



# 5G and Health Misinformation amid COVID-19

The facts and how to communicate them

## Panel:

**Michel Van Bellinghen**, *Chairman of the Council*, Belgian Institute for Postal Services and Telecommunications (Moderator)

**Rebecca Skippage**, *Senior Editor & Disinformation Lead*, BBC News

**Professor Rodney Croft**, *Chair*, International Commission on Non-Ionizing Radiation Protection (ICNIRP); *Chief Investigator*, Australian Centre for Electromagnetic Bioeffects Research (ACEBR), University of Wollongong, Australia

**Manuel Kohnstamm**, *Senior Vice President and Chief Corporate Affairs Officer*, Liberty Global

**Philip Marnick**, *Group Director*, Spectrum, Ofcom, UK

## Rebecca Skippage

'Disinformation loves a vacuum, and coronavirus has certainly provided that'. Rebecca Skippage outlined the development of the 5G disinformation story, beginning in 2018 when birds in Holland were described as 'falling from the sky' due to 5G radiation. When a number of people 'became distressed' at the Glastonbury music festival in 2019, 5G masts were blamed for 'harming and controlling you'. Anti-vaccination ('anti-vax') campaigners rapidly became involved.

It was at the end of January 2020 that the first link to coronavirus was identified in a Facebook post. It spread via a number of Facebook anti-vax groups, although it didn't gain traction on Twitter. The theory evolved to blame 5G masts in Wuhan for causing the virus, and then to 5G itself – the coronavirus was a hoax. As professional conspiracy theorists became involved the argument became more sophisticated, with 'experts' and graphs emerging.

In mid-March the theory leapt to a new level as a result of celebrity involvement. The US singer Keri Wilson directly linked 5G to COVID-19 in a series of tweets, and thereafter the story spread to multiple countries in multiple languages. Analysis of 200 Facebook groups suggested the story had resulted in 1.6 million shares and 5.4 million impressions. Activity spiked in early April, and has since declined.

The real world consequences have been attacks on masts and engineers. The response of the BBC has been to focus on providing the public with the facts, mindful of the dangers of amplification. The corporation is part of the 'Trusted News Initiative' that includes many news organisations and tech companies and which uses a 'shared alert system' to warn of disinformation stories. The next disinformation is likely to come with the arrival of a vaccine, which is expected to come under attack from anti-vax groups

*Is there a risk that concerned citizens become linked to attacks? Is it sufficient to make concerned citizens more aware of the benefits?*

Asking questions and seeking good information is quite proper. It's only some people urging direct action. Putting a stop to disinformation means trying to get the facts into the public domain, putting in 'points of friction' and debunking stories to stop people sharing. In the UK the picture is messy, with the link to Huawei making more news than the benefits of 5G.

## Rodney Croft

Professor Croft first explained that ICNIRP is a not-for-profit NGO, independent from industry. Its role is to develop and disseminate science-based advice on limiting exposure to non-ionizing radiation (NIR). The guidelines on Health Physics (100 kHz to 300 GHz) have been updated for 2020. If 5G devices comply, no harm can occur.

Restriction values are determined by identifying the harm threshold – the lowest exposure level that can still cause harm, based on a 1°C body core temperature rise. To this is applied a reduction factor of 50 to set a general public exposure restriction to .08 watts / kg. This is too low to cause a detectable increase in body temperature and 5G exposure is required to stay below this level. There is no benefit in going to a lower exposure level.

Most base station transmissions are at a level 100-1000 times lower than this, so there is no need for any concern. Community exposure is very low.

*Can you expand on the independence of ICNIRP?*

No-one on the commission works for industry; many work in universities. Funding is via a grant from governments, with 5% research funding from industry. Financial disclosures are freely available at ICNIRP.org.

*What are the effects of 5G on immunity? What is the impact of a 5G dedicated beam?*

There is no reliable scientific evidence to show that any change to immunity occurs as result of 5G exposure. The dedicated beam has the effect of reducing exposure in a broad area, and increasing it on a single person, but only to a level similar to that from 4G. At higher frequencies the radiation goes less deep, and more is absorbed by the skin, but the guidelines take this into account. Exposure is lowest close to a base station, but even on a phone at a distance and working hard the thermal effect is too small for the body to be affected.

*What is your comment on countries that have set limits lower than the guidelines?*

Some countries have set lower limits, but these are for political and not scientific reasons. This will adversely affect the performance of the technology for no health benefit.

## Philip Marnick

Philip Marnick described how, as a regulator, Ofcom carries out Electromagnetic Field (EMF) measurement audits, following the advice from Public Health England (PHE), which is that EMF transmissions should comply with ICNIRP guidelines. In practice, measured radiation is much lower than the guidelines, with the highest, at Canary Wharf, at c.1.5% of maximum allowed exposure and 5G specifically at only .039%. This is expected to increase as 5G expands. Ofcom is currently consulting on a new condition in spectrum licences for ICNIRP compliance to apply to powers over 10W EIRP (Effective Isotropic Radiated Power). The aim is to ensure that all spectrum users in the UK take into account the ICNIRP guidelines.

Ofcom counters false information about the EMF spectrum through talking to industry, public health authorities and journalists. However, as the broadcast media authority Ofcom also has to ensure that information is right and truthful. It has sanctioned a number of TV and radio broadcasters in breach of the rules and continues to ensure that information based on analysis and measurement is placed in the public domain.

*How do you distinguish between fake news and unverified information? What health expertise does the organisation have? How has COVID-19 affected what Ofcom does?*

Ofcom is not a censor. The aim is to ensure reasonable debate and a balance of information. Communication needs to be clear, simple and factual. For example there has been much debate about the problems with 5G and water, but this is only because water impedes the signal. There are concerns about a large number of base stations, but more base stations means lower power and less effect. Ofcom is guided on the health issues by experts at PHE, who engage with ICNIRP. COVID-19 has resulted in a delay to spectrum auctions, as it has in a number of countries, as well as diverting the attention of politicians.

## Manuel Kohnstamm

Manuel Kohnstamm began by describing the current debate on 5G as a 'new version of an old discussion' that encompassed GSM, 3G and 4G. However, what's new is the social media bubble feeding into conspiracy theories, the geopolitical and security concerns surround technology culture and a crisis brought on by COVID-19. All of these have come together in a 'single conspiracy theory'.

It's difficult for operators to preach safety, given their commercial position, but it's a problem for governments as well because of the revenues they generate from spectrum auctions. Therefore the contribution of the scientific community is important.

Information needs to be 'back to basics'; for example distinguishing between ionizing and non-ionizing radiation. These messages still need to be intensified.

Within the EU there are four or five different radiation levels allowed, and this inconsistency between countries has the effect of eroding trust – 'someone must be wrong'. Belgium has very strict emission levels, and in Brussels it's even stricter – the EU itself will not be able to benefit from 5G. In Switzerland, the levels have been set so low that a meaningful roll-out of 5G is impossible. What's required is evidence-based policy.

So far, 30 masts have been attacked in Holland, 90 in the UK. Facebook groups appear to have 30,000-40,000 followers which talk up the success of attacks. Most masts are actually 3G and 4G and used by emergency services. In the Netherlands, the Prime Minister has condemned the attacks and the first series of arrests have been made. More sites will be required as the 5G roll-out gathers pace, and this may result in resistance from communities. Masts need to be smaller and concealed. Liberty Global is committed to 5G for its long term potential, and doesn't expect to make money for many years.

*What effect has the 5G issue had on your plans?*

The problems around the conspiracy theory have not put off the plans Liberty Global has in any way. The scale-up is going well, and businesses such as advanced logistics and manufacturing are looking forward to the opportunities that 5G will bring. The problems in Belgium and Switzerland are ongoing. Any scientist knows that there is always a level of risk, but there needs to be a consensus in the EU on safety limits. Simple messaging – such as the favourable comparison with the sun's radiation – are the best.

## 5G safety messages

Rebecca Skippage pointed out that exposure to disinformation was under 50%, and had declined as a share of news exposure from 7% to 4%. The BBC was also involved in media literacy in schools, educating on sourcing, spotting fake news generators and helping young people to recognise themselves as victims. Rebecca Skippage and Philip Marnick agreed on the need to ensure that the message was clear, adapted to different groups and spoken in the right language. 'Nobody wants to be lectured to'. But there was no 'single bullet' to solve the problem. Rodney Croft said that Australians were very well aware of the dangers from sunlight. Comparing it to 5G radiation was comparing a risk to something from which there was no risk, and therefore not necessarily helpful.

# Appendix: additional questions answered after the webinar

*From BT, UK: We often see 5G campaigners suggest that MNOs should operate to the 'precautionary principle'; that is, no 5G should be deployed without positive proof that it is safe - which is a change of emphasis to suggest that there has to be a long period of monitoring of the effect of exposure to low level signal before using it. What would ICNIRP say to that?*

*From ANACOM, Portugal: My doubt is at 26GHz. will it be the same behaviour?*

## ICNIRP

It is important to note that to determine whether 5G is safe, the crucial question is whether the electromagnetic fields generated by 5G devices are safe – the label itself is not relevant. In terms of the electromagnetic fields, these have already been studied in great depth, and over many years. Based on that research we can conclude that 5G is safe (i.e. the electromagnetic fields that 5G emits are safe).

The only difference between 26 GHz electromagnetic fields and the lower frequencies that are emitted from 4G and most 5G devices, is the depth of penetration into the body. At 26 GHz, much more of the energy is absorbed within the skin than is the case for 4G and most 5G devices, and corresponding to this less energy penetrates deeper into the body. However, the restrictions in the ICNIRP guidelines have been set to ensure that the peak exposure remains at a safe level, and so the peak exposure at 26 GHz will be the same as the peak exposure from lower frequencies.

*From ANACOM, Portugal: Is the challenge partly created by having such a wide range of frequencies under one name? Most of the negative publicity is about 60GHz not the 5.6GHz for phones.*

## Ofcom

In the UK, we have seen some people raise concerns about 5G in general – particularly the recent inaccurate theories around linking 5G to the coronavirus. They have generally not focused on specific bands. But we do also see that some people have a perception that, as 5G can make use of higher frequencies, these must be harmful. So we think it's important to continue to raise awareness of the facts about how 5G works, the frequencies it uses and what the evidence says about health. This is what we are trying to do alongside government, industry and public health bodies.

*From the Regulatory Authority of Bermuda: As a regulator, do you lead discussion on 5G or have you left that to the providers?*

## Ofcom

The UK Government has published a 5G strategy for the UK and we share its ambition for the UK to be a world leader in 5G

Our role in supporting the rollout of 5G focuses mainly on managing access to the airwaves. We have already released 5G spectrum through an auction in 2018, which is being put to use by mobile operators now. We have a further auction planned and are also supporting innovation in 5G through our spectrum sharing framework.

We explain more on our role in relation to 5G in our 'Enabling 5G in the UK' document (published on the Ofcom Website).

In relation to EMF, we have:

- carried out EMF measurements for many years and in recent months undertaken a programme of EMF measurements near 5G-enabled base stations;
- recently published a consultation which proposes to include an EMF-related licence condition in spectrum licences (which is not limited to 5G but includes licences for spectrum supporting 5G services);
- published factual information on our website and on social media to counteract misinformation on 5G and EMF;
- taken action against broadcasters that have broadcast material containing potentially harmful content linking the coronavirus outbreak with 5G rollout.

*From ICASA, South Africa: Manuel, can you elaborate more on the spectrum auction delays? In South Africa we are embarking on an Auction by December 2020.*

## Liberty Global

Regulators have announced postponements of spectrum auctions in a number of European countries for a variety of reasons, including the UK, France, Spain, Poland and Romania. Reasons cited included lack of instruments for security requirements, investigations of market caps, political reasons and most recently the COVID-19 crisis. Some have been postponed to the latter half of 2020, but there are few fixed dates as of yet. It is possible that if uncertainty around the COVID-19 crisis continues, there could be further delays.

Some countries have gone ahead with auctions notwithstanding the pandemic - the Dutch auction of the 700 MHz, 1400 MHz and 2100 MHz bands will start on June 29. It is worth noting that the Dutch auction was originally scheduled for end of 2019, so this

June auction is itself a delay from the original date. The conduct and success of these auctions could be a model for other countries seeking to carry out auctions against the background of the pandemic.

It is important that companies have certainty on how and when spectrum auctions will take place. Delays in spectrum auctions will cause a significant delay in the rollout of 5G in Europe and dis-incentivise investment.

*From Google: As the BBC representative said, there's a huge role for media literacy, to include misinformation. Can panellists comment on efforts by regulators as part of their media literacy efforts, to ensure that they include misinformation, to inform the general public as well as the news professionals themselves?*

## Ofcom

We have specific duties to promote media literacy and we have a comprehensive programme to do just that. This includes research into people's use and understanding of digital media, which helps raise awareness and inform future policy.

As part of their response to the COVID-19 crisis and the risks of the spread of inaccurate information (the 'Infodemic' identified by the WHO), regulators have focused attention on media literacy, commonly via multi-stakeholder partnerships which many European regulators have begun to coordinate. Initiatives involving various actors (with varying degrees of regulatory involvement) include collecting and providing to the public resources on fact-checking and accurate information; running campaigns aimed at raising critical awareness and directing people to authoritative information; repurposing existing media education programmes; coordinating and reporting on activity of media literacy actors, and galvanising networks; and carrying out research into use and effects of different media and information sources.

Ofcom work in this area includes collating resources to provide people with the tools to navigate news and information about COVID-19, and publishing weekly research findings which shows how people are receiving and acting on information during the current