EMF, RF, WiMax, ES, WHO – Acronyphobia in the San Juan Islands

How do we perceive risk? How do we make informed decisions about possible risks in our lives?

The discussion forum on the **San Juan County Broadband** forum on health and safety concerns has been overwhelmed by a single individual posting hundred of links and articles, isolated from context or commentary, many of which are highly technical. It is realistically impossible for an individual to draw any sort of conclusion from this barrage of text. The result of this display of "facts" is to confuse and disempower citizens, and to make it extremely difficult to think clearly about the issue at hand.

To take but one example, the statement "WHO has classified microwave radiation (from cell towers and WiFi) as a Group 2B Possible Carcinogen" has been mentioned numerous times in connection with the discussion of wireless communications technology. This statement is incomplete and presented without background or context.

Some background: the **International Agency for Research on Cancer** (IARC), part of WHO (the **World Health Organization**), conducts and coordinates research on possible sources of cancer.

Group 2B carcinogens is "a category used when a causal association is considered credible, but when chance, bias or confounding cannot be ruled out with reasonable confidence." (Source: http://www.who.int/mediacentre/factsheets/fs193/en/")

Note that the IARC considered individual use of cell phones and portable telephones in this determination, NOT the exposure from broadcast sources of RF [**radiofrequency**] such as cell towers or wi-fi base stations. The exposure of an individual to radiofrequency emissions from a cell phone is vastly greater than that exposure from base station transmitters. "Recent surveys have shown that the RF exposures from base stations range from 0.002% to 2% of the levels of international exposure guidelines, depending on a variety of factors such as the proximity to the antenna and the surrounding environment. This is lower or comparable to RF exposures from radio or television broadcast transmitters." (Source: http://www.who.int/mediacentre/factsheets/fs304/en/index.html)

But back to that scary-sounding "possible carcinogen" rating. In addition to radiofrequency (RF) electromagnetic fields, other Group 2B possible carcinogens include:

- Coffee
- Carbon black (present in large quantities in tires, and constantly released to the atmosphere as they wear)
- Carpentry and joinery (occupational exposure to)
- Cocamide DEA (widely used in personal care products such as soap and shampoo)
- Engine exhaust

- Firefighter (occupational exposure as)
- Pickled vegetables (traditional in Asia)
- Saffrole (from the sassafrass root)
- Talc-based body powder
- Titanium dioxide (widely used in sunscreens)
- Welding fumes (occupational exposure to)

IARC's full list can be read here:

http://monographs.iarc.fr/ENG/Classification/ClassificationsGroupOrder.pdf

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What are the risks to society from these common substances and occupations? How do we decide what risks are acceptable to us as a society? How do we balance real and perceived risks to the individual against the needs of the community?

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I'll use an example of a common environmental hazard: wood smoke. Wood smoke is classified by the IARC as a Class 2A carcinogen: PROBABLY carcinogenic.

Wood stoves are very common, we can see smoke, and no one thinks twice about it. We can't see RF it and therefore can be easy to fear this invisible "radiation." However, wood smoke is quite toxic—as toxic as cigarette smoke. Wood smoke sickens, enfeebles, and kills millions of people, many of them children, every year worldwide. Wood smoke is a major source of air pollution in rural areas such as the San Juans. Why then do we not ban wood stoves and wood burning, when it is so demonstrably hazardous to people and the environment? Is it because it is familiar, historic, and useful? How is our perception of risk from wood stoves so different from the perception of risk from radiofrequency fields?

(Source: **Northwest Clean Air Agency**, "How Wood Smoke Harms Your Health": http://www.nwcleanair.org/pdf/aqPrograms/woodHeating/woodSmokeandYourHealth.pdf)

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Exposure to **electromagnetic fields** (EMF) is unavoidable in our modern world. Common household appliances such as vacuum cleaners and hair dryers "leak" electricity. Weather radar, security systems, TV and radio signals all emit electromagnetic fields. We are all, this very moment, blanketed with radiofrequency emissions from television and radio broadcasts—and have been for many decades. While it may be possible to live an EMF-free life in the US, one would have to go much farther from civilization than the San Juan Islands.

So should we accept a large-scale application of wireless broadband in the county? I think it is wise to discuss the pros and cons of this scheme. I understand that some people fear radiofrequency emissions and do not wish to live near a wi-fi base station. However, there are uncountable risks in life, and it's not possible to avoid them all. As I noted above
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regarding wood smoke, we tend to accept risks that are familiar and personally useful to us, and avoid risks that are unfamiliar and for which we find no utility.

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A final word: some have proposed that we halt development of wireless technologies based on the fact that we can not completely rule out the possibility of harm: the "precautionary principle." But there is a danger in utilizing the precautionary principle: namely, that by describing a *perceived* risk, rather than an *actual* risk, there exists the possibility that the public will perceive a *greater* risk, rather than feeling safer. A study on risk perception by the National Institutes of Health concludes: "Precautionary measures implemented with the intention of reassuring the public about EMF risk potentials seem to produce the opposite effect. They may amplify EMF-related risk perceptions and trigger concerns." (Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1278478/)

Are we dealing with the perception of risk, or the risk itself? It is not difficult for people to become fearful of something they cannot perceive. Another study by the National Institutes of Health on individuals who express symptoms of sensitivity to electromagnetic fields cannot demonstrate that the symptoms are caused by exposure to the fields or simply the the *perception* of exposure. (Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2072835/)

The possibility of broadband access for all the citizens of the San Juans is much too important to be sacrificed because of *fear* of a risk, rather than the possibility of the risk itself.

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