

ICNIRP, 5G, Guidelines & Health

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What is the ICNIRP?

- Not-For-Profit Non-Governmental Organization in official relations with World Health Organization & International Labour Organization
- To develop and disseminate science-based advice on limiting exposure to non-ionizing radiation, including radiofrequency fields relevant to 5G
- Independent from industry; members declarations of interests available at www.ICNIRP.org



The screenshot shows the ICNIRP website with a navigation bar at the top containing "ABOUT ICNIRP", "ACTIVITIES", and "CONTACT". Below the navigation bar are links for "FREQUENCIES", "APPLICATIONS", "PUBLICATIONS", and "WORKSHOPS", along with a "GIVE US" button. The main content area is titled "FUNDING & GOVERNANCE" and includes sections for "FUNDING", "SUPPORT to ICNIRP", and "GOVERNANCE: Independence & Transparency". On the right side, there is a "NEWS" section with a "View all" link and a "TOOLS & TOPICS" section with a "View all" link. The "FUNDING" section lists various funding sources such as the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU), the European Union Programme for Employment and Social Innovation (EaSI) 2014-2020 (EC - Directorate General Social Affairs), the International Radiation Protection Association (IRPA), the New Zealand Ministry of Health (Mori), and the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). The "SUPPORT to ICNIRP" section mentions that ICNIRP is grateful for support from national or international public organizations and for private donations. The "GOVERNANCE: Independence & Transparency" section states that ICNIRP is free of vested interests and that its budget relies on support granted by public bodies. The "NEWS" section includes a post from October 2020 titled "International NRP Workshop Due to the COVID-19 crisis, the ICNIRP NRP Workshop Seoul, Korea is cancelled. Other arrangements will be planned and information on those will follow. Thank you for your interest." and another from April 2020 titled "COVID-19 and RF/EMF Exposure from 5G". The "TOOLS & TOPICS" section includes links for "FOLLOW US", "SUPPORT ICNIRP", and "FAQ & CERTIFICATES".

ICNIRP & 5G

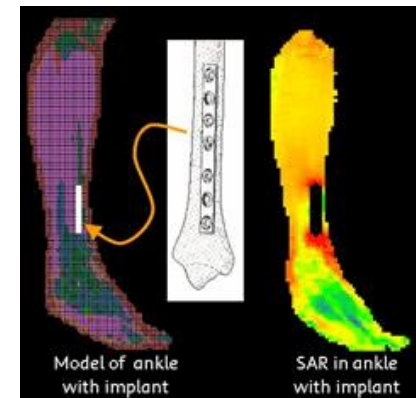
- Exposures from 5G infrastructure & devices fall within the ‘radiofrequency’ (RF) spectrum (100 kHz – 300 GHz)
- ICNIRP published updated RF guidelines in May 2020
- These provide restrictions that specify safe levels of RF exposure for humans
- People being exposed to RF from 5G devices will be safe providing that their exposures do not exceed the restrictions



THE ICNIRP RF GUIDELINES

Scope

- Radiofrequency (RF) EMF (100 kHz – 300 GHz)
- Provides protection against adverse health effects to humans under realistic exposure conditions
- ***Not included***
 - exposure for medical purposes (patients, carers and comforters)
 - exposure of medical implants
 - electromagnetic compatibility
 - compliance issues (e.g. measurement protocols)



Overall objective

- Define exposure levels, below which harm will not occur
- Not always possible for ICNIRP (e.g. UV radiation)
- No benefit in making exposures even lower!!!



Conservative nature of guidelines

- Reduction factors are only one of the conservative steps used to provide safety



Conservative nature of guidelines

- Many conservative steps added to guideline setting process
 - Incorporating **predictions** of potential harm based on mechanisms, even where RF EMF has not been shown to cause harm
 - Basing limits on **potential** health effects, which do not normally cause harm (e.g. small temperature elevations are normally uneventful)
 - Where only limited research is available for known effects, **reducing the degree of certainty required** to demonstrate RF-induced harm (i.e. accept best estimate)



Conservative nature of guidelines

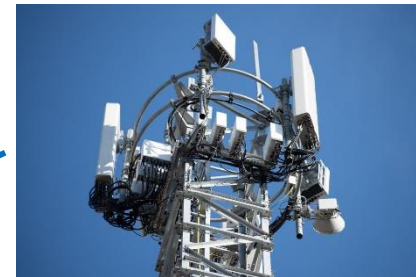
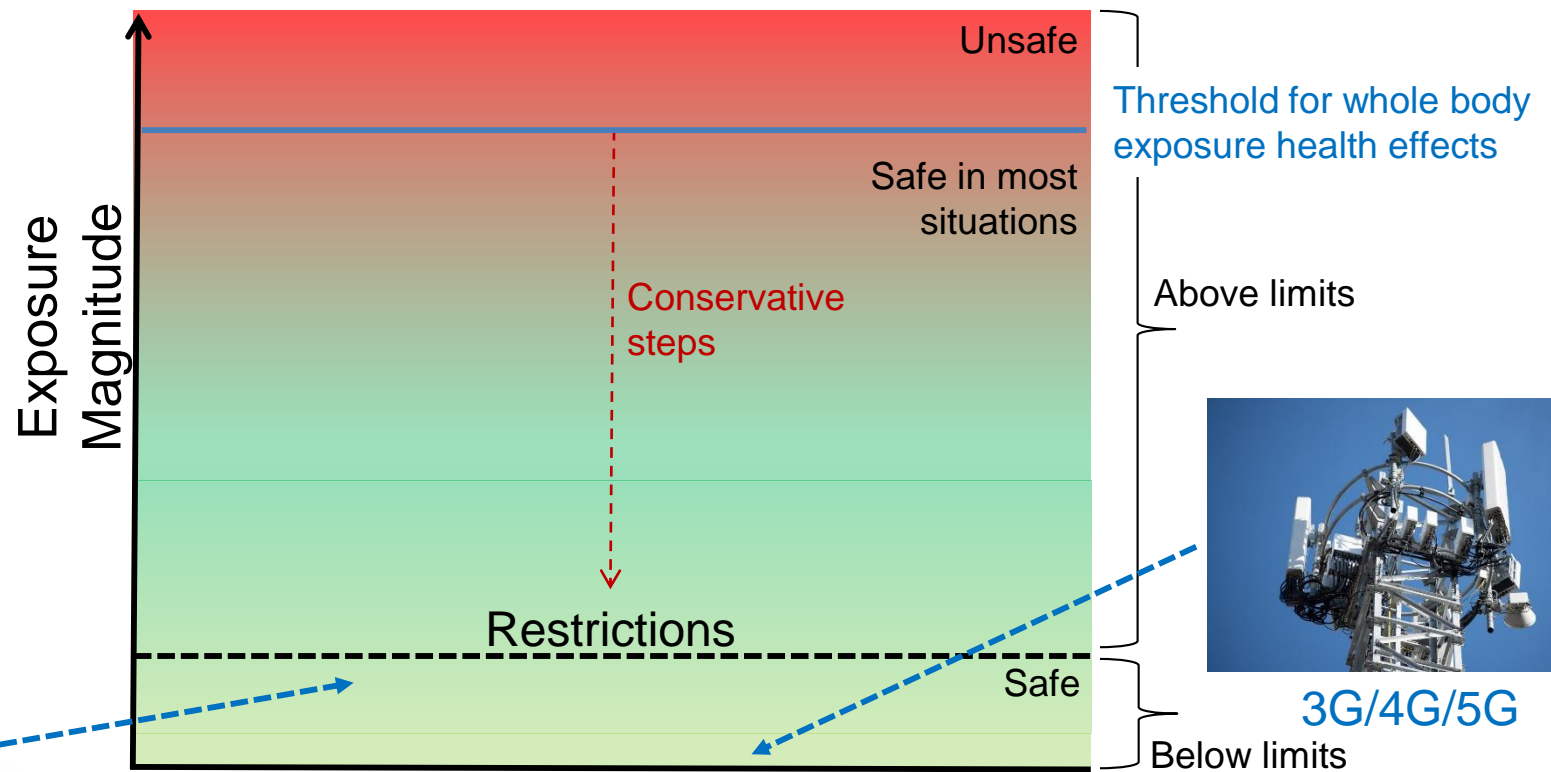
- Many conservative steps added to guideline setting process
 - Application of **reduction factors** to provide a buffer to harm
 - Applying reduction factors **consistently**, even where, individually, less stringent reduction factors may appear justified
 - Conservative **derivation of Reference Levels** for most cases (e.g. plane wave exposure)



Adherence to the ICNIRP Guidelines will permit...

- At worst, a maximum local temperature rise for the general public of 0.5 degrees (e.g. in skin), or 0.2 degrees (e.g. in deeper tissue)
- No detectable increase in body core temperature
- No increased risk of any adverse health effect

*Indeed all restrictions are highly conservative estimates that will remain protective unless they are **exceeded by a substantial margin***

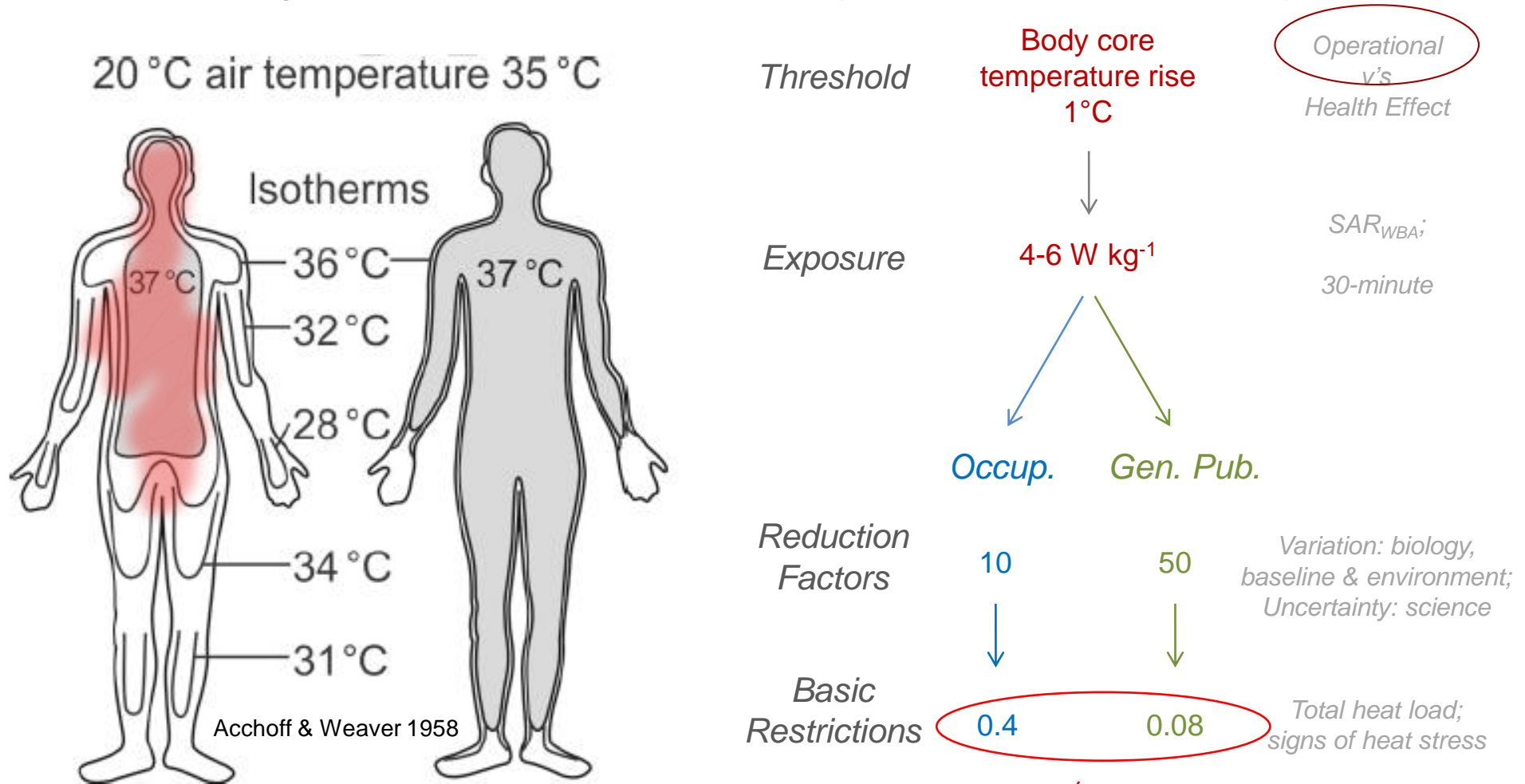


3G/4G/5G

Example of how restrictions are derived

Whole-body exposure

Whole-body exposure protection (100 kHz - 300 GHz)

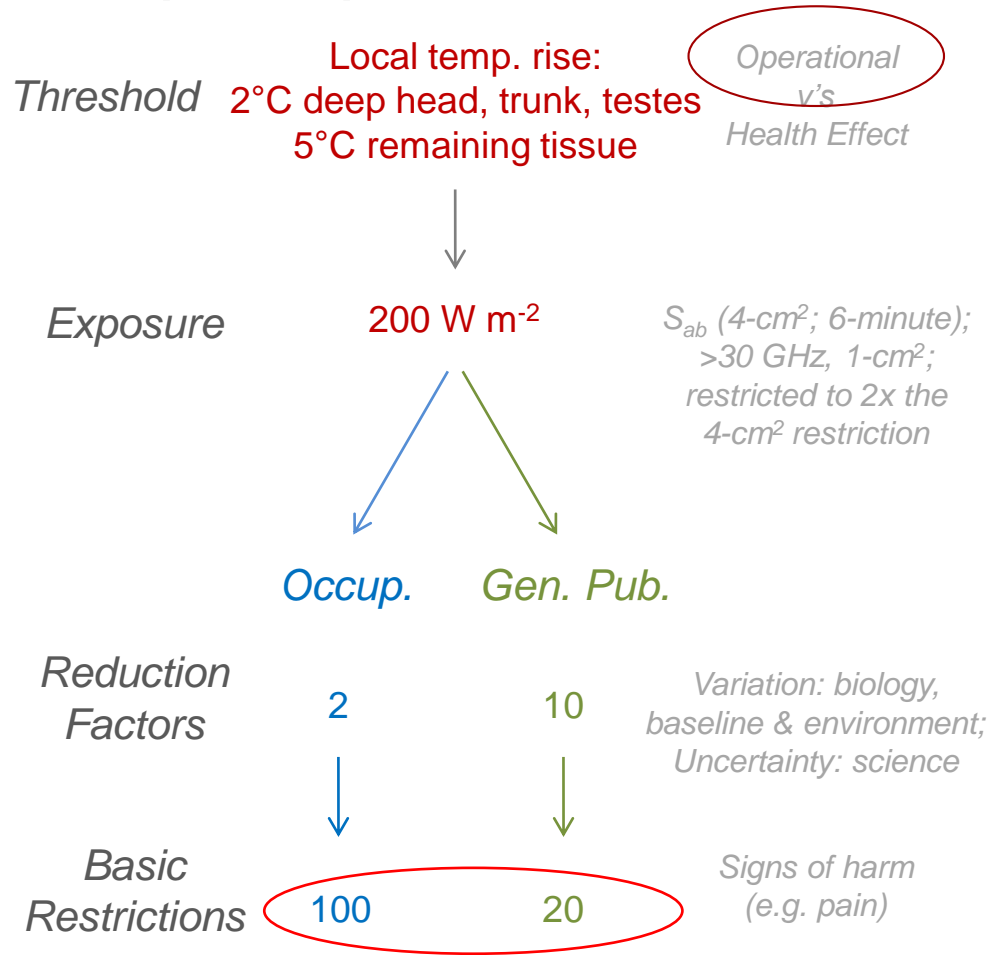
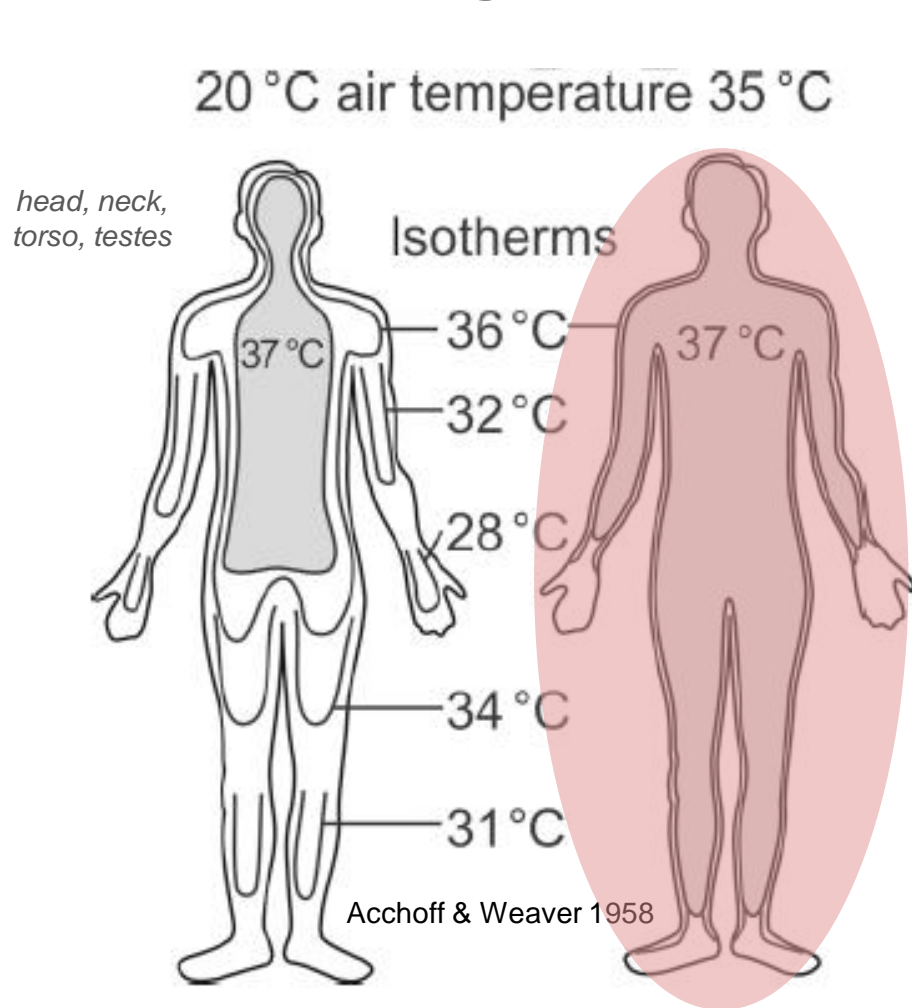


Exposure from 5G must remain below these values

Example of how restrictions are derived

Local exposure

Protection against local exposure (6-min) > 6 GHz

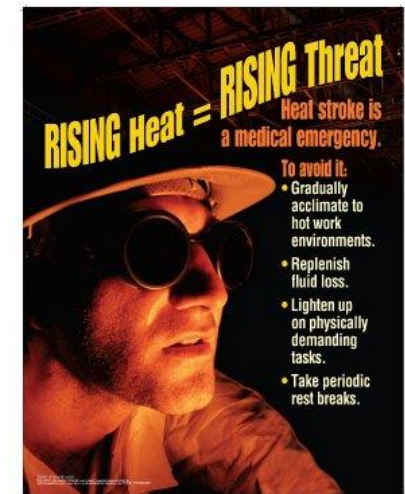


Exposure from 5G must remain below these values

Common misconceptions about the Guidelines

But what about (#1)

- “the GDLs only protect against *thermal* effects”
 - all potential effects are considered; the GDLs specifically look for ANY evidence of health effects, regardless of the mechanism
 - however, where a mechanism is known (such as *thermal*), this enables us to use a larger body of science to ensure appropriate restrictions



But what about (#2)

- “but there is evidence that RF causes diseases such as cancer (e.g. IARC 2B *possibly* carcinogenic classification, 2011; NTP Report, 2019)”
 - These have been considered in detail by ICNIRP, but the science does not show that RF EMF causes or promotes cancer

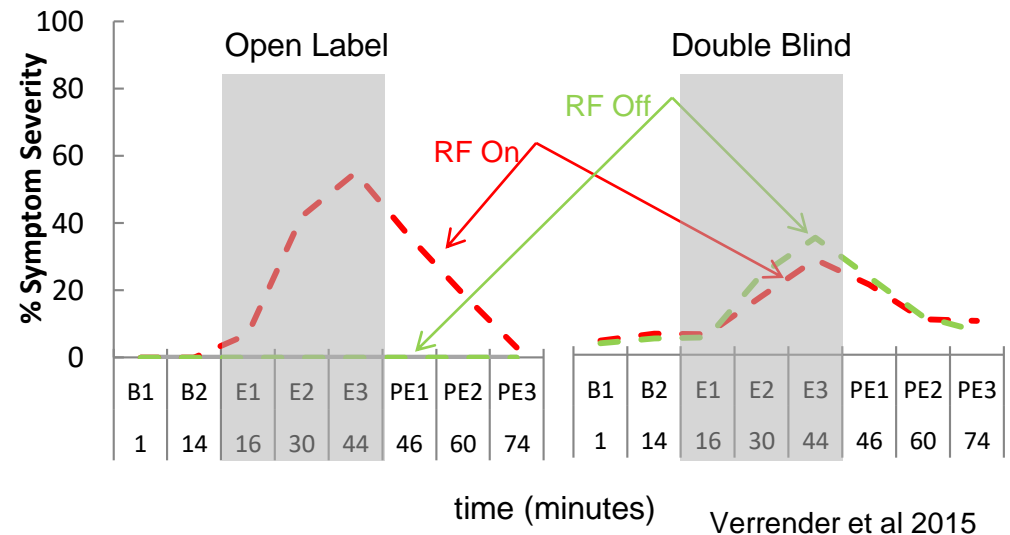


But what about (#3)

- “but the GDLs don’t protect *electro-hypersensitive* people”
 - all potential effects are considered; even though some report RF hypersensitivity, there is no evidence that it is caused by RF
 - indeed, the only strong evidence coming out of this domain is that belief (and not exposure) is sufficient to cause symptoms



EHS sufferer in
“Better Call Saul”



But what about (#4)

- “but why do the GDLs ignore all those studies that show that RF causes harm?”
 - No research is ignored
 - Some excluded because not relevant (e.g. a biological effect without health consequence, such as the RF-EEG effect)
 - Some is not interpretable due to methodological limitations
 - Some has been shown to be erroneous (e.g. by failed replication attempts)
 - i.e. both ‘X’ and ‘NOT X’ cannot be true



But what about (#5)

- “but the GDLs only consider acute effects”
 - reports of both acute and chronic effects are considered; however there is no evidence supporting the claims that there are chronic effects (such as cancer)
 - by basing the restrictions on the only substantiated effects, protection is provided against ALL effects of RF EMF



But what about (#6)

- “but 5G is new and there is no research on that!”
 - This is a misunderstanding of how science works
 - If we have a new brand of tobacco cigarette; we don’t need to spend another 70 years to check if this is safe, we use our scientific understanding to conclude that it is NOT safe
 - This is appropriate



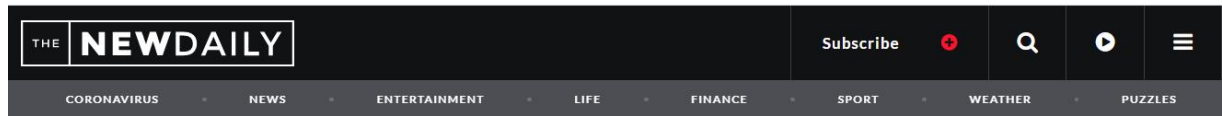
But what about (#7)

- “but 5G is new and there is no research on that!”
 - It is the same with RF-EMF and 5G
 - We have an extensive body of science clarifying how RF-EMF affects the body *as a function of frequency*
 - We have an extensive body of science showing how 5G will differ from 3G/4G in terms of health
 - Science can conclude that 5G is safe



But what about (#8)

- “but I’ve heard on the web that 5G causes coronavirus!”
 - 5G DOES NOT cause or spread coronavirus!!!



One in eight Australians believe 5G is spreading coronavirus

May 19, 2020

