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Guest: **Wendy Mesley**

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Cellphone in your pocket?

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NORA YOUNG: Hello, I'm Nora Young and you're listening to the Friday edition of **The Current**.

[Music: Theme]

NY: Still to come, if cleanliness is next to godliness then going without soap is downright heretical. But in half an hour from now, I'll be joined by a Toronto journalist who isn't ashamed to say she's off the suds. But first, you have one unread message on your smartphone and it's an important one.

SOUNDCLIP

VOICE 1: Where would I be able to find it?

VOICE 2: Control centre. General. I can't find it, I'm going to be honest.

VOICE 3: That's how it looks?

VOICE 4: I do think that information should be made more available.

VOICE 5: Such information about health cannot become a fine print.

NY: Some people on the street there surprised to learn about a potentially concerning message that came with their smartphones. In fact, if you scroll through the settings and legal notices of your phone, you might just might be able to find it for yourself. On the iPhone, the warning advises you to carry your phone five millimetres away from your body. Other manufacturers suggest as much as 15 millimetres. And it's that kind of message that's been concerning *CBC* journalist Wendy Mesley for years. For nearly two decades she's been tracking the research on the health effects of cell phones. One of the largest and most comprehensive studies yet was released last year, and it prompted Wendy to prepare a special report. It's airing tonight on *CBC*'s **Marketplace** and Wendy Mesley joins me in our Toronto studio now. Hello.

WENDY MESLEY: Hi Nora.

NY: So I was surprised to learn about this message buried in every cell phone. What's the message?

WENDY MESLEY: Well, it's there because of a requirement by the Canadian government that cell phone manufacturers tell Canadians about its safety guidelines around radiation exposure because cell phones do emit low levels of radiation. So it says quote, "to reduce exposure to radio frequency, use a hands free option such as the speaker phone and to carry the phone at least five millimetres away from your body." Depending on the manufacturer they get to choose that distance, so they can hold it up to 15 millimetres away. But who does that?

NY: Yeah, mine's usually in my back pocket. Now I have to say I looked for this--

WENDY MESLEY: Oh you did?

NY: Where can I find that message?

WENDY MESLEY: You didn't find it?

NY: I did not.

WENDY MESLEY: You're the technology lady. Wow. Wow. Well you're hardly alone. But it takes five or six steps, so it depends on the phone. But if you go into settings and then you go to about and then you go to, it depends. But about five steps later, you'll come up to legal. It's also in the fine print of some manuals, which all of us of course read from start to finish.

NY: Of course. So how many people are aware of this warning?

WENDY MESLEY: Well, you should have seen the faces of people when we asked them. We did what we call streeters at the Eaton Centre. We asked people to check their phones. And like you, most of them couldn't find the message. And when we help them, they were kind of shocked. And we did a survey actually at **Marketplace**. We conducted a survey of 11,060 Canadians and asked them how many were aware of the phone manufacturer's suggestion to hold the phone five to 15 millimetres away, which is a centimetre and a half. 81 per cent had no clue. 67 per cent said they do carry their phones against their bodies most of the time. And when we told them about the message, about how to follow the recommendations, how to hold it, three out of four people we surveyed said that they would stop carrying their phone against their body. So it could be argued it's important information.

NY: Mhm. I want to ask you about the study that was released last year, which was looking at the potential health effects of cell phone use. What was it about that study that prompted you to take another look at the story?

WENDY MESLEY: Well, it's because it rang some familiar bells. For 20 years, not all the time, but every few years I pop in and do an update asking two questions. Do these things that we're all in love with, we're all using them all the time, could they cause cancer? And two, have we been given enough information to decide for ourselves about that or any other possible harmful effects? So that study that you're talking about last year, it was the biggest ever done in North America. The US government asked for it. It was done by an agency called the National Toxicology Program or NTP. And the scientists running it was on the record beforehand saying that he didn't think it would find any harm because the levels of radiation were so low generally. And that's basically the opinion of the cell phone manufacturers. They've been telling us for years, as has the US and Canadian governments that there is no conclusive evidence of harmful effects. So this study was supposed to get to the bottom of that, and the scientists involved thought that they would find no problem.

NY: So what did the study find?

WENDY MESLEY: Not what he was expecting. There's two parts to this study. The first part on rats is done. The second one on mice on other body parts is still ongoing. But in that first phase, rats were exposed to cell phone radiation and they found a significant increase in brain tumors.

NY: Hm.

WENDY MESLEY: In fact, the rats developed the same type of tumors that have been shown to have a possible link to cell phone use before. So these are ones that for example, the World Health Organization in 2011, labeled cell phone use as a possible carcinogen, a possible cause of cancer. So the scientists involved in the NTP study, the one that came out last year, deemed these findings so important that they decided

not to wait until they had completed the second part of the study on the mice, they wanted to get this information out to public health agencies like the FDA in the States and here like Health Canada they were looped in to, so that they could get the word out. And they called this news conference and for a day or two there were big headlines talking about the findings. But then the studies seemed to disappear. The results they are publicly available, but Health Canada is not alerting people to this.

NY: Why not? What do they say?

WENDY MESLEY: Well Health Canada told us they're not advising Canadians about the NTP study because quote, "while some advocates have argued this study provides conclusive evidence, there are numerous scientific questions about this study that remain to be addressed. For example, the animals that were exposed tended to live longer than the control group." Health Canada also argues that the study is not complete, but we checked and the scientists who ran it say yes it is. The mice study is separate but the rat study is complete. But it's always, it's even more complicated than that. The former NTP scientists that I've spoken to have said that when the US government officials learned that the scientists were going to go public about those tumors, they took the unusual step for this government agency of hiring outside reviewers to go over the work. Many of them agreed with the conclusions but some didn't, one in particular. And those comments then got picked up by a lot of media outlets and it almost became like the study never happened. And I'd seen similar things happen to studies that suggested harm in the past. So as a journalist, you always want to know everything.

NY: [chuckles] Sure.

WENDY MESLEY: It just made me curious.

NY: So I know as part of your story you went to Berkeley, California where there's been quite a controversy about this message in all our cell phones that we've been talking about. Tell me about what's happening there.

WENDY MESLEY: Yeah. Well, Berkeley, I guess no big surprise, the first place to ban smoking in restaurants. They banned BPA. Not a big city but it's kicked up a big storm over this cell phone issue. The city recently passed an ordinance to require all the mobile stores to put up a sign on the counter, basically telling people about that message that no one notices is in their phones, they're putting it up on the counter. And so it says that if they wear their phone in a pocket or tucked in their bra, that they could be exceeding the radiation exposure limit set by the government. But before the bill was even passed, the cell phone industry was on the case, calling those signs alarmist and demanding that they be taken down. I talked to the mayor. Here's Jesse Arreguin.

SOUNDCLIP

I think the concern on the part of the telecommunications industry is if we can do it in Berkeley, then other cities will do it as well. And I think they're probably concerned that this may affect their bottom line. That less people will purchase cell phones because they're concerned about the health and safety effects. I don't necessarily think we're going to see a significant reduction in people buying cell phones in Berkeley, but I think people will think more carefully about how they use their phones. For example, I use a headset now when I make a lot of calls because I don't want to be exposed to, you know, significant radiation.

NY: So this is turned into a bit of a clash of the titans on the legal front. Who are the two main players acting on behalf of the city and the cell phone companies?

WENDY MESLEY: Oh, it's so interesting. There's only 19 mobile stores in all of Berkeley but it's become this huge test case. Other cities have tried and failed to get the message out. San Francisco, for example. But Berkeley's mayor says they're going to stick to it. And it really is a clash of the titans. The cell phone association has hired Ted Olson. He's a former US Solicitor General, he was one of the lead lawyers in the fight years ago for big tobacco. And on the other side, he is up against Lawrence Lessig, who once sought to become the presidential candidate for the Democrats. He now teaches ethics at Harvard. And he's offered his services for free for Berkeley. So this fight, it's expected to go all the way to the Supreme Court.

NY: Wow. So cell phones have to be safety tested before they're allowed on the market so they don't expose us to unsafe levels of radiation. So how were the phones tested?

WENDY MESLEY: Well, it gets really interesting here. For 20 years I'd been hearing from scientists critical of how the testing is done. But I'd never seen it. But we found a lab in California that tests phones for the manufacturers, Canadian and American, before they are allowed to put their phones on the market.

NY: OK.

WENDY MESLEY: And they agreed to do some tests for us to show us how it works. So we asked Chief Engineer Jay Molton to show us how they test for the manufacturers the way the government requires, where they're allowed to position the phone up to a centimetre and a half away from the body. But we also asked them to do an extra test for us, because we want to see what happens when it's tested holding it the way most people use their phones, right next to the body. Here's a bit of the test.

SOUNDCLIP

[Sound: electronic squeaking]

And you put it into the holder, move it up close to the head. And then I just at this point

I'm going to adjust to set it so that the speaker is right at the edge of the ear.

WENDY MESLEY: So they have these casts, they're made to represent the head and the body and they're filled with liquid. The head, it's huge, it's modeled after the average size of an army marine, like the head is 11 pounds, it's a 200 pound guy that it's modeled after. And that's because the test was devised decades ago before anyone thought that a child would be using a phone. So then these casts are filled with liquid, which are meant to represent the brain or human flesh. Then a wand is stuck in to measure how much energy or radiation is absorbed. But instead of positioning the phone right next to the body, the phone makers choose to test, and they're allowed to do this, to test five to 15 millimetres away. And we know that the further away the phone is tested the lower the radiation.

NY: OK, so why do they test them with that gap there?

WENDY MESLEY: Well, basically because that's what the government, the Canadian and American governments, allow. Also because when the tests were designed, the phones, they were too big to put in your pocket. And even when they got a lot smaller, a lot of people carried them in holsters. Well some people still wear them, you remember those.

NY: I remember those, yes. [chuckles]

WENDY MESLEY: One thing for sure, when tested that way, away from the body, the three phones that we took to the lab, three of the latest models from Apple, Samsung ,and LG, they all passed the test, which is not surprising because we know they're approved, they're on the market.

NY: OK. But you did these further tests. So what happens when you test the cell phones without the gap?

WENDY MESLEY: Yeah. So this was a special test for us and it turns out all three phones exceeded the safety limit when they were tested the way that most people carry them. So we asked the chief engineer, does this bother you? And he says no, because most people live in towns or cities, they're close to a cellphone tower, so the phone doesn't have to try that hard to reach the tower so there's not that much radiation. But he says that even if you live in a rural area, where the phone has to try harder, you're still protected because the phones are tested at maximum power levels. In other words, he says there's these big safety margins built in to protect everyone. But then we went to talk to Devra Davis. She says the whole test is out of date. She's a toxicologist, an epidemiologist, she's the founder and director of the Environmental Health Trust, a public health advocacy organization. She used to work for the National Toxicology Program years ago, advised the government. For the past few years, she's been warning people about cell phones. And she says that that test doesn't

acknowledge what a lot of recent science shows, that there could be harmful effects way below the radiation levels that the test looks for. Here's part of my conversation with Devra Davis.

SOUNDCLIP

WENDY MESLEY: When I first interviewed you many years ago, you were persuaded there was a problem. You're still persuaded?

DEVRA DAVIS: Oh, more than ever unfortunately.

WENDY MESLEY: Why?

DEVRA DAVIS: Well, the science has progressed without any question. We have more experimental data on animals, unfortunately we have more data on people.

NY: So there are all these concerns about how our health is being affected. Is there any evidence to show that cancers, tumors related to radio frequency exposure, cell phone radiation, are on the rise?

WENDY MESLEY: Well, that's a big question. I've always wondered if cell phones are a problem, then where are all the brain tumors? So we check Canadian stats and they show that brain tumors are up over the last few years. But that's all brain tumors, they don't break them down by type to see if there's any increase in the kind of tumor that's possibly linked to cell phone use. In the US, the stats are pretty static, they don't show much change. And that's why this field is so complicated. Tumors can take decades to develop. It's really hard to ever prove what caused a tumor. You can't do human experiments, you can lock someone in a shed for 40 years and expose them to just one possible carcinogen. So that helps explain how some can argue that there's no conclusive proof, there's no definitive causal effect that might be causing a tumor. They might never find that kind of proof. But I met a neuro oncologist in Edmonton named Jay Easaw, who's trying to get more data. He treats the kind of tumors that were studied in the rats exposed to cell phone radiation in that NTB study. And he's so concerned by what he's been seeing the last few years, that he's helped to launch a registry to collect data. Have a listen to what he told us.

SOUNDCLIP

JAY EASAW: I am convinced that one, brain tumors are on the rise. I'm convinced that they are occurring in younger and younger people just based on my own experience in clinic. I believe that we're going to see more and more studies that show a correlation between cell phone use and the incidence in brain tumors because that's what I'm seeing in the clinic. The data that are out there are so controversial, so inconclusive, some that are definitive for there being a causal relationship between cell phones and brain tumors, and others that show the exact opposite. And in Health Canada's

position they have to look at the data and they have to come to a conclusion. And truthfully, the data are inconclusive.

WENDY MESLEY: Why is there not more data?

JAY EASAW: Do you know why? I'll tell you, even in our own clinic we've tried to keep track of this. And when we ask a patient about their cell phone use, we're asking them to remember and that's just not reliable.

NY: So the science around this isn't conclusive yet?

WENDY MESLEY: It's really complex. Some people, like Devra Davis, are concerned about the evidence that they say already exists. I met her years ago when I did the story for *CBC* about how many countries like the UK for example, they tell parents it's a good idea to not let children under 12 use a phone because their brains and skulls are more vulnerable to the radiation that cell phones emit. So she's still concerned about that. But her latest concern is that cell phone radiation could harm sperm, which would mean fertility issues, could mean low birth rates and could increase the risk of breast cancer among women who carry their phones in their bra. So it's not definitive. These are case studies, but she showed me a slide of a young woman with breast cancer who stored her phone in her bra. This is Devra Davis.

SOUNDCLIP

It's extraordinarily unusual for a young woman to have one breast cancer, to have two, three, or four and they all develop as separate tumors under the antenna of the phone. That's beyond coincidence, at least in the opinion of the physicians.

WENDY MESLEY: So most of the science on any effect on sperm or breast is in the form of case studies. There really isn't much published on this, so it's far from definitive.

NY: So far we've heard from people who are raising concerns. How do the cell phone companies and Health Canada respond?

WENDY MESLEY: Well, we got in touch with the three companies Apple, Samsung, and LG, and told them that their phones had exceeded the government's exposure limits when we did our test, tested the way people wear them. We asked for an interview. No interviews. All three sent us a statement saying basically that their phones meet all the government requirements. We also tried to get an interview with the Health Minister Jane Philpott, to show her not just those test results but also to ask if most people have no idea of that message in their phones, does the government need to do a better job of getting the message out to people? And we made repeated requests there but she declined an interview, so did Health Canada. So we ended up

doing an interview with Paul Demers. He's an epidemiologist who was asked by Health Canada a couple of years ago to do a review of the existing science on cell phone exposures. And this is what he said.

SOUNDCLIP

PAUL DEMERS: I'm not convinced of these health effects at this point but I'm concerned that we're continually doing research on these things to make sure of that and to keep on top of the latest research.

WENDY MESLEY: So what is your bottom line then? Are the way that we use cell phones now, are we safe?

PAUL DARVASI: Well, I believe we are. Yes I do. You know, that said, you can never be 100 per cent sure. I actually believe in the conclusions of the report that we did at that time. I wasn't convinced. There are other scientists that I respect who're more convinced than I am. So there's a range of reasonable scientific beliefs in this or understandings of the literature depending upon who you talk to.

NY: Wendy, you've been tracking this story for 20 years.

WENDY MESLEY: Oh yeah. [chuckles]

NY: You say the disappearance of the new American study on rats sounded familiar. You said that earlier, it rang some bells for you. What did you mean by that?

WENDY MESLEY: Well that study, it was this second big study done in the US. 20 years ago, the first story I did on this, the US cell phone lobby said it would spend 25 million dollars to get to the bottom of the do cell phones cause cancer question. I interviewed the scientist that they hired to run it, his name was George Carlo, who's an epidemiologist. He told me that they hadn't found any harmful effects. But then a couple of years later he recanted. In another interview for **Marketplace**, he told me that his scientists actually had found harm but that his bosses at the cell phone association told him to shut it down and not report it. So we checked with the cell phone association and they said that's not true. That Carlo is not correct and that their study did not find any harm. Got me wondering though. And then a few years later, I did another story showing how much of the cell phone science was being funded by the industry itself. I mean, this happens in every industry, it's not surprising. But that even at the level of the World Health Organization, where the scientist running the cell phone, all the studies on cell phones at that time, told me that the influence of industry money even at the World Health Organization, the world's senior cancer agency that that influence was quote "malignant". So the cell phone industry doesn't dispute funding some science but they do insist that they're not influencing the conclusions. So it's so interesting.

NY: Yeah, so how is the scientific community reacting to this? This latest research on cell phones and our health?

WENDY MESLEY: It's varied. There are obviously a number of government agency, a number of experts who are, you know, insisting that it's still not conclusive, that you can't prove that there's harm. But there's one expert I spoke to, Anthony Miller, he's a Canadian epidemiologist. He was one of the senior scientists at the World Health Organization when they were studying a possible link between cell phones and cancer that resulted in them classifying cell phone radiation as a possible carcinogen back in 2011. He's now professor emeritus at U of T, and he's one of 190 scientists around the world who argue that since then, that there's now so much science suggesting possible harm that the World Health Organization should ring the bell more loudly. That they should reclassify it, that they should say that cell phone radiation is not just a possible carcinogen but a probable carcinogen.

NY: So Wendy, at the end of the day, what do Canadians need to think about when they're using their cell phones? Do you have any advice?

WENDY MESLEY: Well that's where it gets weird as a journalist right? I don't like telling people. I'm not a scientist or a politician, so I'm not going to tell people how to behave. But as a journalist, I always fight for more information. And I get the sense that a lot of Canadians, probably most Canadians, have no idea that there is a real debate happening among serious scientists about whether or not there could be harmful effects from the way we use our phones. And before anyone can make a decision about their health, they need to know what the scientists, the policy makers, and the cell phone companies know, like that information about how to wear your phone to meet the government's exposure limits, that's buried in their phones. So that's the message I wanted to get across in this story. That we still don't have a definitive answer on whether cell phones cause cancer or any other harmful effects, but there is a serious debate about this. So can I come back in 20 years?

NY: You can go back any time you want.

WENDY MESLEY: Thanks Nora.

NY: Thanks Wendy. That was **The National's** Wendy Mesley telling us about her latest investigation which airs on *CBC TV's Marketplace* tonight at 8:00 PM and 8:30 PM in Newfoundland.