

Covid 19, 5G and Urban Legends

Opinion

Prof MTE Kahn

Who foots the Bill?

The internet has been abuzz with conspiracies and “causes” of the Covid 19 outbreak, from Deep State politics to Sino-American biowarfare. Then, the coincidental or bizarre links to big pharma and big data, ala Bill Gates, the twitterfield and facebooker’s favourite “Lex Luthor of the 20th Century”. Even the “inventor of email”, Ayyadurai, joins the circus around vaccinations and Bill Gates. Is there anything in these lore that are not landing somewhere on the door of Bill & Malinda Gates? Bill is perhaps too overzealous in developing a vaccine for Covid 19 and billionaires seen developing cures for deadly diseases while having vested interests in its manufacturing could be viewed by many as a need for concern. And all the other world billionaires? Seems that when these guardians against doom yap away at Bill, they forget that they are perhaps using Microsoft platforms and other interfaces on their laptops. Can one attribute all this shade on Bill as being perhaps a negative marketing strategy from its opposition? But let’s not go there. Let’s analyse the current hype that 5G caused amidst the Covid 19.

Enter the Virus...

Many scientists have been working during the last two decades on developing digital tools for the early detection of outbreaks of infectious diseases. The outbreak of SARS I in the summer of 2002 caused a panic spike. This was the first time that a zoonotic virus massively attacked receptors in the lungs and where secondary infection pneumonia, which was reasonably preventable and treatable, was not the major cause of death. The swine flu many years later and MERS should have sounded the warning bells of something bigger to come, but as usual governments chose to spend on armoured vehicles and battle tanks rather than medical research and patient care. Containment was achieved and the problems were averted. Or so we thought...

Covid 19 breaking out in Wuhan, China, is the problem currently at hand. As a SARS "Season 2" virus, it thus far proved to present itself as a very infectious and scary two-week incubation period virus. This spells clear danger, and like the Bubonic plague, stands the potential to wreak havoc on human life and lifestyles on this planet. No matter how one looks at it, it appears that there is no easy way out here. China cannot remain in lockdown for years and not allow airlines back in its ports. Already, the established airlines and the hotel industry are reeling from the shock of travel cancellations and can expect no further bookings for up to 12 months. This is happening almost everywhere

Major conferences and exhibitions were cancelled amidst the panic, and many countries followed China's lockdown protocol in trying to stem the rapid spread of the virus. China brought the virus under control locally in Wuhan, but they are aware that it can flare up just as quickly again as soon as carriers of it enters their big cities. Let's face it, who would have thought last year that being in the cleaning and disinfectant business would be more lucrative than selling 5G phones a few months into 2020? If Covid 19 is teaching us nothing else, it is showing us in bold how fragile our grand plans for 2030 Sustainable Development Goals are, and that it could all be swept under a survivalist carpet or out the door. Our focus should be on an attempt to avert total economic collapse, and I do think that technologies will play a role in this rather than abandoning it and adopting a Mad Max beyond the Thunderdome scenario.

Doctors who were dealing with SARS warned that any effort to prevent the spread of a fast-moving contagion would have to be transnational. In 2014 such a transnational effort was initiated under Obama to support low-income countries that was wrecked with the Ebola epidemic in West Africa. But not with a serious look at Corona viruses. After all, it's something like the common cold and 10% mortality in about 8000 confirmed cases and 50 000 in quarantine is OK to live with... It seems we have forgotten that our current living space and infrastructure is optimal for the spread of viruses. We are living in a highly interconnected world. In the case of SARS I, a patient in China passed it to a doctor which caused it to end up in Canada after 6 transmission chains of which 44 died.

Yet, interconnected and connectivity are two different things. Concrete buildings, factories, highways, aircraft and cluster housing gave us an interconnected world. Communication systems gave us connectivity. That connectivity allowed the first transatlantic conversation, without getting into a sail-boat and before modern jet planes. And with the internet and mass social network communications, the communication systems are again proving to be what keeps families that are physically separated by oceans, in daily visual communication with each other via Whatsapp or Wechat.

So let us present the hot potato in the communications "spectrum". 5G. What is 5G? 5G is the next generation of mobile standards being defined by the International Telecommunication Union (ITU). The ITU head office is in Geneva. IMT-2020 (5G) is the name for the systems, components, and related elements that support enhanced capabilities beyond those offered by IMT-2000 (3G) and IMT-Advanced (4G) systems. 5G networks is the natural progression from 3G and 4G, which have been in existence for over 2 decades. This technology together with IoT /AI are emerging fields to enable smart cities. 5G offers new applications and services through gigabit speeds and work integrated with AI to provide autonomous systems.

High 5 (G?)

In comes Thomas Cohen. A purported physicist, touted by some on social media, but when he speaks on his nearly 10 minute video clip on YouTube, comes across as someone who had no basic grounding in physics or any scientific discipline at all. Thomas Cohen goes on to explain what 5G is, in a complete fumble of concepts and with an even deeper misunderstanding of biology. Upon even a cursory background check it is revealed that the Thomas Cohen of YouTube have been identity morphed by probably his ardent followers of snake oil theories onto the profile of a real physicist, TM Cohen, who is not the same person as the YouTube Cohen. According to YouTube Cohen, the 1918 flu was a direct consequence of the invention of Radio. Hence the 2020 Covid 19 pandemic (dubbed by anti 5G proponents as Wuhan flu) must be due to the invention of 5G.

4G and 5G are reasonably similar in some frequency overlap, except for the proposed 24 Gigahertz and higher beam focussed transmitters for superhighspeed data rates. You need a lot more towers for 4G, and consequently 5G, as the higher the frequency the lower the penetration depth. This higher frequencies in the spectrum can be a legitimate concern for health related issues. But 5G will use a mix of frequencies to achieve possible maximum depth. Since the frequency used by a 5G cell dictates the speed and distance, it's important for a service provider to use a part of the spectrum that includes frequencies that benefit the job at hand. For example, millimeter waves, which are within the high-band spectrum, have the advantage of having the ability to hold ample data. However, radio waves in higher bands also are absorbed more easily by gases within the air, trees, and nearby buildings. These millimeter Waves are therefore useful in densely packed networks, but not so helpful for carrying data long distances (due to the attenuation).

For these reasons, there isn't really a black and white "5G spectrum"—different parts of the spectrum will be used in different applications. A 5G provider wants to maximize distance, minimize problems, and get as much throughput as possible. One way to get around the limitations of millimeter waves is to diversify and use lower

bands as well. A frequency of 600 MHz, for instance, has lower bandwidth, but because it's not affected as easily by things like moisture within the air, it doesn't lose power as quickly and is in a position to reach 5G phones and other 5G devices further away, as well as better penetrate walls to supply indoor reception. This is important for IoT connectivity and autonomous system development. The issue is not about towers, and how much more, but also reusing older towers, and bandwidth adaptations to get more distance and connectivity.

Let us not forget that almost every Fibre to the Home and every single office block, school or shop has Wi-Fi or some sort of WLAN turned on and in close proximity to humans almost 24 hours a day. WLAN Frequency Bands are according to the IEEE 802.11 working group standards assigned in five distinct frequency ranges: 2.4 GHz, 3.6 GHz, 4.9 GHz, 5 GHz, and 5.9 GHz bands. Each range is split into a large number of channels. Wi-Fi has been using frequencies in excess of 2G and 3G for around 10 years as well.

Currently the communication network has a very low-level device-to-device (D2D) communication ability. Users are familiar with Bluetooth, and WiFiDirect in this regard. However the existing cellular technologies do not support direct over-the-air communication between end users. 5G are enabling D2D communication without or with partial involvement of the network infrastructure, like mobile access points or mobile base stations. This feature is the disruptor of the 5G technology. Thousands of cars travelling on the same highway or thousands of devices operating in a manufacturing facility will exchange information directly, without transmitting to a distant base station or through a core network. This will also decrease the general power consumption of wireless communications: once you use your cell-phone, rather than making a reference to a base station, your device will communicate with a much closer 5G device. That device will pass your data to next nearest device and this will continue until your data reaches to the base station

5G and radiation effects

Perhaps the earliest case of human tissue interaction with microwaves is in the JAMA paper of 1948, where Osborne and Frederick reported on “Heating of Human and Animal Tissues by Means of High Frequency Current with Wavelength of Twelve Centimeters (The Microtherm)”. In this paper, an explanation of Radar by means of magnetron oscillator tubes was employed as the first generator of this type to be developed for the heating of human tissues using 2,4 to 2,5 GHz . Incidentally this is the bottom end frequency of 2G and mid range of 3G and your household Wi-Fi. Early GSM cellular networks operated at 0,9 GHz and 1,9GHz. 2G and 3G networks change the modulation method but largely used the same portions of the spectrum with reorganized frequency bands. As 3G evolved, additional frequency bands were included as well as spectrum around 2,1GHz. 4G LTE technologies brought it additional spectrum and frequency bands, namely around 600 MHz, 700 MHz, 1.7/2.1 GHz, 2.3 GHz, and 2.5 GHz.

The 5G frequency band plans are much more complex, as the frequency spectrum for sub-6 GHz 5G spans 450 MHz to 6 GHz, and millimeter-wave 5G frequencies span 24.250 GHz to 52.600 GHz, and also include unlicensed spectrum. Additionally, there may be 5G spectrum up to 64 GHz to 86 GHz range. Therefore, 5G will include all previous cellular spectrum and a substantial amount spectrum within the sub-6 GHz range, and beyond sub- 6 GHz is much less than the current cellular spectrum. This broad spectrum microwave energy may indeed lead to health risks, which could be due to thermal effects of non-ionising radiation. The effect of skin sweat ducts acting like helical antennae in the 95GHz range have been reported on by Feldman and Ben Ishai, in a paper titled “*Human Skin as Arrays of Helical Antennas in the Millimeter and Sub-millimeter Wave Range*”, published in Physical Review Letters (2008).

In a 2018 article Betzalel , Ben Ishai and Feldman wrote paper titled “*The human skin as a sub-THz receiver - Does 5G pose a danger to it or not?*”. Here I quote them directly:

“One must consider the implications of human immersion within the electromagnetic noise, caused by devices performing at the exact same frequencies as those, to which the sweat duct (as a helical antenna) is most attuned. We are raising a warning flag against the unrestricted use of sub-THz technologies for communication, before the possible consequences for public health are explored.”

[Environmental Research . 2018 May;163:208-216. doi:
10.1016/j.envres.2018.01.032. Epub 2018 Feb 22.]

Betzazel did not present that there is evidence anywhere that the interactions are a cause of the introduction of cells exploding and releasing corona viruses as purported by YouTube Cohen. The issue is that heating effects on the skin, as already determined by the 1948 paper, will reach higher doses of absorption in the 80 to 100GHz upper limit of 5G spectrum, and that this needs to be carefully planned around. No 5G system is using those bands yet and it is possible in future band allocation.

With regards to Wi-Fi, the matter of DNA damage has been extensively investigated and the findings of Schuermann et al. (Department of Biomedicine, University of Basel), in the journal Genes published recently and reports that:

“Classical and advanced methodologies of genetic toxicology and DNA repair were applied, and key experiments were performed in two separate laboratories. Overall, we found no conclusive evidence for an induction of DNA damage nor for alterations of the DNA repair capacity in cells exposed to many wEMF modulations (i.e., GSM, UMTS, WiFi, and RFID). Previously reported observations of increased DNA damage after exposure of cells to GSM-modulated signals could not be reproduced. Experimental variables, presumably underlying the discrepant observations, were investigated and are discussed. On the premise of our data, we conclude that the possible carcinogenicity of wEMF modulations can't be explained by an impact on genome integrity through direct DNA damage.”

The Towers of 5G (Babel?)

Is social distancing making the crazies pop up dime a dozen? Several different speakers are on social media currently, each speaking the same open lie, that the speaker was "head of the largest business unit at Vodafone". Mind you most cellular phone kiosk employees know very little about electronics or even communication systems at all...other than the on-the-job training to sell contracts and phones they received.

Who then are these people who continue to spread such incredibly ill-informed stories that, "5G is locking oxygen out of the body", "this 5G is causing breathing difficulties" and that "5G causes virus DNA to mutate" etc.? These are the very people that was most likely AIDS denialists, and beetroot panderers. It appears that solid science is fighting a losing battle with the Walking (brain) Dead and Covid 19 at the same time.

So now we have YouTube Cohen, Apocalyptic Priests, Eschatologists, Theosophists, and supposedly wayward Vodaphone managers all jumping up as experts with theories of How and Why the world is coming to an end and due to 5G...

A British Pound note is shown by one YouTuber with a cell phone tower mast, predicting the rise of 5G as the sign of the number of the beast... Apocalyptic Priests are predicting the end at the hands of the 5G produced virus, and while flocks of followers are attacking 5G masts as the sign of the Devil, alternative healers and theosophists are using the current hype as a platform to advance Rudolph Steiner, L Ron Hubbard and Madame Blavatsky as a new faith of the post-apocalyptic world. No one is advancing a theory that these urban legends are probably created as an opposition to 5G and trying to delay its implementation by other Telcom groups who still want to play catch up. Although far-fetched, it would at least be likely.

One interesting website that was advanced, using an App to indicate current 5G roll out, and thus prove that 5G is currently turned off in China, is the following:

<https://www.nperf.com/en/map/CN/-/2430.China-Mobile/signal/>

Where does the data come from? The app explains:

"The data is collected from tests administered by users of the nPerf app. These are tests conducted in real conditions, directly in the field. If you want to get involved too, all you've got to do is download the nPerf app onto your smartphone. The more data there's , the more comprehensive the maps will be!"

A more plausible explanation as to why there is currently not 5G data available in China is likely more due to the USA trade war with Huawei. China does not use Google, or any American apps, even android. So this app is not proof that 5G is turned off, just that no data is available.

BBC News reported 5G connectivity on a test of two phones, downloading a podcast in China. Forbes Magazine stated in a report dated 2nd April 2020 that the superfast service is now available to consumers in 50 Chinese cities, including Beijing and Shanghai. China and also the US are fighting for leadership within the technology sector in recent months, with Chinese tech giant Huawei at the centre of their power struggle. However, the US has blacklisted the company, arguing it poses a national security risk and has lobbied allies to shun Huawei from their own 5G networks.

Conclusion

It is evident that the Covid 19 pandemic has caught much of the global village, our interconnected world, off guard in both the scale of the infection, and the response by governments. The lockdowns, looming economic instability, and the wave of fear that gripped society have created a doomsday scenario, and with social media, as the village gossip channel of choice, false information is having a field day. Excessive exposure to wireless radiation is a topic of study and debate and it has been inconclusively linked to cancers in some studies, although far less than tobacco smoking has been linked to cancers or how drinking wine has been linked to Cirrhosis of the liver.

A study done by Joshi et al., shows that exposure to noise causes a wide range of health effects. For the exposed subjects there was an increased risk of noise induced hearing loss. That non-ionising radiation can cause

physiological effects (heating) have been shown by Osborne et al., as well as Sheuremann, but there is no evidence presented anywhere that it has genetic altering ability in terms of DNA alteration as cancer causing and even less likely that it is the cause of mutating viruses.

The spectrum for cellular telephony under the influx of IoT and M2M devices will remain a scarce resource also in the future and thus new concepts for new traffic types need to be carefully planned and evaluated. New developments will be driven which include innovative applications. The future thus poses challenges for all parties involved starting from standardization bodies to manufacturers of network equipment.

Another enhancement that 5G can offer to health services is Health 4.0. This would interconnect healthcare services transition from supplier-led to person-led systems. There are several important concepts in this seemingly simple statement – the inclusion of well-being in the care spectrum, the transition of leadership of services, and use of the term ‘person’ not ‘patient’. The implementation of 5G introduces opportunity in the health domain. Consumer devices can now play a greater role and would continue to be proliferated in the marketplace. Personal health monitors and devices can cover the range of data-generating apps through fit bit-like devices and can provide better overall understanding of community health and social deficiencies.

As indicated above 2G, 3G, Wi-Fi and 4G LTE have exactly the same EM health risks, and living under or near 50KV upwards of Low frequency electric transmission lines have far greater health risks, and well known, but nobody talks about that!

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