Stop global roll out of 5G networks until safety is confirmed, urges expert

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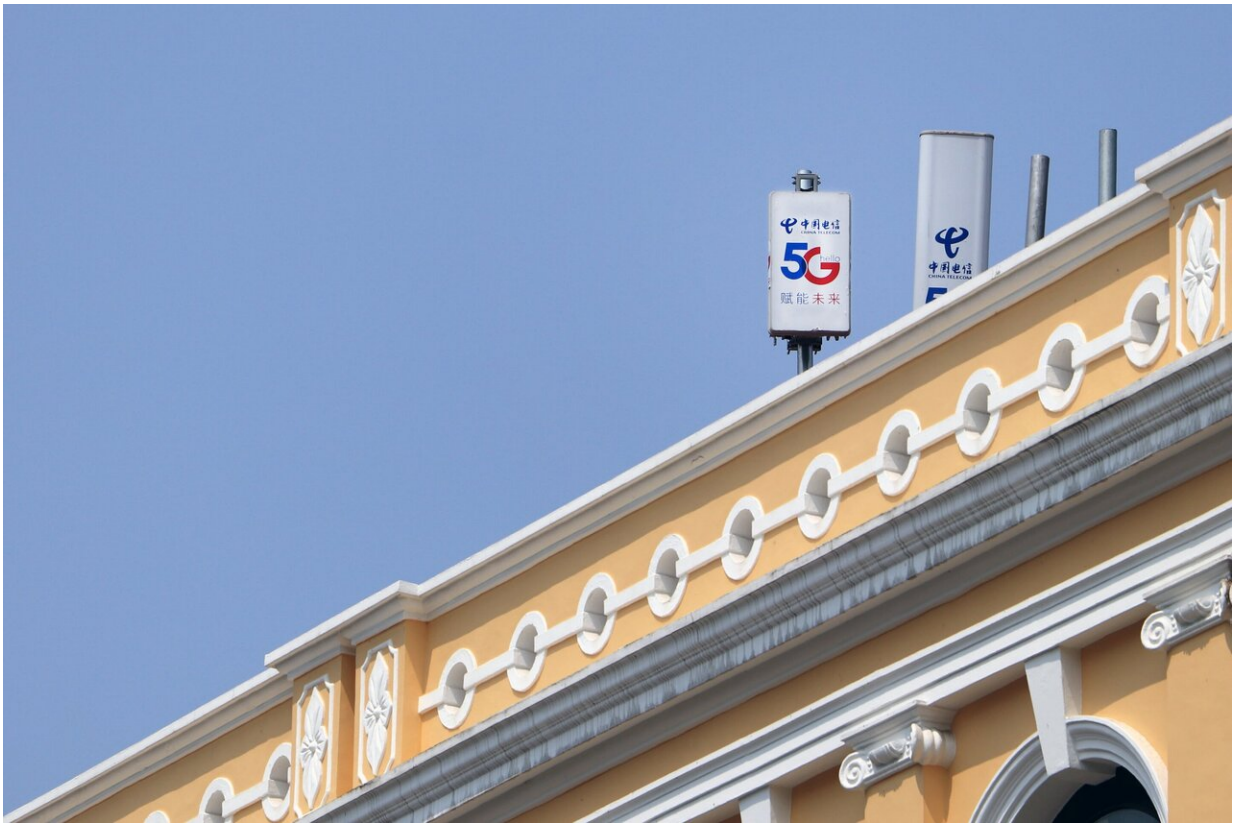

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We should err on the side of caution and stop the global roll out of 5G (fifth generation) telecoms networks until we are certain this technology is completely safe, urges an expert in an opinion piece published online

in the *Journal of Epidemiology & Community Health*.

There are no health concerns about 5G and COVID-19, despite what conspiracy theorists have suggested.

But the transmitter density required for 5G means that more people will be exposed to radio frequency electromagnetic fields (RF-EMFs), and at levels that emerging evidence suggests, are potentially harmful to health, argues Professor John William Frank, Usher Institute, University of Edinburgh.

The advent of 5G technology has been hailed by governments and certain vested interests as transformative, promising clear economic and lifestyle benefits, through massively boosting wireless and mobile connectivity at home, work, school and in the community, he says.

But it has become the subject of fierce controversy, fuelled by four key areas of scientific uncertainty and concern.

- The lack of clarity about precisely what technology is included in 5G; and a growing but far from comprehensive body of laboratory research indicating the biologically disruptive potential of RF-EMFs
- An almost total lack (as yet) of high quality epidemiological studies of the impact on human health from 5G EMF exposure
- Mounting epidemiological evidence of such effects from previous generations of RF-EMF exposure at lower levels
- Persistent allegations that some national telecomms regulatory authorities haven't based their RF-EMF safety policies on the latest science, amid potential conflicts of interest

5G uses much higher frequency (3 to 300GHz) radio waves than in the past and it makes use of very new—and relatively unevaluated, in terms

of safety—supportive technology to enable this higher data transmission capacity, points out Professor Frank.

Its inherent fragility means that transmission boosting 'cell' antennae are generally required every 100-300 m—which is far more spatially dense than the transmission masts required for older 2G, 3G and 4G technology, using lower frequency waves, he says.

A dense transmission network is also required to achieve the 'everywhere/anytime' connectivity promised by 5G developers.

Existing 4G systems can service up to 4000 radio frequency-using devices per square kilometre; 5G systems will connect up to one million devices per square kilometre—greatly increasing the speed of data transfer (by a factor of 10) and the volume of data transmitted (by a factor of 1000), he explains.

While several major reviews of the existing evidence on the potential health harms of 5G have been published over the past decade, these have been of "varying scientific quality," suggests Professor Frank.

And they have not stopped the clamour from "a growing number of engineers, scientists, and doctors internationally...calling on governments to raise their safety standards for RF-EMFs, commission more and better research, and hold off on further increases in public exposure, pending clearer evidence of safety," he writes.

Permitted maximum safety limits for RF-EMF exposure vary considerably around the world, he points out.

What's more, '5G systems' is not a consistently defined term, comprising quite different specific technologies and components.

"It is highly likely that each of these many forms of transmission causes somewhat different biological effects—making sound, comprehensive and up-to-date research on those effects virtually impossible," he explains.

Recent reviews of lab data on RF-EMFs indicate that exposures can produce wide-ranging effects, including reproductive, fetal, oncological, neuropsychiatric, skin, eye and immunological. But there is absolutely no evidence whatsoever to suggest that it is implicated in the spread of COVID-19, as some conspiracy theorists have suggested, he emphasises.

"There are knowledgeable commentators' reports on the web debunking this theory, and no respectable scientist or publication has backed it," he says, adding: "the theory that 5G and related EMFs have contributed to the pandemic is baseless."

But for the current 5G roll-out, there's a sound basis for invoking 'the precautionary principle' because of significant doubts about the safety of a new and potentially widespread human exposure, which should be reason enough "to call a moratorium on that exposure, pending adequate scientific investigation of its suspected adverse health effects," he says.

There is no compelling public health or safety rationale for the rapid deployment of 5G, he insists. The main gains being promised are either economic, and then possibly for some more than for others, or related to increased consumer convenience, he suggests.

"Until we know more about what we are getting into, from a health and ecological point of view, those putative gains need to wait," he concludes.

More information: Essay: Electromagnetic fields, 5G and health: what about the precautionary principle? *Journal of Epidemiology &*

Community Health, DOI: 10.1136/jech-2019-213595