

ConnectedHealthInitiative

October 21, 2026

Office of the Assistant Secretary for Health
U.S. Department of Health and Human Services
200 Independence Avenue SW
Washington, District of Columbia 20201

RE: Comments of the Connected Health Initiative on *Request for Information on Electromagnetic Fields (EMFs), Radiofrequency (RF) Radiation, and Wireless Radiation Exposure* [Docket No. HHS-OASH-2026-0397]

The Connected Health Initiative (CHI) submits these comments in response to the request for information (RFI) issued by the Department of Health and Human Services (HHS) on electromagnetic fields (EMFs), radiofrequency (RF) radiation, and wireless radiation exposure.¹ The RFI seeks information on the state of the scientific evidence on RF/EMF exposure and human health, the exposure standards that apply in the United States and abroad, methods for measuring exposure and monitoring health outcomes, and priorities for federal research. CHI appreciates the RFI's stated aim of helping policymakers distinguish established evidence from emerging findings and areas of uncertainty. These comments begin with CHI's general views and then respond to the RFI's questions, identified by number, in order.

I. Introduction and Statement of Interest (Question 2)

CHI is the leading multistakeholder policy and legal advocacy effort dedicated to improving health outcomes while reducing costs through digital health innovation. CHI aims to realize an environment in which Americans see improvements in their health through policies that allow connected health technologies to advance outcomes and reduce costs. Our members develop and deploy connected health technologies across a wide range of use cases, including telehealth platforms, remote physiologic and remote therapeutic monitoring, wearable and implanted devices that transmit health data to clinicians, software as a medical device (SaMD), and clinical decision support. We advocate before Congress, numerous federal agencies, and state legislatures and agencies on coverage and payment, privacy and security, health data interoperability, Food and Drug Administration (FDA) regulation of digital health, and the broadband and spectrum policies that connected care depends on. More information is available at our website at <https://connectedhi.com>.

In response to Question 2, CHI submits these comments as a multistakeholder advocacy organization whose members include device and software developers, healthcare providers, and other organizations that build, deploy, and use connected health technologies, including patient groups. As the RFI requests, CHI's response relies on peer-reviewed research, reports of federal

¹ U.S. Department of Health and Human Services, *Request for Information on Electromagnetic Fields (EMFs), Radiofrequency (RF) Radiation, and Wireless Radiation Exposure*, 91 Fed. Reg. 59792 (Sept. 21, 2026), <https://www.federalregister.gov/documents/2026/09/21/2026-19252/request-for-information-on-electromagnetic-fields-emfs-radiofrequency-rf-radiation-and-wireless>.

agencies and international scientific bodies, and the consensus standards and regulatory frameworks identified below. Nearly every technology our members build or use relies on RF communication, and CHI offers these comments to help HHS reach conclusions that protect public health while preserving patients' access to the connected care that improves it.

II. General Views

a. Wireless Technology is the Foundation of Connected Care

Wireless connectivity is how most connected health technologies reach patients and clinicians. Blood pressure cuffs, pulse oximeters, weight scales, and other remote monitoring devices send readings to the care team over Bluetooth, Wi-Fi, and/or cellular networks. Continuous glucose monitors and connected insulin pumps communicate wirelessly with phones and readers, and implanted pacemakers and defibrillators report device status and heart rhythm data so that clinicians can act on problems before a patient's next office visit. In hospitals, patient monitoring relies on spectrum that the FCC set aside for that purpose in the Wireless Medical Telemetry Service and for Medical Body Area Networks, and FDA reviews the wireless performance, coexistence, and electromagnetic compatibility (EMC) of these devices before they reach the market.² Telehealth visits, which have become a routine part of care, including mental health care and convenient visits for minor illnesses and prescription refills, and are especially important for rural patients and for patients with limited mobility, travel over the same wireless networks.

The benefits of these technologies reach many of the groups the RFI identifies as potentially vulnerable. Children and adolescents with type 1 diabetes rely on continuous glucose monitoring to manage their condition safely at school and overnight, pregnant patients with hypertensive disorders can be monitored at home with readings sent to their clinicians, older adults use connected devices to manage chronic conditions and to summon help after a fall, and patients with implanted cardiac devices benefit from remote monitoring. Clinical guidelines reflect these benefits, with the American Diabetes Association recommending that continuous glucose monitoring be offered to young people with type 1 diabetes, and the leading heart rhythm societies recommending remote monitoring as the standard of care for patients with implanted cardiac devices.³ Congress has also shown interest in broadening access to wearable health technology, including through the WEAR IT Act (H.R. 4203), which would let patients use health savings

² U.S. Food and Drug Administration, *Radio Frequency Wireless Technology in Medical Devices*, Guidance for Industry and Food and Drug Administration Staff (Aug. 2013), <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/radio-frequency-wireless-technology-medical-devices-guidance-industry-and-fda-staff>; U.S. Food and Drug Administration, *Electromagnetic Compatibility (EMC) of Medical Devices*, Guidance for Industry and Food and Drug Administration Staff (June 2022), <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/electromagnetic-compatibility-emc-medical-devices>.

³ American Diabetes Association Professional Practice Committee, 14. *Children and Adolescents: Standards of Care in Diabetes—2026*, 49 Diabetes Care S297 (Supp. 1 2026), <https://doi.org/10.2337/dc26-S014>; Amy M. Ferrick et al., 2023 HRS/EHRA/APHRS/LAHR Expert Consensus Statement on Practical Management of the Remote Device Clinic, 20 Heart Rhythm e92 (2023), [https://www.heartrhythmjournal.com/article/S1547-5271\(23\)02011-8/fulltext](https://www.heartrhythmjournal.com/article/S1547-5271(23)02011-8/fulltext).

accounts and similar tax-advantaged accounts to buy certain wearable devices.⁴ CHI urges HHS to weigh these benefits in each recommendation that results from the RFI, because guidance that discourages the use of medically indicated connected devices would carry health costs of its own.

b. Federal Policy Should Rest on the Weight of the Scientific Evidence

The RFI asks respondents to clearly distinguish established evidence from emerging findings and areas of uncertainty. The established evidence is that RF energy at sufficiently high intensity heats body tissue, and that exposure limits in the United States and internationally are set well below the level at which that effect occurs. Health effects from RF exposure have been studied for decades and are among the most extensively researched topics in environmental health. FDA's 2020 review of the literature published between 2008 and 2018 found insufficient evidence to support a causal association between RF exposure and tumor formation, citing the lack of (i) a clear dose-response relationship, (ii) consistent findings, and (iii) a plausible biological mechanism.⁵ More recent systematic reviews commissioned by the World Health Organization (WHO) reached similar conclusions on cancer and on self-reported symptoms, as discussed in Sections IV and V below. Other bodies that have reviewed the evidence, including the European Commission's Scientific Committee on Health, Environmental and Emerging Risks (SCHEER), have reached the same conclusion.⁶ While in 2011, the International Agency for Research on Cancer classified RF fields as possibly carcinogenic (Group 2B) based largely on limited evidence from case-control studies, the larger and more recent body of evidence reviewed since then has not shown the associations suggested by those studies.⁷

CHI recommends that HHS evaluate the evidence with structured and transparent methods, as called for by the Information Quality Act and Executive Order 14303 on Restoring Gold Standard Science.⁸ For example, HHS can turn to the systematic review approach developed by the National Toxicology Program's Office of Health Assessment and Translation (OHAT), which HHS already uses in other areas of environmental health.⁹ Those methods give weight to studies according to their quality, including the accuracy of the exposure assessment, blinding, replication, and

⁴ Wearable Equipment Adoption and Reinforcement and Investment in Technology (WEAR IT) Act, H.R. 4203, 119th Cong. (2025), <https://www.congress.gov/119/bills/hr4203/BILLS-119hr4203ih.htm>.

⁵ U.S. Food and Drug Administration, Center for Devices and Radiological Health, *Review of Published Literature between 2008 and 2018 of Relevance to Radiofrequency Radiation and Cancer* (Feb. 2020), <https://www.fda.gov/media/135043/download>.

⁶ Scientific Committee on Health, Environmental and Emerging Risks, *Final Opinion on the need of a revision of the annexes in Council Recommendation 1999/519/EC and Directive 2013/35/EU, in view of the latest scientific evidence available with regard to radiofrequency (100kHz - 300GHz)* (Apr. 18, 2023), https://health.ec.europa.eu/system/files/2023-06/scheer_o_044.pdf.

⁷ See Ken Karipidis et al., *The effect of exposure to radiofrequency fields on cancer risk in the general and working population: A systematic review of human observational studies – Part I: Most researched outcomes*, 191 *Environment International* 108983 (2024), <https://doi.org/10.1016/j.envint.2024.108983>.

⁸ 44 U.S.C. § 3516 note (Information Quality Act); Exec. Order No. 14303, *Restoring Gold Standard Science*, 90 Fed. Reg. 22601 (May 29, 2025), <https://www.govinfo.gov/content/pkg/FR-2025-05-29/html/2025-09802.htm>.

⁹ National Toxicology Program, Office of Health Assessment and Translation, *Handbook for Conducting a Literature-Based Health Assessment Using OHAT Approach for Systematic Review and Evidence Integration* (Mar. 2019).

consistency across study types. They also allow the public to see how each conclusion was reached. CHI requests that HHS publish its synthesis of the evidence, including its methods, and seek public comment prior to issuing recommendations to policymakers, families, schools, or communities.

c. A Single, Science-Based National Framework

The United States has long relied on a single federal framework for RF exposure. Under that framework, the FCC sets exposure limits for devices and transmitters, relying on the scientific expertise of federal health agencies and consensus standards bodies, and FDA carries out its responsibilities for electronic product radiation under the Radiation Control for Health and Safety Act and its device authorities.¹⁰ Congress reinforced the national character of this framework when it provided that state and local governments may not regulate the placement of wireless facilities on the basis of RF emissions where those facilities comply with the FCC's rules.¹¹ A uniform approach that moves toward the internationally harmonized exposure limits and compliance testing standards used around the world would give patients and clinicians consistent information, and allow manufacturers, including medical device manufacturers whose products must satisfy both FDA and FCC requirements, to design one product for the national and global markets. CHI encourages HHS to coordinate closely with the FCC, which is now refreshing its own record on RF exposure issues remanded by the D.C. Circuit, so that both agencies' scientific findings contribute to a single federal record and do not reach inconsistent conclusions on the same evidence.¹²

HHS's public communication on RF exposure will reach patients and families who are deciding whether to use a monitoring device, wear a glucose sensor, or accept a recommendation for remote monitoring of an implanted device. CHI asks HHS to keep that communication grounded in the weight of the evidence and to avoid recommending steps to reduce exposure, because such recommendations would suggest a hazard at exposures within current limits unsupported by the evidence and could lead patients to forgo medically indicated technology.

III. Public Experiences and Reported Potential Adverse Health Effects (Questions 3 and 4)

The symptoms that people report deserve clinical attention and research into their causes, but self-reported accounts gathered without blinding cannot establish what caused a symptom. Double-blind provocation studies, in which participants do not know whether a field is present, have repeatedly found that people who report sensitivity to EMFs cannot detect real exposure better than chance and that their symptoms do not track actual exposure. A 2024 WHO-commissioned systematic review of 41 human experimental studies found (i) no effect of RF

¹⁰ 47 C.F.R. §§ 1.1307, 1.1310, 2.1091, 2.1093; 21 U.S.C. §§ 360hh–360ss.

¹¹ 47 U.S.C. § 332(c)(7)(B)(iv).

¹² Federal Communications Commission, Office of Engineering and Technology, *FCC Seeks Comment on RF Exposure Issues Subject to D.C. Circuit Remand in Environmental Health Trust v. FCC*, Public Notice, DA 26-997, ET Docket No. 13-84 (Sept. 17, 2026), <https://docs.fcc.gov/public/attachments/DA-26-997A1.pdf>; *Environmental Health Trust v. FCC*, 9 F.4th 893 (D.C. Cir. 2021).

exposure on self-reported symptoms and (ii) that symptoms were associated with the perception of exposure and not with exposure itself.¹³

CHI recommends that HHS treat submissions under Questions 3 and 4 as insight into public concerns and not as evidence that RF exposure caused the reported symptoms, because controlled research has not shown such a link. The number of similar submissions, many of which may be prepared from shared templates, should not be treated as a measure of scientific weight. Where a reported problem involves a medical device, including electromagnetic interference with a device's operation, the existing MedWatch and Medical Device Reporting systems provide a channel for clinicians, patients, and manufacturers to engage in reporting. HHS should continue to rely on these systems.

IV. Exposure Standards and Risk Assessment (Questions 5 and 6)

a. Frameworks HHS Should Consider (Question 5)

CHI recommends that HHS consider the FCC's RF exposure rules, which draw on standards developed by the National Council on Radiation Protection and Measurements and IEEE, together with the current IEEE standard, IEEE C95.1-2019, and the guidelines that the International Commission on Non-Ionizing Radiation Protection (ICNIRP) updated in 2020.¹⁴ HHS should also consider the consensus measurement standards used to show compliance, including IEC/IEEE 62209-1528:2020 for measuring specific absorption rate (SAR) from devices used near the body, IEC/IEEE 63195-1:2022 and IEC/IEEE 63195-2:2022 for measuring absorbed power density above 6 GHz, and IEC 62232:2025 for assessing exposure near base stations, as well as FDA's guidance on wireless technology and EMC in medical devices and ISO 14117 on the EMC of active implantable cardiac devices. Each of these frameworks was developed through a public, expert-driven process and is revisited as new evidence appears.

These frameworks set their limits by identifying the lowest exposure at which an established adverse effect occurs and then setting the limit well below that level. In the United States, the whole-body SAR limit for the general public is 0.08 watts per kilogram, one-fiftieth of the 4 watts per kilogram threshold associated with adverse effects from heating. The FCC's limit for localized exposure, 1.6 watts per kilogram averaged over 1 gram of tissue, is carried forward from a 1992 consensus standard and differs from the 2.0 watts per kilogram averaged over 10 grams of tissue that IEEE C95.1-2019 and the ICNIRP guidelines specify. Devices are tested for compliance at their maximum power in the positions that produce the highest exposure, even though phones and other

¹³ Xavier Bosch-Capblanch et al., *The effects of radiofrequency electromagnetic fields exposure on human self-reported symptoms: A systematic review of human experimental studies*, 187 *Environment International* 108612 (2024), <https://doi.org/10.1016/j.envint.2024.108612>; see also G. James Rubin et al., *Idiopathic environmental intolerance attributed to electromagnetic fields (formerly "electromagnetic hypersensitivity")*: An updated systematic review of provocation studies, 31 *Bioelectromagnetics* 1 (2010), <https://pubmed.ncbi.nlm.nih.gov/19681059/>.

¹⁴ IEEE Std C95.1-2019, *IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz* (2019); International Commission on Non-Ionizing Radiation Protection, *Guidelines for Limiting Exposure to Electromagnetic Fields (100 kHz to 300 GHz)*, 118 *Health Physics* 483 (2020), <https://www.icnirp.org/en/publications/article/rf-guidelines-2020.html>.

devices adjust their power continuously and in ordinary use operate well below maximum permissible levels.¹⁵

b. Changes to Assessment, Disclosure, and Regulation (Questions 5.n and 5.o)

The weight of the evidence does not show a need for more restrictive exposure limits. Adopting lower limits as a precautionary measure would add no protection, but would suggest to the public a hazard unsupported by evidence. HHS's most useful contribution is scientific, through periodic and systematic reviews of the evidence that HHS shares with the FCC and the public. CHI supports harmonization of U.S. standards and compliance testing methods with the international consensus standards described above, including future alignment of the FCC's localized limit with the IEEE and ICNIRP limit and prompt reflection of updates to the measurement standards in federal compliance requirements. Any change to the limits themselves should continue to occur through FCC notice-and-comment rulemaking informed by the federal health agencies. CHI addresses disclosure under Question 9 below.

On Question 5.o, modern wireless technologies already minimize exposure as a matter of design, because devices transmit at the lowest power needed to maintain a connection and denser networks allow both devices and base stations to transmit at lower power. Because the evidence does not show an adverse effect that further reduction would address, CHI does not see a basis for federal research on new exposure reduction techniques. Any additional research on exposure should focus on well-defined questions, such as better ways to characterize individual exposure in epidemiological studies than participant recall.

c. Classification of Exposure Characteristics (Question 5.p)

The existing dosimetric framework already accounts for most of the characteristics listed in Question 5.p. Limits are expressed as SAR for frequencies up to 6 GHz and as power density at higher frequencies, which reflects how energy is absorbed at different frequencies. Averaging times account for duty cycle and duration of exposure, compliance testing reflects distance from the source and proximity to the body, and FCC procedures require evaluation of simultaneous transmission from multiple radios in one device and of combined exposure at sites with multiple transmitters. The IEEE and ICNIRP standards also include specific provisions for brief and pulsed exposures, and the evidence does not show that pulsed or modulated signals pose different risks from continuous signals of the same time-averaged power. Creating a separate classification system alongside these standards would duplicate them and could confuse the public, regulators, and regulated entities. Where new evidence shows that a characteristic such as modulation or beamforming warrants different treatment, HHS should bring that evidence to the IEEE, ICNIRP, and the FCC so that it can be addressed within the existing standards.

d. Evidence on Effects at or Below Current Limits (Questions 6 and 12)

The existing body of evidence does not establish adverse health effects from exposure at or below current limits. FDA's 2020 review concluded that available epidemiological and cancer incidence data continue to support its determination that there are no quantifiable adverse health effects in

¹⁵ Federal Communications Commission, *Wireless Devices and Health Concerns*, <https://www.fcc.gov/consumers/guides/wireless-devices-and-health-concerns>.

humans caused by exposures at or under the current limits for cell phones. The WHO-commissioned systematic review of human observational studies published in 2024 found moderate certainty evidence that RF exposure from mobile phone use likely does not increase the risk of brain cancer in adults or children, including with long-term use, and found no association between exposure from broadcast antennas or base stations and childhood leukemia or pediatric brain tumors.¹⁶ The COSMOS prospective cohort study likewise found no association between cumulative call time and brain tumors, and the CEFALO study found no association between mobile phone use and brain tumors in children and adolescents.¹⁷ Brain cancer incidence has not risen in the decades during which mobile phone use became nearly universal, which is consistent with those findings.¹⁸

Comments relying on the National Toxicology Program's (NTP) 2018 studies of RF exposure in rodents should be read in light of the exposures those studies used. The rat studies exposed animals over their whole bodies for about nine hours a day at SAR levels of up to 6 watts per kilogram, many times greater than the whole-body limit for the public. FDA evaluated these studies in its 2020 review without changing its conclusions for humans.¹⁹ Parallel two-year studies in the Republic of Korea and Japan designed to test the key NTP findings did not reproduce them, and Germany's Federal Office for Radiation Protection has noted that thermal stress from the high exposures may explain the NTP results.²⁰ A measurable biological response is not by itself evidence of an adverse health effect. Individual studies reporting biological effects at low exposures have not been consistently replicated. HHS should assess any such study under the structured methods described above, giving weight to blinding, dosimetry, independent replication, and dose-response, rather than treating the study as evidence of harm in isolation.

¹⁶ Karipidis et al., *supra* note 7.

¹⁷ Maria Feychting et al., *Mobile phone use and brain tumour risk – COSMOS, a prospective cohort study*, 185 *Environment International* 108552 (2024), <https://doi.org/10.1016/j.envint.2024.108552>; Denis Aydin et al., *Mobile phone use and brain tumors in children and adolescents: a multicenter case-control study*, 103 *Journal of the National Cancer Institute* 1264 (2011), <https://doi.org/10.1093/jnci/djr244>.

¹⁸ National Cancer Institute, *Cell Phones and Cancer Risk Fact Sheet* (reviewed Apr. 4, 2024), <https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet> (describing stable U.S. brain tumor incidence and the results of the COSMOS and CEFALO studies).

¹⁹ National Toxicology Program, *Toxicology and Carcinogenesis Studies in Hsd:Sprague Dawley SD Rats Exposed to Whole-Body Radio Frequency Radiation at a Frequency (900 MHz) and Modulations (GSM and CDMA) Used by Cell Phones*, NTP TR 595 (Nov. 2018); see FDA, *Review of Published Literature between 2008 and 2018*, *supra* note 5.

²⁰ Australian Radiation Protection and Nuclear Safety Agency, *Korean and Japanese studies agree that radiofrequency exposure does not cause cancer in rats* (Jan. 2026), <https://www.arpansa.gov.au/korean-and-japanese-studies-agree-radiofrequency-exposure-does-not-cause-cancer-rats>; Federal Office for Radiation Protection (Germany), *Technical Statement of the Federal Office for Radiation Protection on the Results of the NTP Study*, <https://www.bfs.de/EN/bfs/science-research/emf/statements/ntp-study/ntp-statement.html>.

V. Measuring Human Exposure and Public Health Surveillance (Questions 7 to 11)

a. Exposure Assessment Methods (Questions 7 and 8)

Well-developed methods exist to characterize RF exposure, including standardized SAR measurement using anatomical models and computational dosimetry for devices, in-situ measurement and modeling near base stations under IEC 62232, personal exposure meters that record exposure during daily activities, and network and device data that show how much time devices spend transmitting and at what power. Exposure assessment has improved since the early case-control studies that relied on self-reported phone use, a known source of bias, and the larger and more recent studies reviewed by WHO include cohort studies that avoid that source of bias. CHI also supports continued work through consensus standards bodies and the National Institute of Standards and Technology (NIST) on measurement methods for higher frequencies, where exposure is measured as power density at the body surface.

b. Information for Consumers and Others (Question 9)

Consumers, schools, healthcare providers, and local governments already have access to detailed information on RF exposure. Device SAR values and test results are available through the FCC's equipment authorization records and in device documentation, the FCC publishes consumer guidance on RF exposure, and the labeling of medical devices includes EMC information for clinicians and patients under FDA's guidance. Information on the compliance of wireless facilities is available through the FCC's rules and local permitting processes. Information of this kind is most useful when it explains that the limits are set well below the levels at which established effects occur. CHI cautions against new mandatory warnings, labels, or disclosures that would imply a health hazard that is unsupported by evidence. Such disclosures would not improve public understanding, and some patients could decline or stop using monitoring that their clinicians recommended. Any federal consumer information should be consistent across agencies and with the information provided by WHO and other national health authorities, grounded in the weight of the evidence, and national in scope, so that patients and device makers are not subject to conflicting state and local requirements.

c. Data Sources and Surveillance Systems (Question 10)

Existing systems can support HHS's monitoring needs without the creation of new ones, as CHI explains below for each of the data sources listed in Question 10.

1. Disease registries, including the National Cancer Institute's Surveillance, Epidemiology, and End Results Program and CDC's National Program of Cancer Registries, allow researchers to track cancer incidence over time, and they have been used to show that brain cancer incidence has remained stable as wireless technology use has grown.
2. Occupational monitoring under existing occupational safety programs already addresses workers who may be exposed to higher RF levels, such as those who work near broadcast and telecommunications antennas.
3. Environmental monitoring around base stations is well established, and measurement surveys typically find public exposures far below the limits.

4. Longitudinal cohort studies are costly and take many years, and existing international cohort studies already provide this type of evidence. HHS should rely on them rather than fund new cohorts.
5. Biomonitoring is not suited to RF exposure, because non-ionizing RF energy leaves no chemical residue or biomarker in the body that could be measured.
6. Adverse event reporting for medical devices, through MedWatch and the Medical Device Reporting regulations, already captures problems such as electromagnetic interference, while a new reporting system for general symptoms attributed to RF exposure would collect unverified attributions that could not support conclusions about cause.
7. Disease or illness clusters are prone to chance findings and selection effects, and any investigation of a reported cluster should follow CDC's established methods for cluster assessment.

d. Sensitive Populations (Question 11)

The exposure limits discussed above are designed to protect all members of the public, including children, pregnant women, older adults, and people with health conditions, and the reduction factors built into them account for differences among individuals. The standards bodies have considered research on how children absorb RF energy, and CHI recommends that HHS continue to evaluate exposure for these groups within the existing framework while also weighing the benefits that connected health technologies provide to them, as described in Section II.

For individuals with implanted medical devices, the relevant concern is electromagnetic interference with the device's operation, which is already addressed through FDA's review of device EMC, consensus standards such as ISO 14117, manufacturer testing against common sources of electromagnetic emissions, and labeling that tells patients and clinicians how to use their devices safely. Remote monitoring of implanted cardiac devices, which depends on wireless communication, has become a routine part of care for these patients. For workers with elevated occupational exposure, the FCC's occupational limits and existing workplace safety programs provide the appropriate framework.

VI. Existing Evidence (Questions 13 to 15)

CHI addresses Question 12 together with Question 6 in Section IV.d above.

a. Technologies and Cumulative Exposure (Question 13)

New and evolving technologies should be evaluated against applicable regulatory limits using established measurement methods. Technologies should be assessed according to their actual RF exposure characteristics rather than by technology-generation labels such as 5G or 6G. Each of the technologies listed in Question 13 spans diverse frequencies, power levels, antenna configurations, beamforming, operating modes, network loading, timing, and use cases, and internet of things and smart home devices alone use protocols ranging from Bluetooth to Wi-Fi to cellular. Moreover, each device and transmitter using a specific spectrum technology must comply

with the exposure limits on its own, and sites with multiple transmitters are evaluated for their combined exposure.

For most people, the largest share of RF exposure comes from a device held or worn close to the body, which is why near-field and localized measurement methods such as IEC/IEEE 62209-1528 matter most for phones and wearables, while exposure from distant infrastructure and satellites is much lower. 5G networks, including those that use millimeter-wave frequencies, are expressly covered by ICNIRP's 2020 guidelines and subject to the same limits, as will be any new frequencies or waveforms used in future networks such as 6G, which the FCC and the consensus standards bodies can evaluate through their existing processes as those technologies are developed and deployed. At millimeter-wave frequencies energy is absorbed in the outer layers of the skin, which is why limits there are expressed as power density, and denser networks of small cells allow devices and base stations to transmit at lower power. Wi-Fi equipment, smart meters, internet of things devices, smart home products, and wearables use low power and often transmit intermittently,²¹ so their exposure is best measured over time based on how each device actually operates, including its distance from the user, duty cycle, and frequency band, because Wi-Fi equipment and many other devices can operate across several bands. Wireless medical devices are subject to FCC exposure rules and to FDA review, and those operating in the bands set aside for medical use operate at low power by design. CHI urges HHS not to equate the growing number of wireless devices with a proportional increase in exposure, because newer technologies often lower the power at which each device must transmit.

b. Environmental Effects (Question 14)

CHI's expertise is in human health and the delivery of care, and CHI defers to other respondents with expertise in ecology and agriculture on Question 14 and on Question 15.e. CHI notes that the FCC is reviewing the environmental issues remanded by the D.C. Circuit, and asks HHS to apply to any environmental evidence the same standards of study quality, dosimetry, and replication that it applies to human health evidence. A recent systematic map of the environmental literature found that the studies reporting adverse effects on plants and animals were of poor quality, while the good-quality studies found no adverse effects.²²

c. Wireless Infrastructure (Question 15)

RF exposure from infrastructure falls off rapidly with distance, and antennas are directional, so exposure at ground level near homes, schools, childcare facilities, healthcare facilities, and workplaces is typically a small fraction of the limits. Because proximity is a poor proxy for exposure, installation-specific measurement under IEC 62232 is a more reliable basis for evaluating a site than distance-based rules. Compliance is assessed for the combined exposure at each site, including where antennas are dense or where small cells are deployed. Reliable wireless infrastructure is itself important to health, because hospitals and clinics depend on dense, reliable

²¹ See Centers for Disease Control and Prevention, Facts About Wearable Technology (describing wearables as using low-powered RF transmitters that expose users to RF levels below applicable exposure limits), <https://www.cdc.gov/radiation-health/data-research/facts-stats/wearable-technology.html>.

²² Australian Radiation Protection and Nuclear Safety Agency, *Good quality research shows no environmental effects from radio waves* (Aug. 22, 2024), <https://www.arpansa.gov.au/good-quality-research-shows-no-environmental-effects-radio-waves>.

coverage for patient monitoring, care coordination, and emergency communications, and patients in rural and underserved areas depend on wireless networks for telehealth and remote monitoring. CHI asks HHS to account for these benefits in any evaluation of infrastructure deployment near healthcare facilities and in the communities they serve.

VII. Federal Research Priorities (Questions 16 and 17)

a. Research Gaps (Question 16)

The questions the RFI raises about health effects within current limits have been studied extensively, including in the research reviewed by FDA and WHO. A new federal research program on those questions would suggest to the public an uncertainty unsupported by the evidence while drawing funds from health research with greater benefit. CHI recommends that HHS instead rely on the existing body of evidence and focus any federal work in this area on targeted questions such as the following:

1. Support for consensus standards bodies and NIST on measurement and compliance methods for higher frequencies and for devices worn on or implanted in the body, including personal dosimeters that cover the bands used for 5G.
2. Periodic systematic reviews of the existing evidence conducted under preregistered protocols, building on the reviews WHO has commissioned, together with continued cancer surveillance through existing registries.
3. Research into the causes of symptoms that people attribute to RF exposure, which would help those individuals receive effective care and can improve how HHS explains RF exposure to the public.
4. Research on the EMC and wireless coexistence of medical devices in increasingly crowded spectrum, which bears directly on patient safety.
5. Research that measures the health benefits of connected care, so that HHS can weigh any exposure-related recommendation against its effect on patients' access to care.

b. Coordination Among Federal Health Agencies (Question 17)

CHI recommends that HHS assign roles according to each agency's existing authority and expertise. FDA, through the Center for Devices and Radiological Health, should continue to lead HHS's work on electronic product radiation and on the wireless performance and EMC of medical devices, and should continue to serve as a source of scientific advice to the FCC. The National Institutes of Health, including the National Institute of Environmental Health Sciences, the National Toxicology Program, and the National Cancer Institute, should apply the systematic review methods described above to the existing evidence, and any research NIH funds should use validated exposure systems with documented dosimetry and temperature control at exposure levels relevant to real-world conditions. CDC should support analysis of existing registries and the investigation of any reported clusters using its established methods, and should keep its public materials consistent with the conclusions of FDA and the international scientific bodies. HHS should coordinate this work with the FCC, NIST, the National Telecommunications and Information Administration, and the Occupational Safety and Health Administration through a single

interagency process, support continued U.S. participation in the WHO International EMF Project, ICNIRP, and the IEEE International Committee on Electromagnetic Safety, and publish any research plans for public comment before it commits funds.

VIII. Additional Information (Question 18)

CHI asks HHS to consider WHO's ongoing health risk assessment of RF exposure, which draws on the systematic reviews WHO commissioned, along with the assessments of other national authorities that have reviewed the same evidence. CHI also asks HHS to give full weight to the health benefits of the connected technologies discussed throughout these comments, and to publish its findings, with its methods, for public comment before it makes recommendations that could affect how patients, families, schools, and healthcare providers use wireless technology.

IX. Conclusion

CHI appreciates the opportunity to respond to HHS's RFI and urges HHS to consider the recommendations above as it assesses the evidence on RF/EMF exposure and human health. We look forward to working further with HHS and other stakeholders and would be pleased to discuss any of these recommendations in greater detail, including how public-facing materials on RF exposure could affect patients' use of connected health technologies.

Sincerely,



Brian Scarpelli
Executive Director

Chapin Gregor
Policy Counsel

Connected Health Initiative
1401 K St NW (Ste 501)
Washington, DC 20005
p: +1 517-507-1446
e: bscarpelli@healthismobile.org