

Worried About Your Wireless?

ABC News, 20/20

Wednesday, October 20, 1999

(This is an unedited, uncorrected transcript.)

DIANE SAWYER: Tonight we are going to be raising new questions about the safety of cell phones. You'll remember there were alarming reports a few years ago about brain cancer, but they were quickly dismissed. Well, tonight, some scientists are going to speak out, and it could change the way you use your cell phone.

CHARLES GIBSON: The cell phone industry has always said that there are no known health effects associated with even excessive use of their product. But now the man who ran the industry's research program is breaking ranks and saying something very different. He's saying that the possibility of harm is very real. Listen carefully to what chief investigative correspondent Brian Ross discovered.

BRIAN ROSS reporting: (Voiceover) From Los Angeles to London, few people spend more time on the phone than the flamboyant British billionaire Richard Branson.

(Aerial photo of Los Angeles; traffic; Richard Branson with phone in car)

RICHARD BRANSON: Hello, this is Richard Branson?

ROSS: (Voiceover) The man who created the Virgin Records and Virgin Air business empires, the man who four times tried to go around the world in a hot air balloon, Richard Branson has become rich and famous by taking lots of risks. But one risk he says he won't take is with his cell phone.

(Branson opening champagne bottle; Virgin Air airplane; hot air balloon, Branson in hot air balloon; Branson driving in car)

BRANSON: You do not put the phone up to your ear, because it could fry your brain.

ROSS: (Voiceover) Branson won't put a cell phone anywhere near his head, using a small headset contraption instead.

(Branson demonstrating headset)

BRANSON: There is the phone, there's the earpiece. And you just keep the—keep the phone away from the body and put the earpi—put the earpiece in either ear. And you've got the little microphone here, and you can talk.

ROSS: (Voiceover) It's something he's done ever since a close friend, who was a heavy user of cell phones, died from brain cancer. The \$200 billion a year cell phone industry maintains the scientific evidence doesn't support any such fears. But it turns out Richard Branson is not alone in his belief that cellular phones can no longer be presumed to be safe.

(Branson in car; cellular phone production equipment; cellular phones on display; cellular phones in production)

DR. CARLO: I'm on this thing every day.

ROSS: In fact, even the man who, six years ago, was brought in by the industry to quell such fears, Dr. George Carlo, is now prepared to publicly say that has been the case all along.

(Dr. George Carlo walking with Brian Ross)

DR. CARLO: You can not guarantee that cell phones are safe. That's absolutely true, but that has always been true.

ROSS: (Voiceover) When cell phones first came out, it was widely assumed there couldn't be a risk because the power or radiation they produce was so low. But now that assumption is very much being called into question by several new scientific studies, which, while still preliminary, are regarded by some scientists as quite troubling. The cell phone transmits a microwave signal from the antenna to a base station or tower, often miles away. The farther away from the tower, or if the phone is inside a building or a car, the more power this phone is told by the tower to send out to make or keep the connection. Depending on how close the cell phone antenna is, as much as 60 percent of the microwave radiation is absorbed by and actually penetrates the area around the head, some reaching an inch to an inch and a half into the brain.

(Electronics inside cellular phone; graphic depicting radiation emitted by cellular phone)

DR. ROSS ADEY: And if I hold it to my head like this, there is no way I can avoid getting a sizable amount of that energy in my head and my hand.

ROSS: (Voiceover) Dr. Ross Adey, at the University of California Riverside, is widely regarded as one of, if not the most, respected scientist in the field, a man who has worked for industry and government for decades studying microwave radiation.

(Dr. Ross Adey working in laboratory; photo of Adey)

DR. ADEY: This is the first generation that has put relatively high-powered transmitters against the head day after day after day.

ROSS: (Voiceover) Choosing his words carefully for this interview with 20/20, Dr. Adey says the body of research, while still far from conclusive, raises the possibility of some very serious harm from extensive exposure to cell phones. (Adey in interview) **DR. ADEY:** The picture that's emerging is that, over the lifetime of the individual, you may see changes that could be considered health effects or potential health risks.

ROSS: Including?

DR. ADEY: Including leukemia and brain tumors.

ROSS: Those are scary words—brain tumors, leukemia?

DR. ADEY: I understand. And I think, responsibly, one has to bring those into the forefront.

ROSS: (Voiceover) Which may come as quite a surprise to the more than 80 million Americans and some 300 million more around the world who use cell phones.

(People walking and talking on cellular phones)

UNIDENTIFIED MAN #1: Just thought I'd check in for messages

UNIDENTIFIED MAN #1: I just thought I check in for messages.

ROSS: (Voiceover) And who heard similar concerns six years ago dismissed as unfounded scares.

(People walking and talking on cellular phones)

UNIDENTIFIED MAN #2: Hi. Happy birthday.

THOMAS WHEELER: I believe that the cellular phone is safe.

ROSS: (Voiceover) Thomas Wheeler is the president of the cell phone industry's trade group in Washington, DC.

(Thomas Wheeler in interview)

WHEELER: Our industry has gone out and aggressively asked the question, 'Can we find a problem?' And the answer that has come back is that there is nothing that has come up in the research that suggests that there is a linkage between the use of a wireless phone and health effects.

DR. LOUIS SLESIN: Nonsense, in a word. Simple nonsense.

ROSS: (Voiceover) Dr. Louis Slesin is the editor of Microwave News, a widely read and influential trade newsletter which tracks the cell phone business, and frequently criticizes what Slesin says is the industry's attempt to ignore or spin troublesome scientific findings.

(Dr. Louis Slesin working)

DR. SLESIN: This is about PR, not about science. There's research from Australia, there's research from England, Denmark, Sweden, Norway, Germany, all pointing in a direction Mr. Wheeler doesn't want to look. Essentially, we have reports of headaches, of cancer, of changes in blood pressure, changes in sleeping patterns.

ROSS: (Voiceover) Among the most recent work: that of this Swedish doctor, Lennart Hardell, who studied phone habits of brain tumor patients. While Dr. Hardell found no increased risk of cancer overall, he did find that those who used the phone on the left side had a predominance of tumors on the left side. Those who use the phone on the right side had a predominance of tumors on the right.

(Dr. Lennart Hardell working; Hardell examining X-rays)

DR. LENNART HARDELL: This is an important indication, and, as a manufacturer, I would be actually worried.

ROSS: (Voiceover) His pilot study was nowhere near big enough to be scientifically conclusive, but enough for Dr. Hardell to recommend that cell phone users take steps to minimize their exposure, and be especially cautious about children using cell phones.

(EKG photos of brain tumors)

DR. SLESIN: There is no smoking gun, we don't know that they are unsafe, but there is tons of information from all over the world showing a problem.

ROSS: But there's no sign the cell phone industry sees it that way.

(Clip from James Earl Jones advertisement for cellular phones shown)

ROSS: If anything, the industry's current ad campaigns encourage consumers, even children...

UNIDENTIFIED BOY: (From cellular phone advertisement) Hey, dad, I need a ride home.

ROSS: ...to use cell phones much more than they do now.

(Clip from advertisements for cellular phones shown)

WHEELER: I'm a big bucket guy.

ROSS: Using it how much, you say?

WHEELER: I mean, I buy the big bucket of minutes, which is, what, 1600 minutes? And—and then go beyond that.

ROSS: (Voiceover) The industry's Thomas Wheeler says there's no reason to cut back cell phone use, and that the focus in studies like Dr. Hardell's should be on the positive findings.

(Wheeler in interview)

WHEELER: Dr. Hardell in his study says that he could not find a link between the use of wireless phones, epidemiologically, and brain cancer. What he did find was an interesting handedness issue...

ROSS: Interesting?

WHEELER: ...and...

ROSS: He says, based on his findings, he would recommend people use cell phones as little as possible. And I—my question to you is, would you agree with that advice?

WHEELER: I think that—that it is—there is a preponderance of evidence that there is not a linkage between the use of wireless phones and health effects.

ROSS: This is hardly the first time health concerns have been raised about cellular phones.

UNIDENTIFIED REPORTER: Can you recognize this as being the phone you used?

SUZY REYNARD: Yes, I do.

REPORTER: Is this the phone?

REYNARD: Yes.

ROSS: (Voiceover) Six weeks after this videotaped deposition in 1993, Suzy Reynard of Tampa, Florida, died of brain cancer, her husband David claiming his wife's cancer was caused by her cell phone.

(Suzy Reynard's video deposition)

(Suzy Reynard's video deposition)

DAVID REYNARD: The tumor was exactly in the pattern of the antenna.

ROSS: (Voiceover) David Reynard went on to almost singlehandedly create a national scare when he filed suit and went public with his allegations.

(David Reynard walking in city; David on "Larry King Live")

REYNARD: (From "Larry King Live") Well, we're suing the carrier, we're suing the manufacturer.

ROSS: (Voiceover) There was great alarm on Wall Street, and even though Reynard's lawsuit was later thrown out by a judge for a lack of reliable scientific evidence, it left the cell phone industry with a huge public relations problem.

(Stock board on Wall Street; brokers on Wall Street; cellular phone press conference)

UNIDENTIFIED MAN #3: And so what our industry is announcing here today...

ROSS: (Voiceover) And led to the announcement of a \$25 million industry research program to be run by Dr. George Carlo, a public health consultant, who was labeled then by some as a kind of scientific shill for the cell phone industry.

(Carlo testifying at hearing)

ROSS: Do you think they thought they had bought you?

DR. CARLO: I—I hope that they didn't, but I think that they probably did.

ROSS: (Voiceover) And, now, after six years of running the industry's research program, Dr. Carlo has come to a surprising conclusion, forcing him, he says, to break ranks with the industry to add his voice to those increasingly concerned about the safety of cell phones.

(Carlo driving)

DR. CARLO: We've moved into an area where we now have some direct evidence of possible harm from cellular phones.

ROSS: (Voiceover) In a revealing interview with 20/20, Dr. Carlo said he felt he had no choice but to blow the whistle on what he says has been going on behind the scenes.

(Carlo in interview)

DR. CARLO: The industry had come out right after that program and said that there were thousands of studies that proved that wireless phones are safe, and the fact was there were no studies that were directly relevant.

ROSS: (Voiceover) Meaning no studies directly relevant to cell phone exposure. But there are now, including studies Carlo oversaw and that the industry approved and paid for.

(Research laboratory equipment; Carlo showing slides)

DR. CARLO: And this simulates exactly the type of exposure...

ROSS: Clearly suggesting two potential problems, according to Carlo. Genetic damage, based on laboratory tests involving human blood, and an increased risk of a rare type of brain tumor, based on a study of brain tumor patients, although no overall increase in cancer was found.

DR. CARLO: The type of tumor is consistent with the idea that it's—it could be affected by the radiation coming from the antenna.

ROSS: But if these phones were so bad, wouldn't we be seeing thousands, tens of thousands, of people with brain tumors right now?

DR. CARLO: Not necessarily. The—the technology has not been around that long. Cancer is a disease that has a long latency period. It usually takes 10 to 15 years for tumors to develop.

ROSS: (Voiceover) The industry, says Carlo, who started his own Web site with online sales of consumer manuals about cell phones, is just trying to profit from the statements. And some of Dr. Carlo's scientific colleagues, including the author on the brain tumor study, disagree with Carlo's interpretation of the findings. One of them is Dr. Martin Meltz, a scientist at the University of Texas and a paid industry consultant whom the industry said we should talk to.

(Carlo's Web site; Carlo speaking with Ross; Dr. Martin Meltz walking)

DR. MARTIN MELTZ: I believe, from my perspective, that the weight of knowledge indicates safety of cell phone use.

ROSS: (Voiceover) But Carlo says the new studies, while not proving cell phones are dangerous, do contradict such assurances that cell phones are safe.

(Carlo showing slides to Ross)

ROSS: And that's something the industry knows? You've shown them these same slides?

DR. CARLO: That's correct.

ROSS: (Voiceover) The cell phone industry also sought to downplay Dr. Carlo's stunning defection with this formal statement, saying, quote, "The prevailing scientific consensus is that there is no evidence of risk from the use of wireless phones." No evidence of risk.

(Excerpts from official cellular phone company statement)

ROSS: Is that true?

DR. CARLO: That's wrong.

ROSS: That's wrong?

DR. CARLO: That's wrong.

ROSS: Have you seen this?

DR. CARLO: It's actually quite shocking knowing—knowing what has been conveyed to them.

ROSS: (Voiceover) Carlo's testimony is a stark contrast to the industry's official statement, which says, quote, "The scientific consensus is that there is no evidence of risk from the use of wireless phones." No evidence of risk.

ROSS: (voiceover) Other scientists we checked with also took sharp exception to the industry's position about no evidence of risk—Dr. Henry Lai in Seattle studying genetic changes; Dr. Alan Preece in England, who is studying brain function changes; as well as Dr. Hardell in Sweden studying brain tumors; and Dr. Adey in California, the dean of them all.

(Adey working; Dr. Henry Lai studying; Dr. Alan Preece in interview; Hardell examining EKG pictures)

DR. ADEY: I think that's a presumptuous statement. I think it's even irresponsible.

ROSS: (Voiceover) Even the scientist the industry told us to talk to, Dr. Meltz, reluctantly conceded there is some evidence that needs follow-up.

(Meltz in interview)

DR. MELTZ: There is evidence. I have to say that, now, I—I—there is evidence of risk. Whether it is valid evidence of risk or not needs to be further examined.

UNIDENTIFIED MAN #4: Yeah, big guy, how you doing?

ROSS: (Voiceover) The industry says it plans more research, but stands by its position, essentially dismissing the significance of what the man who ran its science program for the last six years has to say.

(People speaking on cellular phones; Wheeler in interview)

ROSS: Aren't you concerned when you hear those "possible" health effects...

WHEELER: I have...

ROSS: ...brain tumors, genetic damage?

WHEELER: ...I have to look at what the responsible scientists say...

ROSS: They're alarmed by this.

WHEELER: ...and—and they say that there is not a public health effect...

ROSS: Who are you sayi—who says that?

WHEELER: ...and—and they say...

ROSS: Who actually says that?

WHEELER: This is—this is what they—what the FDA has said.

ROSS: (Voiceover) Not exactly. When we checked the Web site of the FDA, the Food and Drug Administration, we found a much more qualified position on cell phones. The FDA says, while the available science does not demonstrate harm from cell phones, nor does it lead to the conclusion that they are absolutely safe.

(FDA Web site) **DR. ADEY:** And I have to say to people, 'Look, I don't know. There are no answers to what you want to know yet.'

ROSS: So no one can reasonably say these phones are proven safe?

DR. ADEY: Not at all. Not at all.

ROSS: (Voiceover) The FDA now advises anyone with concerns to cut back on cell phone use or take other steps to avoid exposure.

(Branson's car driving around)

BRANSON: It could be like the early days of cigarette smoking, you know? We just don't know at this stage. And since there's quite a big question mark over it, we might as well play it safe.

SAWYER: On Monday, the cell phone industry announced an agreement with the FDA to sponsor follow-up research into the possible health effects of wireless phones, the work begun by Dr. Carlo. But when we come back, we have our test of some of the most popular models of cell phones. Wait until you hear the startling results.

ANNOUNCER: How much radiation is your cell phone putting into your brain? It depends on how you hold it. Moving the antenna, even a little, can make a big difference.

DR. SLESIN: Every millimeter counts.

ANNOUNCER: Learn what you can do, when 20/20 continues.

(Announcements)

GIBSON: Buying a cell phone requires a lot of decisions. You're likely to consider the phone's size, how much it weighs, whether or not the mouthpiece flips out, or if it's a one-piece phone, and, of course, how much it costs. One thing you probably don't think about is the amount of microwave radiation that the cell phone is sending into your brain. But our chief investigative correspondent, Brian Ross, says maybe you should.

UNIDENTIFIED MAN #5: It's Gary. Any calls?

UNIDENTIFIED WOMAN: Just wanted to say hi and see how you were doing.

UNIDENTIFIED MAN #6: Just wanted to check in with you to see if we're all set.

ROSS: Americans love their cell phones.

UNIDENTIFIED MAN #7: Ten to 20 calls a day.

MAN #5: Hundreds of minutes a month.

WOMAN: I use about 300 minutes a month.

MAN #6: Fourteen hundred and one minutes last month.

ROSS: (Voiceover) But there's something about them that is not well known and certainly not advertised by the cell phone industry.

(Individuals using cell phones)

HILLARY CLINTON: I'm fine. This is Hillary Clinton.

ROSS: (Voiceover) Each and every model of cell phones sold in is country, including the one used here by Hillary Clinton and the one used here by George W. Bush, has a specific measurement of how much microwave radiation from the phone can penetrate the brain.

(Hillary Clinton using cell phone; George W. Bush using cell phone)

ROSS: The cell phone industry says every phone it sells is safe and meets government radiation safety limits. But tests conducted for 20/20 and being made public tonight have found that some of the most popular cell phones can, depending on how they're held, exceed the radiation limit, in some cases substantially exceed.

ROSS: (Voiceover) But finding out what the radiation measurement is for any given phone is something no one who buys a phone can possibly know without combing through FCC files or doing the tests 20/20 did.

(Take new cell phone out of box)

ROSS: When you go to the store to buy a cell phone, is there any way to know how much power is coming out of that phone into the head?

REYNARD: No.

ROSS: (Voiceover) As David Reynard says, he discovered after his wife Suzy died of brain cancer, and he set out to make himself an expert on the cell phone industry.

(David; photo of David and Suzy)

REYNARD: Most of the units these days actually operate like this. And the problem that you have here is that the head is absorbing most of the energy that's coming out of this unit.

ROSS: (Voiceover) Since 1996, each phone manufacturer has been required to test its phones and file the results with the federal communications commission in Washington, the FCC. But, according to Dr. Louis Slesin, the editor of Microwave News, there is no independent verification of the tests.

(FCC building; Slesin)

ROSS: So the government's not testing these phones to make sure they meet the standards?

DR. LOUIS SLESIN: No. The government is asking the industry to supply them with test results.

ROSS: So it's on the honor system?

DR. SLESIN: Totally, the honor system.

ROSS: Can they be trusted?

DR. SLESIN: I think you should find out.

ROSS: (Voiceover) But when we decided to do our own tests, we found out that it wasn't so easy. We wanted to test these five phones: two Motorolas, two Nokias, and one Ericsson. But none of four American testing labs that we contacted that do such work, would agree to do it for 20/20.

(Motorola phones; Nokia phones; Ericsson phone)

DR. SLESIN: They've been better is not ABCNEWS, its the industry. They go do this for you, they'll be blacklisted.

ROSS: Which is why we ended up in Europe, outside Dusseldorf, Germany, at the institute for mobile and satellite technology, a research laboratory which does work for both industry and government in Germany and was on a list supplied by the American FCC. Dr. Achim Bahr ran the tests for 20/20.

(IMST building; Dr. Achim Bahr)

DR. ACHIM BAHR: With antenna in and antenna out and we have measured three different frequencies according to the FCC guidelines.

ROSS: (Voiceover) Following one standard industry method, each phone is placed underneath a phantom head, filled with a fluid that simulates brain tissue. This device then measures the amount of radiation or energy that penetrates from the cell phone underneath into the fluid to give what is known as the SAR, the specific absorption rate. Anything above a measurement of 1.6 watts per kilogram, is supposed to be prohibited. All the phones we tested were in the analog as opposed to the digital mode, and, depending on how the phone was placed, four out of the five phones 20/20 tested exceeded the FCC safety standards in at least one position, starting with the Motorola MicroTac Lite XL, the phone members of our staff have used for years. In what is known as the standard touch position, the phone was under the limit, antenna in and out, reaching no higher than 1.52. But we also tested the phone in a second commonly used position, and in that position, the MicroTac Lite XL was over the limit with the antenna extended at 1.83. And with the antenna retracted, substantially over the limit at 3.15.

(Phone being placed underneath phantom head and filled with fluid; Motorola MicroTac Lite XL phone being tested)

DR. CARLO: That number is a surprise.

ROSS: (Voiceover) Dr. George Carlo ran the cell phone industry's research program for the last six years.

(Carlo)

DR. CARLO: If I would be in a position like this, which is 90—90 degrees, straight up and down, that is almost twice the standard.

ROSS: (Voiceover) The phones are supposed to be tested in what is called a normal operating position. But the FCC rules are remarkably vague as to what that constitutes. Saying there are several normal positions that can be tested.

(Cell phone being tested; FCC documents)

DR. CARLO: Because of the vagueness of the FCC requirements, just about any phone can be approved. The testing that you have done may be uncovering the tip of the iceberg.

ROSS: Can Motorola argue that the way the phone was tested was irregular?

DR. CARLO: Well from a practical point of view, when someone uses a phone, they move it around. People move the phone, they talk, some people hold it on their shoulder. So it makes sense to consider all the positions.

ROSS: (Voiceover) In several long letters, Motorola claims that 20/20's own tests prove the MicroTac Lite to be fully compliant with FCC guidelines because the phone came in under the FCC standard in the so-called touch position, a position outlined by the FCC guidelines. That of course was not the case in the second position our testing used.

(Motorola documents; phone being tested in second position)

DR. CARLO: It is possible for the industry to submit the findings that are favorable to them and have the FCC only review those. In fact, this industry is regulating itself.

ROSS: (Voiceover) Also over the limit in both positions and at every frequency we tested was one of the top-selling phones in the country: the Nokia 6160, when used in its analog mode and a range from 1.84 to 2.16. An older Nokia model, the 636 made for Radio Shack, also exceeded the limit in three of four tests we conducted, ranging from 1.54 to 2.12. In letters to 20/20, Nokia said all its phones meet or exceed all applicable safety standards, and said our tests did not conform to standard industry practice. It turns out Nokia tests its phone with a thicker rubber pad simulating an ear, thicker than the one we used, both standard with the testing equipment, again something permitted under the FCC's vague testing procedures.

(Nokia 6160; Nokia 636; Nokia documents; Nokia phone being tested)

DR. CARLO: Your tests are good. The results of your test are not good for the industry.

ROSS: (Voiceover) The fifth phone we tested, this Ericsson phone, the AH 618, ranged from 1.34 in one position to just above the limit at 1.65 in the second position. Ericsson wrote us that its own tests showed the phone no longer in production but still for sale, no higher than 1.54, under the legal limit, given the margin of error in testing, about the same as our result.

(Ericsson phone; results of phone testing; Ericsson documents)

ROSS: Acceptable or unacceptable?

DR. CARLO: Too close for comfort.

ROSS: (Voiceover) The phone that did best in our test was the Motorola Star Tac, designed with the antenna that jets sharply away from the head, no longer than .43 in our testing, well under the limit. That's the phone David Reynard has decided to buy.

(Motorola Star Tac; David)

REYNARD: When the antenna is at this angle and behind the radio, you are getting less energy forced into your head.

ROSS: (Voiceover) But Reynard says he believes Motorola won't admit that the newly designed phone could be safer than older models for fear of future lawsuits.

(Motorola phone)

REYNARD: I think they would love to say that this unit is safer than other units.

ROSS: They don't advertise it that way?

REYNARD: No, they don't, because then they're actually admitting that there's a medical or biological problem.

ROSS: (Voiceover) Again, the cell phone industry maintains every phone sold in this country meets federal safety standards and that there is a huge margin of safety built into the standard. The industry also says that none of the radiation coming from cell phones has been proven to have a health effect.

(Individuals using cell phones)

DR. SLESIN: Clearly, clearly, clearly, there is a signal which comes from the phone.

ROSS: Can that be a good thing, though, to have that kind of radiation power going into the brain?

DR. SLESIN: The—there isn't data to show that what is happening has a health effect.

ROSS: (Voiceover) Even so, a number of phone companies are now marketing earpiece sets, which keep the transmitter far away from the head. The industry says it's strictly for convenience and nothing to do with safety. But when we tested the Nokia 6160 with an earpiece, the same phone that exceeded the safety standard in every position of our tests easily passed with the earpiece device, producing the lowest figure of the entire range of tests we conducted, as low as .02.

(Man demonstrating earpiece set on cell phone; Nokia 6160 with earpiece)

DR. SLESIN: You've taken the source of the radiation away from your head. You've taken it away from your brain, away from your eyes. Those are very important considerations.

MAN #5: Call me on the cell if you need me.

WOMAN: Give them my best.

MAN #6: Talk to you later. Bye.

SAWYER: Well there has been a lot of reaction in Washington to our report. The Federal Communications Commission told us that our test results warrant close scrutiny. And just yesterday the Food and Drug Administration issued a consumer update on mobile phones, saying that while available science does not demonstrate that mobile phones are harmful, it urges the industry to design cell phones in a way that minimizes radiation exposure to users.

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