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# Senate Bill 283 Report Overview

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# What is SB 283 (2019)?

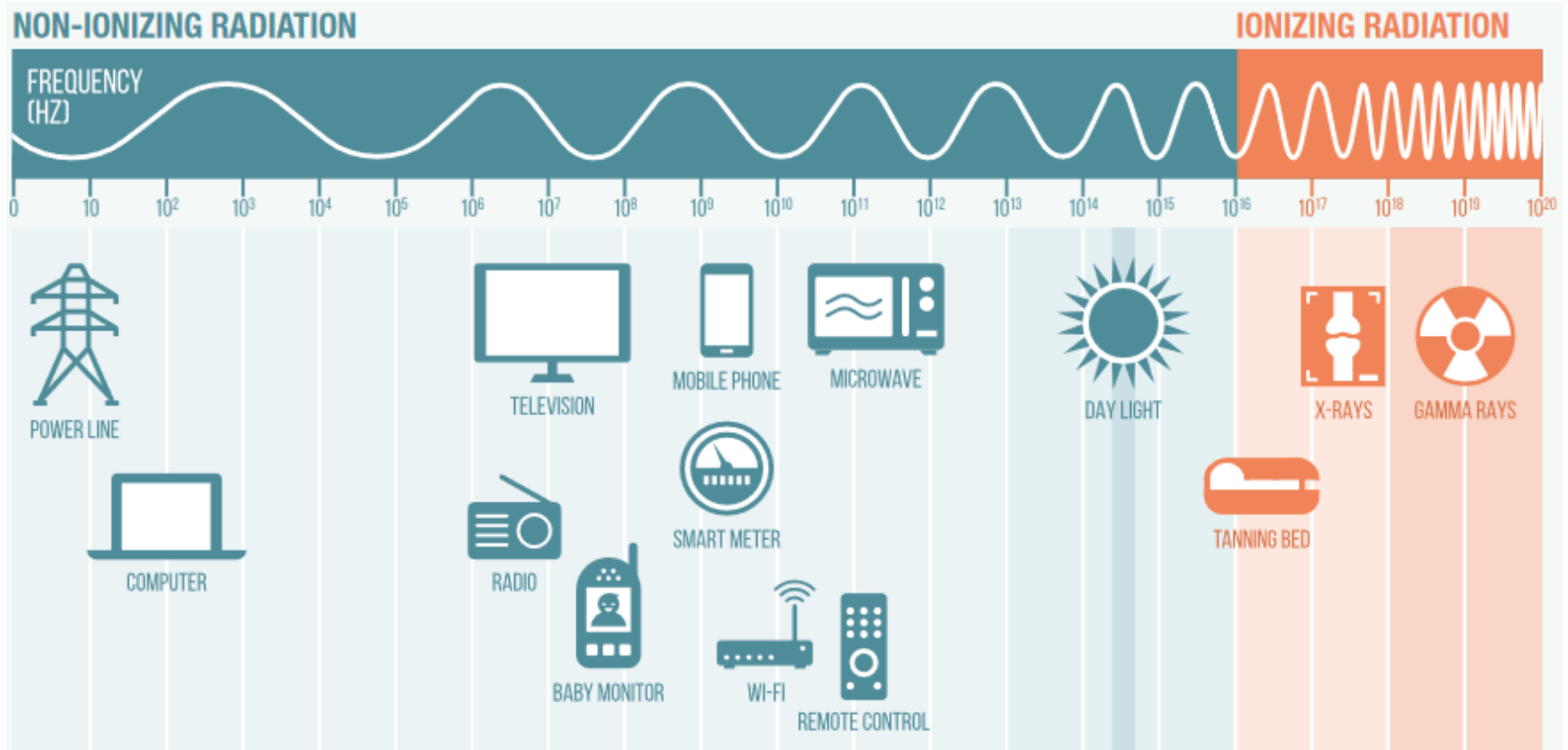
SECTION 1. (1)(a) The Oregon Health Authority shall:

(A) Review peer-reviewed, independently funded scientific studies of the health effects of exposure to microwave radiation, particularly exposure that results from the use of wireless network technologies in schools or similar environments; and

(B) Report the results of the review to an interim committee of the Legislative Assembly related to education not later than January 2, 2021.

(b) The review described in paragraph (a) of this subsection must, at a minimum, consist of a literature review of peer-reviewed, independently funded scientific studies that examine the health effects of exposure to microwave radiation on children.

# What is radiofrequency radiation (RFR)?



# Scope of the Report

- Identified literature search terms that included cancer and noncancer health effects in two search engines, PubMed and IEEE.
- Focused on human studies due to time, resources, and expertise
- Included radiofrequency radiation exposures that could be anticipated in school settings (e.g., cell phones, wireless routers)
- Included studies on children and adults
- Included studies with public, private, or non-profit sector funding sources
- Overall, the report was based on more than 200 peer-reviewed papers

# Cancer Epidemiology Studies

- OHA found insufficient evidence to indicate a causal relationship between cell phone exposures and cancer endpoints.
- Some studies found an association between long-term cell phone use and various brain cancers. However, more studies found no association between long-term use and cancers. There was no consistency among studies.
- Most studies were not able to measure actual RFR for any one person, and relied on personal recollection of habits, translated into exposure measures.

# Noncancer Epidemiology Studies

- Assessed effects on sleep, mental health, reproductive effects, nervous system, brain and cognitive function, and auditory function.
- Most studies lacked actual RFR measurement for any one person and relied on personal recollection of habits, translated into exposure measures.
- Some indication of an effect of RFR on specific brain wave signals when a cell phone was held next to the head for some time. Also, indication of minor effect on sleep in these studies.
- Some reproductive effects in men and women, but studies inconsistent and did not account for many potential confounders.
- Studies on emotions and behavioral health mostly dealt with screen time and could not isolate the effect of RFR by itself.

# National Toxicology Program Animal Study

- Clear evidence of RFR association with tumors in the hearts of male rats and some evidence of RFR association with brain and adrenal gland tumors, also in male rats.
  - Also, exposed male rats at every exposure level lived longer than control rats.
- DNA (genes) damage assessed in three brain areas, liver, and blood cells:
  - Exposure linked with increased DNA damage in the frontal cortex of the brain in male mice, the blood cells of female mice, and the hippocampus of male rats.
- No RFR-related exposure-dependent effects on reproductive parameters examined in mice and rats in the study.
- NTP: Findings in the study on animals cannot be directly applied to humans because the exposure levels and durations were greater than what people may receive from cellphones.

# Limitations

- Did not include a review of animal studies. In follow-up, OHA provided a summary of findings from a large National Toxicology Program study in the FAQs.
  - Need for careful extrapolation between animal and human studies with respect to mechanism and dose. Needs more work from agencies for consensus.
- Included many cellphone exposure studies that are not specific to a school environment.
- Missed some epidemiology studies in the literature
- In its report, OHA repeatedly acknowledges the need for more research on the health effects of RFR radiation, including for varying modes of use.



# Conclusions

- The available epidemiology research examining RFR health effects does not provide sufficient evidence to conclude that RFR exposure in school settings is associated with adverse health effects.
- However, more research is needed.
- This is in line with conclusions on RFR exposures and health by the U.S. Food and Drug Administration and the National Institutes of Health

# Tips to reduce RFR exposure from wireless devices

- Reduce the amount of time spent using the wireless device.
- Increase the distance between personal wireless devices and the body. (e.g., use speakerphone, earpiece, or headset).
- Check the wireless device for the recommended distance to keep away from the body.
- Increase distance from wireless devices. Doubling the distance from a source potentially decreases exposure fourfold.
- Switch from wireless to wired devices.
- If applicable, turn off device or put in “flight mode” when not needed.

# Additional tips for using wireless devices

- Avoid operating wireless devices while driving.
- Avoid staring at your wireless device while on the street and be aware of your surroundings.
- Take frequent breaks from social media and enjoy people, nature, and urban landscapes.
- Do not use wireless devices at least an hour before bedtime and keep devices away from your bed so that you are not tempted to use them if you wake up during the night.
- Download an app or use the “night light” function on your wireless device at night.
- Maintain good neck and back position and look for practices to prevent hand injuries from using these devices.
- Avoid placing a laptop on your lap during use. This can generate a lot of heat that can be harmful to the tissue in its vicinity.

# Resources

- SB 283 report: [www.oregon.gov/oha/erd/documents/SB283-Wireless-Tech-Health-Risks.pdf](http://www.oregon.gov/oha/erd/documents/SB283-Wireless-Tech-Health-Risks.pdf)
- SB 283 report FAQs: [www.oregon.gov/oha/ph/healthyenvironments/radiationprotection/documents/SB\\_283\\_faq.pdf](http://www.oregon.gov/oha/ph/healthyenvironments/radiationprotection/documents/SB_283_faq.pdf)
- Food and Drug Administration: [www.fda.gov/radiation-emitting-products/cell-phones/radio-frequency-radiation-and-cell-phones](http://www.fda.gov/radiation-emitting-products/cell-phones/radio-frequency-radiation-and-cell-phones)
- National Toxicology Program animal study summary: [www.niehs.nih.gov/health/materials/cell\\_phone\\_radiofrequency\\_radiation\\_studies\\_508.pdf](http://www.niehs.nih.gov/health/materials/cell_phone_radiofrequency_radiation_studies_508.pdf)
- National Cancer Institute: [www.cancer.gov/publications/dictionaries/cancer-terms/def/radiofrequency-radiation](http://www.cancer.gov/publications/dictionaries/cancer-terms/def/radiofrequency-radiation)
- World Health organization: [www.who.int/news-room/fact-sheets/detail/electromagnetic-fields-and-public-health-mobile-phones](http://www.who.int/news-room/fact-sheets/detail/electromagnetic-fields-and-public-health-mobile-phones)
- American Cancer Society: <https://www.cancer.org/cancer/cancer-causes/radiation-exposure/radiofrequency-radiation.html>
- Beware of scams: [www.ftc.gov/news-events/press-releases/2011/06/ftc-offers-tips-help-consumers-avoid-cell-phone-radiation-scams](http://www.ftc.gov/news-events/press-releases/2011/06/ftc-offers-tips-help-consumers-avoid-cell-phone-radiation-scams)

# Questions?

# Thank you