Sharon Goldberg: Right. And our nervous system in our skin. We have receptors in the skin. So yeah, exactly.

Josh del Sol: Why is there so little awareness than within the medical profession of EMF harm?

Dr. Sharon Goldberg: Well, first of all, the awareness is growing, thankfully. There are several reasons.

I think first of all doctors are reading the same newspapers and watching the same TV news shows. Unfortunately, the mainstream media doesn't cover this issue. They don't cover it for many reasons. They don't want to lose advertising dollars. There are conflicts of interest. They just aren't covering it.

Doctors are hearing exactly what everyone else is hearing. Which is that there's some type of debate. That we haven't figured it out yet. We don't know. Are cell phones safe, are they not safe?

They're getting all of the same information.

Josh del Sol: So they're not getting trained properly is the bottom line, right?

Dr. Sharon Goldberg: They're not trained. In medical school, there's no discussion of electromagnetic fields. You get the same sort of canned explanation of well if it's ionizing radiation it's harmful. Nonionizing radiation is not harmful. Which we know is not true based on the 50 years of scientific literature that's out there.

But doctors are busy and they take care of patients in their own specialty. And they have a lot of literature that they have to read in their own specialty. So to read about EMF science, first of all, it doesn't make it into the medical journals. For that very reason. It's just not on their radar. No pun intended.

But they're not thinking about it. But the interesting thing that is happening now is that there's this growing interest among doctors, particularly among medical students. And the Institute for Building Biology where Larry Gust is faculty actually has not one, but two MD MPH students. So it's the joint medical doctor. Masters of Public Health program students in this current class. They just graduated an RN MPH. So a nurse MPH. With a lot of experience doing behavioral health and psychiatry. And they have a third nurse. And these are small classes. It's not like a huge class of hundreds of people.

So it's very significant. They're having more and more people from the health professions sign up for their courses every year. Because they're interested in using EMF remediation in research and clinical care.

Josh del Sol: Do you think that doctors are actually seeing cases of what we might term Microwave Syndrome or effects/symptoms caused by EMF, and not recognizing it?

Dr. Sharon Goldberg: Oh definitely.

Josh del Sol: Like to what extent? To what scope do you think that's happening?

Dr. Sharon Goldberg: Well, it's really hard for me to say. But I think what everyone needs to understand is that there's a lot of talk. When we think about electrosensitivity or the terminology that's used electromagnetic hypersensitivity. Which is really a scientifically incorrect term. Because hypersensitivity implies excessive sensitivity. That someone is more sensitive than they should be. That it's sort of an unreasonable response.

But really what the science shows is that all humans are affected by microwave exposure. Certain people are able to feel it. So certain people are electro perceptive. Certain people are electrosensitive. What that means in my mind is that they've made the connection between their exposures and their problems.

But what you have is everyone else who is affected by microwave radiation, but they haven't made that connection. So as far as recognizing Microwave Syndrome in the clinic or in the hospital, I can tell you just some of the really classic presentations that I've seen. That really should be a red flag.

The most important one would be sort of youngish, college-age students, or young adults who are presenting with signs of dementia. With cognitive impairment. Short-term memory loss. And it's the cognitive problem coupled with what we call orthostatic hypotension. That they get dizzy when they stand up. If their blood pressure is low. And that they're not sustaining their blood pressure.

So generally when you see those two together if you ruled out other causes, this is very common. You see this very commonly in young adults who have had cell phones from a young age. And they'll often tell you, "Oh, my dad gave me a cell phone when I was nine or when I was ten."

So they've had that exposure for a long time. This is something that I see.

And a second presentation is particularly behavioral changes in younger children.

And the ones that are extreme moody ability. And that particularly coupled with blood pressure.

But really it can present as anything.

Josh del Sol: ADHD predominately, or really just any behavioral changes?

Dr. Sharon Goldberg: Well, as far as the pediatric stuff it's a little harder for me to say. Because I take care of the parents.

Let me just back up for a second. Because people may be wondering, "Well how can you diagnose someone, or how can you decide that these problems are due to microwave exposure or electromagnetic field exposure?"

And the way that you figure it out, because this is a clinical diagnosis. There's no test that you can do. Or imaging study that makes this diagnosis. It's that when the electromagnetic field exposure for that particular patient is lowered as much as possible. And in some cases it's not completely possible to do. If their home is under and right next to a huge power line. There's nothing you can do about it. It's the magnetic field.

So certain people it's very hard to fix the problem. But for everyone else. Let's say a person comes in. A college student comes in and have very low blood pressure, is dizzy when they stand up. Can't get the blood pressure up. They're not dehydrated and they have signs of early dementia and short-term memory loss that can be really impressive.

So the intervention would be, I think someone like Larry or another building biologist go into the home and evaluate the home for really the four key electromagnetic fields that we know are harmful to health. And when they lower their exposure as much as possible, if you see a big change in symptoms then you have your diagnosis.

Though, this is a part of why doctors are not really able to make this kind of a diagnosis. It's difficult because they can't really do it alone. They need to work with a building biologist or an engineer. Or just someone who has the training and who has the equipment to be able to do the measuring in the home.

Josh del Sol: Okay. So other aspects of 5G. One of the talked about or publicized aspects of it is this whole autonomous vehicle thing. Dr. Timothy Schoechle in the summit talks about this. And he said, "Even if we want autonomous vehicles, even for those people who want them, wireless and 5G is not need." And so, I just wanted to ask you. Do you have a perspective on the internet of things, autonomous vehicles, or any other aspects of the 5G planned rollout?

Dr. Sharon Goldberg: Yeah. So, one of the biggest problems that we have now is that our existing scientific literature, like I said has just been sitting and collecting dust for decades.

We have this disconnect between what is happening in industry and what the science says about electromagnetic fields on human physiology. And because of this regulatory vacuum, there aren't really any meaningful health-protective guidelines in effect to guide industry. We have the development of just all sorts of products that emit various EMFs that we know are harmful to humans. Or that underlying our basic physiology.

So cars are a really good example of a technology that we need to improve. And that we could improve really, pretty simply by just looking at what are the EMFs in the average car? How are they problematic? And then how can we re-engineer the car to lower the exposures?

To give you an example. Most new cars nowadays, first of all, they have Bluetooth in them. You're going to go and drive the car. So you get in the car. You get in the car with your phone. Your phone is emitting microwaves. The Bluetooth is emitting microwaves. So different frequencies. The car is made of metal. So we know that microwaves when they hit metal, it gets back and you have an even higher power density. If you're in there with a meter measuring you'll see the level of radiation go sky high.

That's just microwave exposure.

I think some other cars may have WIFI and other sources of microwave. I don't have a brand new car. So I'm sure about that.

So that's just microwaves, okay. Cars have magnetic fields and depending on the car and how it's designed the magnetic fields can be really, really high. And we know that magnetic fields, for instance, we have good literature showing that magnetic fields correlate with obesity. Particularly when it's prenatal magnetic field exposure. That the babies have an increased chance of being obese.

And all sorts of other literature on magnetic fields.

So cars emit microwaves. Cars emit very heavy magnetic fields. And so, in the case of these newer cars, electric cars. The magnetic fields are through the roof. And usually, it's in the backseat of the car. So who rides in the backseat? The kids are riding in the backseat. So the kids are getting these huge magnetic fields.

Then you have electric fields. And you can also have what we call dirty electricity. Micro surge electrical pollution.

And so, the question is could we make a healthier car? Of course, we can make a healthier car. We need to look at the science. And say, well the science says this. We need to read the science and say, okay we need to use our science to make healthier cars. And how could this change public health? Well, it could make a huge impact on public health. Because if someone were driving a healthier car you would lower their exposures to multiple fields.

For instance, like people who spend their entire day in cars. Taxi drivers.

I used to live in New York City and I remember when they introduced this thing called Taxi TV. Where it's a big screen so the passenger when you're sitting in the backseat of the car you can watch ads. And I guess the cab company makes money off of that. So there's screen there. Obviously, there's wiring in the seat. What's going on with the driver who's got the screen on his back, what are the fields in these cars.

And we also know that there's been this epidemic of suicide among taxi drivers in New York. And I'm not saying that I have the answer. But I'm saying that we're not even asking the questions.

We need to be asking these questions. If we have an epidemic of suicide, how do we negotiate the fact that the science links depression and mood problems with EMFs?

We have an epidemic of diabetes. We need to be asking these questions.

So technology, we need to ask the questions.

Another really good example is our medical devices. For instance, this was news to me. I found out recently that they're using apps for Type I diabetics for continuous glucose monitoring for cell phones. Which sounds like a really good idea. If we know that microwave radiation causes oxidative stress, and we know that. And we know that some of the most dreaded complications of Type I Diabetes, like Retinopathy. Are linked intimately with oxidative stress, well what is this doing if someone is staring at the phone with Type I Diabetes, and causing oxidative stress to their eyes?

We have to be thinking about these things. Because we simply can't afford to make people sicker than they are. And they are already sicker than they should be.

Josh del Sol: You mentioned cars should be being made safer, and you gave examples of why and how. In that example, let's just look at cars how they are being manufactured. What would be required in order for manufacturers to stop trying to compete with each other to have the latest wireless gadgetry?

And sort of like this competitive arms race based upon convenience. To shift from that paradigm to we need to actually make cars safe based upon the science. Like what would be required? Is it just an awareness thing? Is it a numbers thing? Is it enough people speaking up? How do you see that happening?

Dr. Sharon Goldberg: Well, the public has to be educated. Because right now people don't know. So if the mainstream media doesn't cover this issue, the people that are talking about it sound like they are crazy.

Because it's like, "Oh, well I read in the *New York Times* that there's no evidence to show that cell phones are harmful."

The public needs to be educated. And the public needs to be educated from a place of the state level or the federal level, it needs to come from our institutions of public health. Or the CDC. I'm not sure who would get into that. But I think starting at the state level is a good idea. Because the states are the ones getting stuck with the Medicaid bill when people show up with end-stage kidney disease in the hospital and need an urgent team or dialysis.

People that don't qualify for emergency Medicaid – ultimately states have to pay for Medicaid. And as people get sicker you're seeing more and more young people getting funneled into Medicaid. Because they're having strokes. They're having a heart attack. They're having heart failure. They're having these catastrophic health outcomes. They're having cancer and they're not able to work. They lose their benefits. This is what's happening.

I believe that looking at how we can educate people at the state level, departments of public health, I think that's a good place to start.

First, they have to understand what are the health effects of microwave radiation. And once that's done, and once they understand it and it comes from a credible source. Then they can at least make informed decisions. An informed decision could be, "Well, I would like to have a healthier car. A low EMF car." Or it could be, "Well, I would like to have my internet at home come from a wired modem and not a WIFI router." "I don't want to have WIFI in my home." Or "I want to have a landline."

It could be a whole bunch of different decisions. But it all starts with the public being educated and being aware that there's actually a problem. Because right now there's not a lot of awareness. Because of all of the confusion that's been really deliberately created by the wireless industry, in the press, that's what we're living with now.

Josh del Sol: Yeah. The awareness seems to be mostly limited to online, right? So it's not coming through traditional channels. It's not coming through media or academic institutions or government. Especially, the higher levels of government. The federal government for example.

Dr. Sharon Goldberg: Can I just say one thing?

Josh del Sol: Please.

Dr. Sharon Goldberg: There is one newspaper that does actually cover this issue and they cover it very well. And it's called *The Epoch Times*. And I had never heard of this newspaper in my life until a reporter contacted me to do an interview. And I've actually subscribed to it. They have a really good mind and body section. It's a very good newspaper.

So there is one newspaper that covers it. Maybe there are a few more.

Josh del Sol: And there are actually to that end, there are an increasing number of mainstream papers that are at least questioning is 5G safe? You know like *The London Telegraph*, *The Chicago Tribune*, the *WIRED* magazine. Even engineering journals. Even *IEEE* is publishing some studies on 5G, on millimeter-wave frequencies showing their harm.

So this conversation is happening. It's just that we need – so if someone in a public health stakeholder position is watching this right now. What are the key messages that they need to be aware of? Whether it's people writing them, their elected offices and stakeholders. Or whether it's just on this call right now. What would you say to people in that position?

Dr. Sharon Goldberg: To people working in public health or legislators?

Josh del Sol: Yeah.

Dr. Sharon Goldberg: Well, I don't want to beat a dead horse. But I'll say it again. There's no point in funding scientific research if we are going to ignore it.

So, first of all, to start with we need to really look at the science. We need to look at the independent science. Not the science that's been funded by the wireless industry. Because we know that there's very clear bias there. That the outcome of medical studies is linked to funding sources that we've known for decades.

So really there are potential solutions to our greatest health challenges. And those potential solutions lie in that science on electromagnetic fields and health. And really when you microwave a population over time, they get sick. When you stop microwaving them or lower the exposures, many symptoms get better. So what this would translate into is improved population health.

I can't guarantee it. But this is what the science says. And you can't prove it any better than we've already proven it. Like we're not going to be able to test these things on people as I've already mentioned.

So we have to work with the existing science that we have. And we have a lot of it. So as far as practical solutions and what really needs to be done, because really there is this economic imperative. We have to take action. We really can't keep dragging our feet on this. Because we can't afford more sick people.

So to start with we need a fiber-optic network. We need optical fiber to homes and offices. And there are so many reasons why this much better than 5G. So many reasons. And I'm sure you have other people talking about this.

Josh del Sol: Dr. Timothy Schoechle actually lays out examples of how to do that. How a city takes back control of its infrastructure and wires. And he gives specific examples of cities that have already done that.

Dr. Sharon Goldberg: Wonderful. So yeah, so there's are so many reasons why any legislator should be looking to fiber as a much smarter choice. Because of its speed and cybersecurity, and safety, and poles can't collapse in a storm. Just so many reasons, aside from the health reasons.

But to start with really, we absolutely need fiber optic. That's sort of the base of all of this. We need to start with looking at sensitive populations. We need to look at our children. So schools need to be wired. There's no reason to be using WIFI in schools. And now, that we know that wireless radiation is clearly associated with cancer, DNA damage, cardiomyopathy. We know this. There are serious legal issues with continuing to require this mandatory radiation of children in schools.

So schools have to be wired up. They really have to rethink device use in children for many reasons.

But once again, I bring this back to economics because I think that's ultimately what makes people listen.

Josh del Sol: That's the language.

Dr. Sharon Goldberg: Yeah. If you think about once again, how the science is disconnected from our policies and our practices.

We have a diabetes epidemic in the United States. Everyone knows that. So I can tell you in schools, kids are using laptops, they are using these Chromebooks. And they're being exposed to microwave radiation that we've have good science showing associations with diabetes.

We also have good science showing associations with oxidative stress. And hopefully, this isn't too technical for your audience. But the children are taking these devices and they're putting them right over their bellies. Okay? So the device when it's set for use on WIFI is emitting microwaves, right? So you're getting microwave emissions over the liver and right over the pancreas.

So why is that relevant? Because when you cause oxidative stress to the liver and the pancreas we know the mechanisms of diabetes, and the mechanisms of what we call NASH. Which comes from fatty liver. Which essentially is one of the top indications for liver transplants. It leads to cirrhosis.

So oxidative stress is a mechanism in the development of NASH cirrhosis. And then over the pancreas, the pancreas has very poor defenses against oxidative stress. So this is what we're doing to our children.

And then, we don't understand, well why do we have these diabetes epidemics? Why are our rates of NASH cirrhosis going through roof? Can I prove this? No, I can't prove it.

But we have our basic science. And we have to use that basic science that our grandparents' tax dollars paid for. And we have to actually use it. We could put it to really good use. But it's being disregarded right now.

Another issue that relates to schools, because we're talking about children now. Is that cellular antennae's should not be pointing at schools. Cell towers should not be on school property. They shouldn't be near school property. And schools should be low EMF environments. Because of what the science tells us.

So those are places to start.

Another really important intervention would be mandatory labeling of devices that emit microwave radiation. So you want to go and buy an Xbox or a PlayStation or a cell phone, these devices need to be labeled. A lot of people don't even realize that their video games are microwave transmitters. Their baby monitors, cordless phones. So they have to be labeled.

And there really should be a process of informed consent. Where if you're going to go buy it you should be reading some type of a document that says, "Microwave radiation has been shown to cause blah, blah." I won't go down the list. That should be the process of informed consent.

So at least consumers are able to make educated decisions. Because we know that not everyone's going to care. Some people are just not going to care. And they're going to buy the stuff anyway. And that's fine. But some people do care. A lot of people may care. Especially parents are going to care. Pregnant women I guarantee you are going to care.

But now they don't even know. People just don't know. So we need to enact policies that make it easier for people to make healthy decisions, and make it harder for them to make the unhealthy decisions.

So I think those are just some places to start.

But obviously, we shouldn't be rolling out 5G. We shouldn't be rolling out microwaves from space. This is highly unethical. And if you can't expose people to this in a lab, companies should not be allowed to expose people. This is experimenting on humans.

Josh del Sol: Really, quickly before we close this. I wanted to mention in the summit, Richard Leer talks about a new model that actually extends on the causation model that Dr. Martin Paul is bringing forward. Involving voltage-gated calcium channels, peroxy-nitrite. Richard Leer looks at the metascience, and he looks at in all of the studies and kind of compiles the studies. Oxidative stress, nitrative stress, mitochondrial dysfunction, DNA damage, and peroxy-nitrite and so forth. And he is helping to kind of create a new framework of understanding of how, what are the causes of these recent epidemics in chronic germless diseases?

And I know your work, your research touches on that too. Is there anything that you want to add in terms of reevaluating, looking at some of these epidemics that are kind of increasing? Autism, and Alzheimer's, and other neuropsychiatric conditions. All of these kinds of things.

What level of causation do you think EMF exposure actually has here in what's going on in our current health scenario?

Dr. Sharon Goldberg: Well it's hard to put a number on that or give an estimate. But the way to research this would be to do what we call a remediation research. Which is essentially applying the principles of building

biology to lowering all of the EMFs that you can in the home, in the office, and then observing the person? You would do this in groups of patients with specific conditions.

Based on my clinical experience, and if you speak with other doctors who with building biologists and who do incorporate EMF remediation, we call it Environmental Modification into their practice. It's pretty incredible the responses that you can see when people are able to truly modify their exposures.

So we should be studying this in populations of people. And there are researchers who are interested in doing this. And so, that would be the only way to truly answer this question.

But the problem is that you can modify someone's exposure at home, but our occupational exposures are very problematic. If you look at the way, again this has to do with this disconnect between what does the science say and what this absence of regulation. As far as human EMF exposure.

So when someone goes to work, if you just look at the way wireless devices are used in retail, you go to Starbucks and see what people are wearing on their heads and their bodies. You look at police officers. They are wearing these wireless body cameras. They're wearing a walkie talkie. They're sitting in a squad car with a laptop. I'm assuming WIFI, I'm not sure.

So people are getting these massive microwave exposures on the job. Those are not modifiable. At last, until there's recognition of this in the occupational health community.

Also understanding that lowering exposures should increase worker productivity. For companies that self-insure, it should lower their healthcare costs.

But getting back to the example of police officers. They have to operate firearms. And they're in situations where their lives could be potentially in danger. So we know that these heavy microwave exposures from different frequency devices, the walkie talkie, the body camera. We know that these exposures cause leaking of the blood brain-barrier, and they cause problems with cognitive function. With response time. This is what the science says.

So we need to be connecting the dots and really looking at our occupational exposures as well.

For sure, I believe that EMF exposure, this is the cutting edge public health intervention that needs to happen.

Josh del Sol: Yeah.

Dr. Sharon Goldberg: In the coming years. This is what we need to do.

Josh del Sol: Yeah. We need to protect our police officers, and all occupations, and our children from microwave radiation in the classroom.

Dr. Sharon Goldberg: Yes.

Josh del Sol: And like we really need to protect our police officers here.

Dr. Sharon Goldberg: Yeah.

Josh del Sol: And everyone else. Also, the fire departments are, many involved, in saying no to having wireless cell towers and 5G transmitters on their property. Just doing an internet search would reveal many developments on that. They need to prevent their exposures as well.

So Dr. Sharon Goldberg, thank you so much for your time today. And just this conversation has been so rich, and detail, and fascinating about the science around microwave radiation, and millimeter-wave radiation.

Dr. Sharon Goldberg: Thank you.

Josh del Sol: I just want to encourage if you're watching this please share this link. The link to this talk where everyone can watch it and stream it. Because this is how we reach towards this critical mass threshold. This is how we reach towards what Dr. Goldberg was talking about. Having the awareness so that different decisions are made in our society. Different decisions are made by car manufacturers. Where we hold our elected officials, we inform them and hold them accountable to do the right thing. So please share this talk.

Dr. Goldberg, thank you, we look forward to hearing more from you. I'm so grateful for your time in spending with us today.

Dr. Sharon Goldberg: You're welcome. And thank you, Josh, for all of the work that you've done. And I loved *Take Back Your Power*, it was a really good film. Very eye-opening for me.

Josh del Sol: Thank you.

Dr. Sharon Goldberg: You're welcome. Bye.