

Celebs share rumors linking 5G to coronavirus, nutjobs burn cell towers

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Wireless technology has enjoyed a long history with fears based on vague accusations that it causes health issues and claims that some people are “electrosensitive.” Those fears have been maintained by a handful of ambiguous studies that suggested hints of possible links between cell phone use and cancer, but most of these studies had significant issues. And plenty of other studies saw no connection.

Nevertheless, the gradual arrival of the next generation of wireless technology, 5G, has re-ignited health fears in some circles. And while arguments against 5G have been circulating for months, they seem to have found a new focus thanks to the coronavirus pandemic, with rumors of a connection between the two seemingly inspiring people to set fire to cellphone base towers.

Same as it ever was

Radiofrequency radiation is relatively low energy, and it can't break chemical bonds. Like the nearby microwave frequencies, it can heat tissues. But we're not aware of any mechanisms beyond heating by which radiation at these

wavelengths can damage human tissue. And, as noted above, there's no evidence at the population level that indicates that radiation from these sources poses any sort of risk.

One of the challenges of this work, however, is that the technology changes fairly regularly. Since the introduction of the iPhone, we've seen Wi-Fi use two different frequencies and multiple protocols while cellular service has gone from LTE through 3- and 4G, and we are now witnessing the roll out of 5G. The introduction of 5G, in fact, started a new wave of worries that it posed health risks that earlier generations didn't. After all, higher bandwidth means more power, right?

Not exactly. Wireless communication involves compromises in the service of getting as much information as possible across a limited connection while, at the same time, minimizing power use. Some of the means of doing this involve things like reducing the error rate or compressing the data transmitted and don't depend on the radio-frequency energy. Others, like beamforming, simply focus more of the available bandwidth on the locations where there's an active device. All of them take place in a context—mobile hardware—where increasing the power used for transmission is strongly discouraged.

5G doesn't change any of this. It does transmit on different frequencies in some situations. But these frequencies are generally blocked by things like walls. And, in any case, those frequencies are also low enough energy that they won't cause molecules to break apart.

What the... ?

If the pre-existing health concerns about 5G aren't based on any established risks, then the supposed connections to coronavirus have even less potential basis in reality. Two basic ideas seem to be floating around about how 5G signals are related to the coronavirus. The first, while completely evidence- and mechanism-free, is at least somewhat plausible

on the face of it: 5G signals somehow suppress the immune system, increasing either the frequency or severity of infections.

The second, completely divorced from reality, is that the radio-frequency signals from cellular services somehow produce the virus itself. Obviously, no mechanism is postulated for this, because it's completely impossible. The fact that the coronavirus genome is clearly related to a family of similar viruses is never explained.

In both these cases, the only "evidence" offered in support is the timing of 5G rollouts versus the appearance of the coronavirus in some locations, as well as maps that compare the locations of 5G services to the locations with the highest incidence of SARS-CoV-2. Neither of these make sense as evidence. 5G was present in a variety of locations for a while without coronavirus appearing in them.

The rest is just a partial coincidence. The early 5G rollouts have all been in urban centers, where high population densities have enhanced the spread of the virus. But plenty of cities without 5G service have also had high incidence of the virus. Within the United States, the virus is now present in many rural areas.

Why should not making sense stop anybody?

So, even a cursory look at the evidence would indicate that these ideas are ludicrous. Yet that hasn't stopped some people. Unfortunately, those "some people" spreading coronavirus-5G rumors have included celebrities, which generally have a large reach. And if celebrities are involved in ludicrous health claims, then you probably could have predicted that the connections would trace back to Goop.

Of course, medical conspiracy theories often circulate widely without celebrities being involved, so there's no way of telling whether they in any way inspired the attacks on cellular hardware. Since the start of April, the UK has seen 30 acts of vandalism directed toward cellular network hardware, including several acts of arson. People working on the hardware have also been subject to harassment.

At least some have ascribed the spread of the conspiracy theories online to state-backed misinformation campaigns. Those campaigns, however, wouldn't work if they didn't find a large audience of people willing to believe misinformation without checking for evidence.

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