From: A Tsiang
Objet: Updated: Alzheimer's, Neurological Disease Deaths in US Increase 5-fold! from 1989 to 2015 - Wireless Radiation Implicated
Date: 15 juin 2019 à 03:14:45 UTC–4
À: undisclosed-recipients:;

Updated with new charts with data from 2015 included below.

Neurological diseases have exploded in the last 25 years, confirmed by epidemiological data. UK epidemiologist Colin Pritchard et al published 2 studies - one in 2015 http://surgicalneurologyint.com/surgicalint_articles/neurological-deaths-of-american-adults-55-74-and-the-over-75s-by-sex-compared-with-20-western-countries-1989-2010-cause-for-concern/ and one recently in 2019 https://www.sciencedirect.com/science/article/pii/S0306987719300040 - that showed that deaths due to neurological diseases like Alzheimer's and dementia were skyrocketing in 21 Western countries, with the increases in the United States being particularly acute. The 2015 study found that **people were developing dementia a decade earlier compared to 20 years ago (2010 vs. 1990) and that it was becoming regularly diagnosed in people in their late 40s, with death rates from early onset dementia soaring.** The Washington Post had reported on the 2015 study https://www.washingtonpost.com/world/people-are-developing-dementia-earlier-and-dying-of-it-more-a-study-shows/2015/08/06/599b16b8-3c0a-11e5-8e98-115a3cf7d7ae_story.html?wprss=rss_world

The 2015 study found that **deaths caused by neurological disease had risen significantly in adults aged 55 to 74 and more than doubled in the over-75 population overall in 21 countries, with the highest neurological disease death rates in Finland and USA. But** the rate of increase for the USA was much worse, **where neurological deaths in men aged over 75 have nearly tripled and in women increased more than fivefold in 2010 compared to over 20 years ago in 1989-1991 Back in 1989-1991, USA used to be ranked #17 for neurological deaths in the age 55-74 group and #8 for the age >75 group, but starting in 2010, USA increased to the rank of #2 in both age groups.** *"The rate of increase in such a short time suggested a silent or even a hidden epidemic,*

in which environmental factors must play a major part, not just aging." The environmental factors cited included chemical pollution and increased background electromagnetic fields (which includes wireless radiation).

The 2019 study confirmed the findings of the 2015 study, except now that the total neurological disease death rates are higher than they were in the 2015 study for nearly all 21 countries. **From 1989-91 to 2015, USA neurological disease death rates has doubled in the age 55-74 group , and increased about 5-fold in age ≥ 75 group!** Pritchard et al hypothesize that based on the existing substantial scientific evidence that show neurological effects from EMF, which includes wireless radiation, that the increases in the last two decades in autism, dyslexia, Attention Deficit Hyperactivity Disorder and neurological diseases, such as Amyotrophic Lateral Sclerosis, Multiple Sclerosis, Parkinson's Disease, Early Onset Dementia, Multiple System Atrophy and Progressive Supranuclear Palsy are due to an effect of wireless radiation triggering genetically predisposing factors and working synergistically with many environmental chemical pollutants in causing biological harm, i.e. *"increased background EMF that has become the tipping point-impacting upon any genetic predisposition, increasing multiple-interactive pollutants, such as rises in petro-chemicals, hormone disrupting chemicals, industrial, agricultural and domestic chemicals.* ***The unprecedented neurological death rates, all within just twenty-five years, demand a re-examination of long-term EMF safety related to the increasing background EMF on human health.*** *The pace of increased neurological deaths far exceeds any Gompertzian explanation - that because people are living longer they are more likely to develop more age-related problems such as neurological disease. "*

Increases in Total Neurological Disease Deaths (TND) is not due to an aging population

From Table 2 in the 2019 study, in the U.S. from 1989 to 2015, the population increase in age 75 and up was 50%, but the increase in total neurological disease (TND) death rates was 438%. According to the study, if the increases in total TND deaths were due to only the increases in an aging population (the Gompertzian explanation), then these increases would be closer in magnitude. This same pattern, where the increases in the TND deaths far outpaces the increase in population, is also seen in the

other countries with the highest rates of TND, like Finland, Canada, UK, and Denmark.

How many people do you know have cancer, Alzheimer's or dementia, anxiety or depression, ADHD or autism?

On a personal note, I have close friends and family members with cancer, some who have died, and some who got cancer in their 30s. I can count about 7 friends who have lost parents to Alzheimer's/dementia or whose parents currently have it. I have even more friends and family members with anxiety, depression, or bipolar disorder. I know several children with ADHD or autism or a learning disorder. I don't remember things being this bad 20 years ago, but this is the new normal now, and it's getting worse.

Graphs show how the problem has worsened in the last 25 years and how pronounced it is in the U.S.

Both studies had tables of data, but no graphs of the data. Dr. Karl Maret and Angela Tsiang provided the graphs below using data from the tables in the studies. The graphs show how clearly how severely the problem has increased in the last 25 years and how high the U.S. is relative to other countries.

1) Increases in Neurological Disease Deaths over a 20-year period are much higher in US than 20 country average

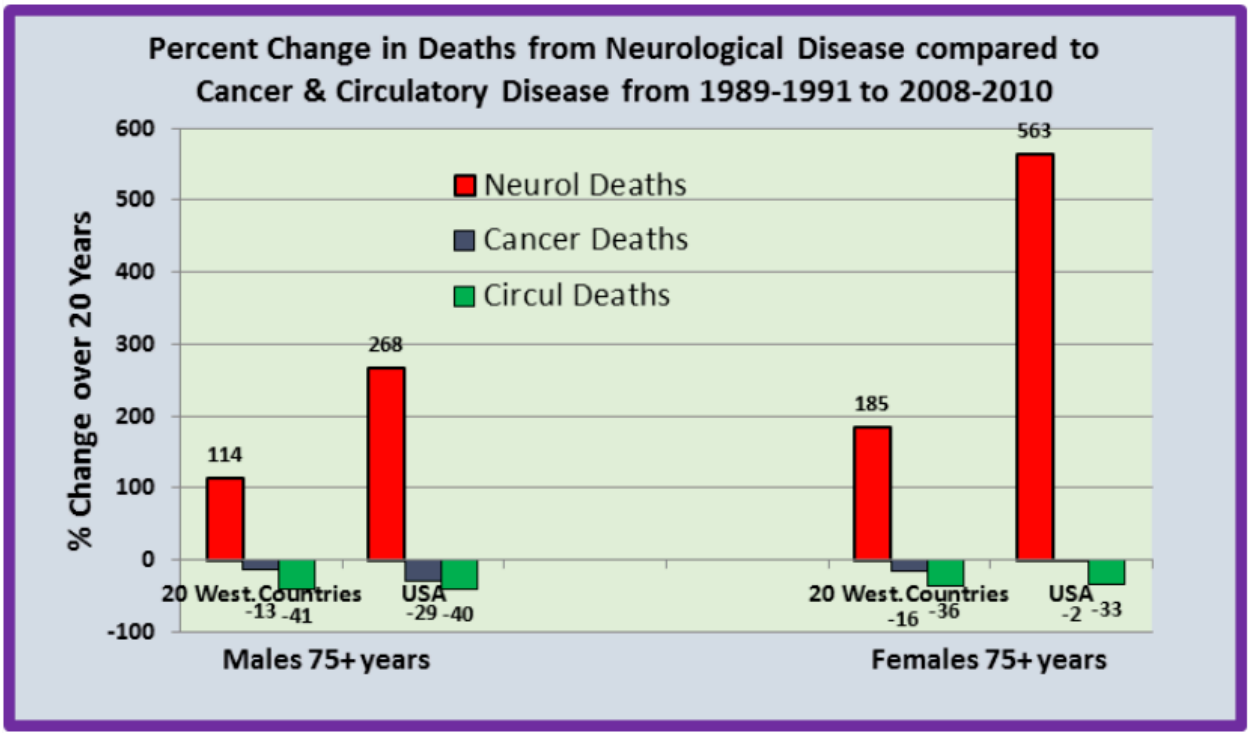
Dr. Karl Maret, **MD, BS Electrical Engineer, MS Biomedical Engineer,** supplied the 2 plots below.

Dr. Maret's charts show that there is a real problem in the US with higher %Neuro disease death increases despite comparable decreases in Cancer and Circulation disease deaths (e.g. heart disease) in US and other countries.

a) Age>75 group

in the USA, the increase in Neuro. Deaths in Males>75 years old was 268% compared to 114% for all other western countries combined.

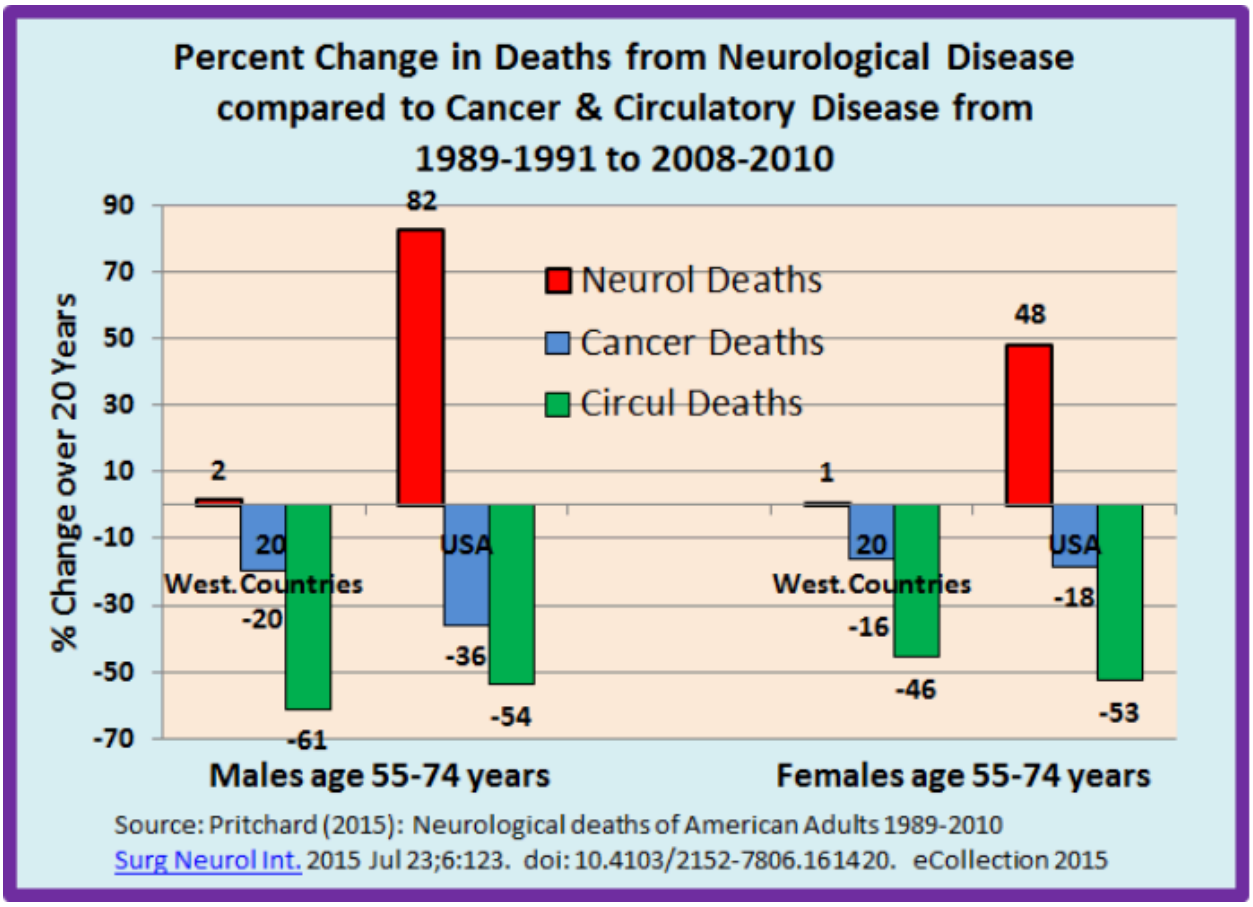
in the USA, the increase in Neuro. Deaths in females>75 years old was 563% compared to 185% for all other western countries combined.



b) Age 55-74 group

in the USA, the increase in Neuro. Deaths in Males 55-74 years old was 82% compared to 2% for all other western countries combined.

in the USA, the increase in Neuro. Deaths in females 55-74 old was 48% compared to 1% for all other western countries combined.

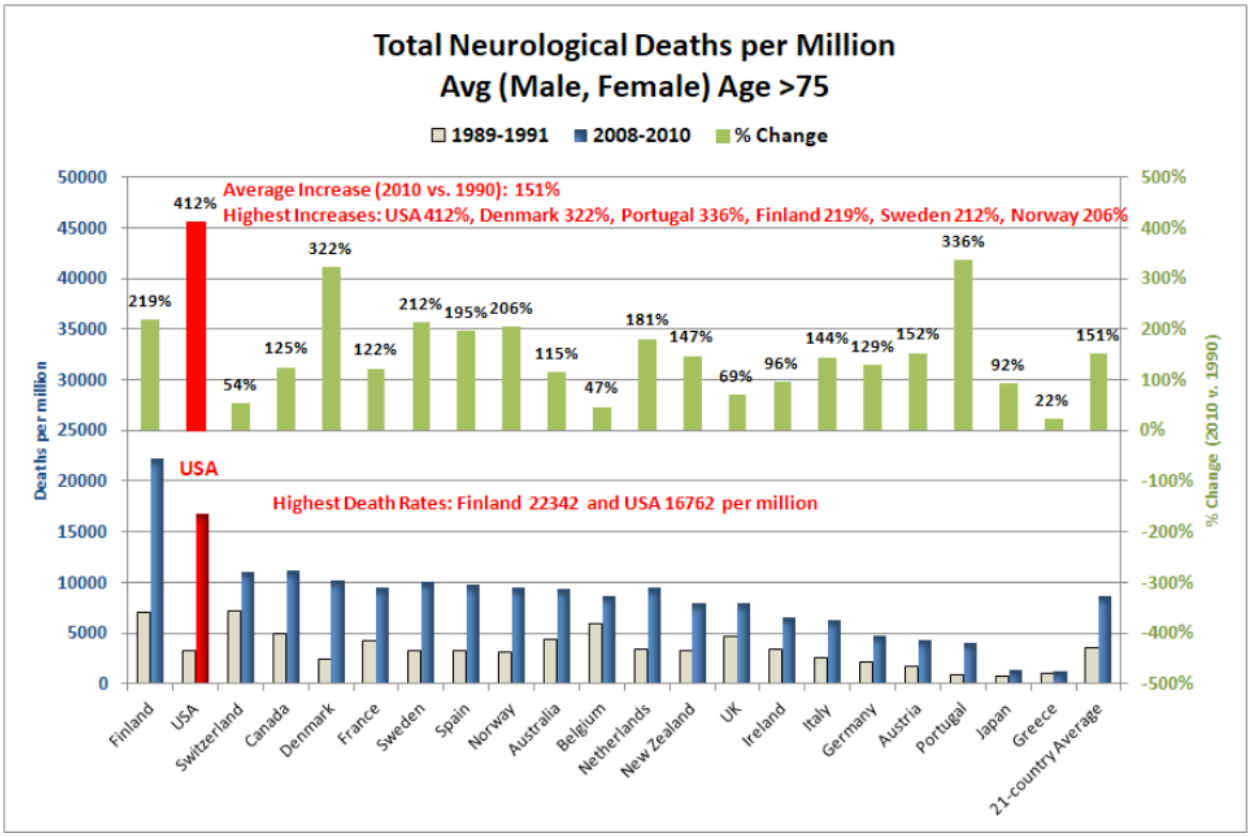


2) Increases in Neurological Disease Deaths: US Ranked #2 out of 21 countries in 2010 in all age groups.
(US: 594 deaths per million in age 55-74, 16,762 deaths per million in age 55-74)

The 2 plots below were provided by Angela Tsiang, BS Chemical Engineer.

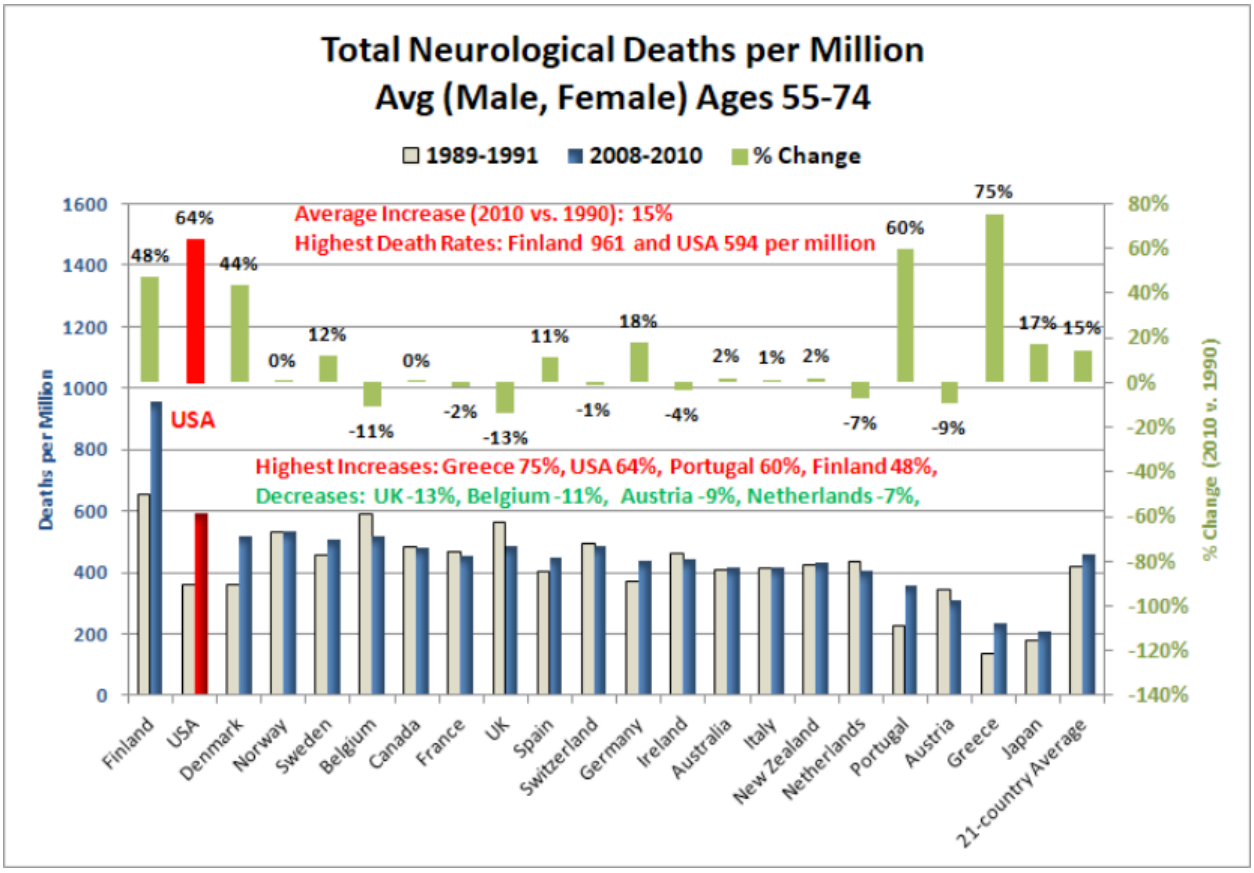
a) Data by Country, age > 75 for 1989-91 to 2008-2010.
(Data from Table 2 of the 2015 study)

US Data in red below on the chart. US has increased 412% from 1989 to 2010, the highest increase.
Highest Increases: USA 412%, Denmark 322%, Portugal 336%, Finland 219%, Sweden 212%, Norway 206%
Overall Average Increase: 151%!



b) Data by Country, age 55-74 for 1989-91 to 2008-2010.
(Data from Table 1 of the 2015 study)

US Data in red below on the chart. US has increased 64% from 1989 to 2010, the second highest increase.
Highest Increases: Greece 75%, USA 64%, Portugal 60%, Finland 48%, Denmark 44%
Decreases: UK -13%, Belgium -11%, Austria -9%, Netherlands -7%, France -2%, Ireland -4%
Overall Average Increase: 15%



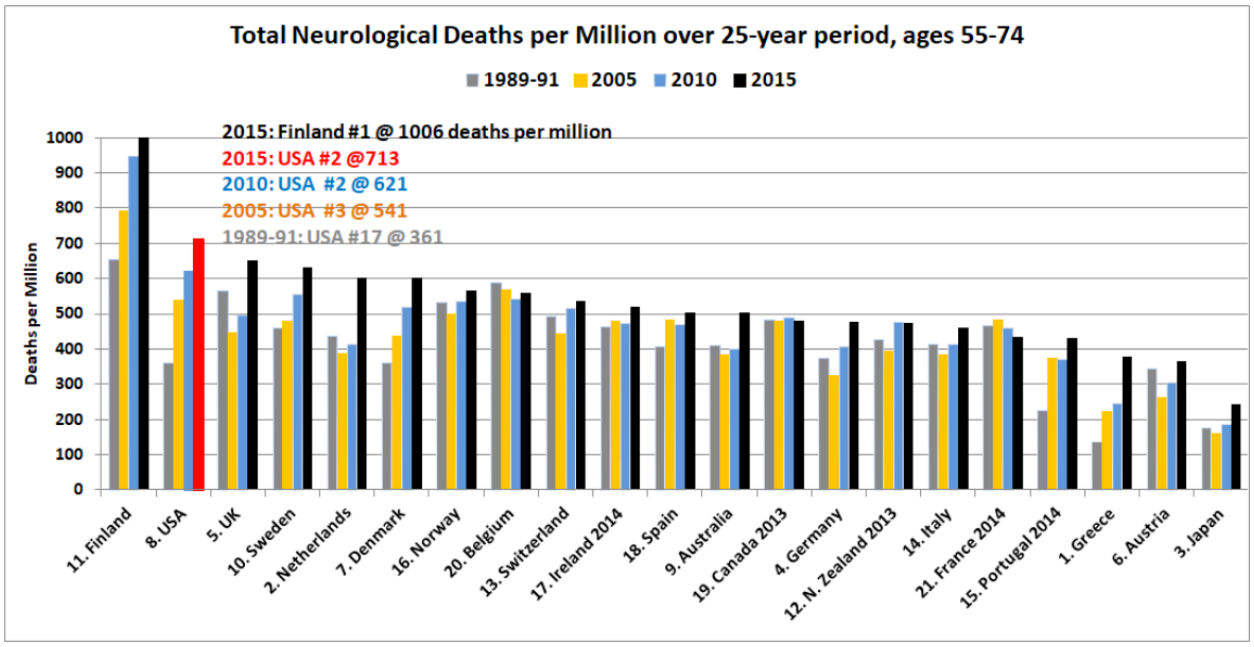
3) In 2010 and 2015, USA ranked # 2 out of 21 countries in all age groups. (In 2005, USA was #3.)

But 25 years ago in 1989, USA was #17 in age 55-74 group and #8 in age 75 and over group!

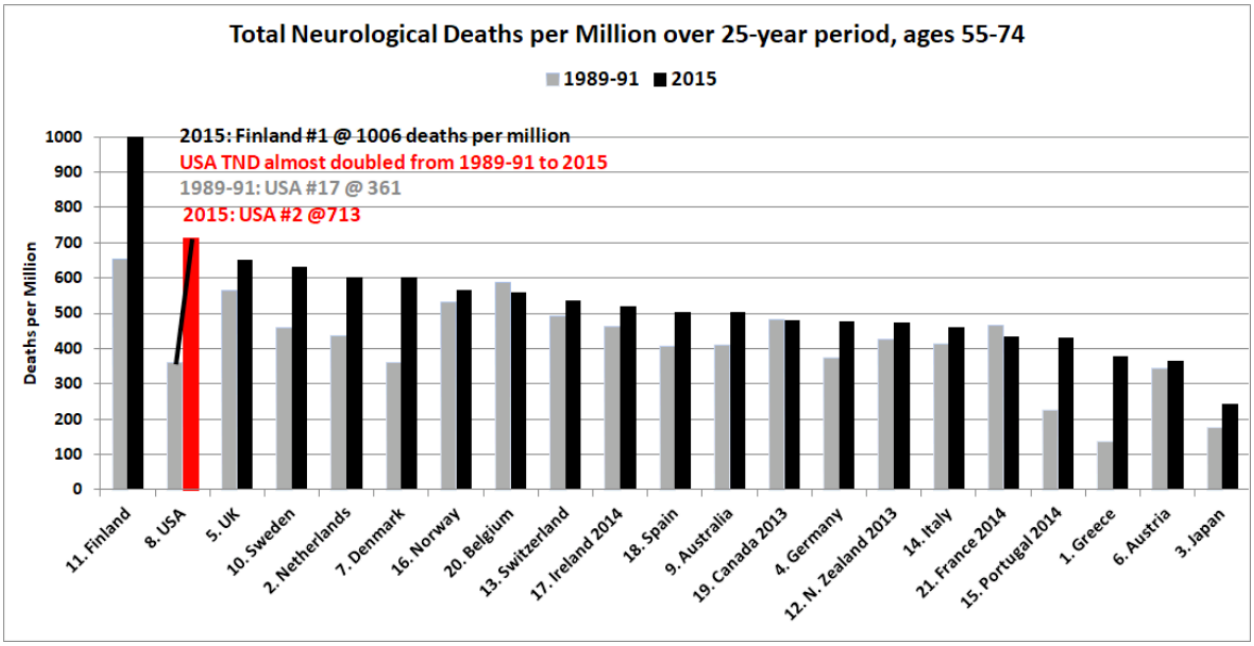
From 1989-91 to 2015, USA TND has doubled in age 55-74 group , and increased almost 5-fold in age ≥ 75 group.

(see bottom 2 charts)

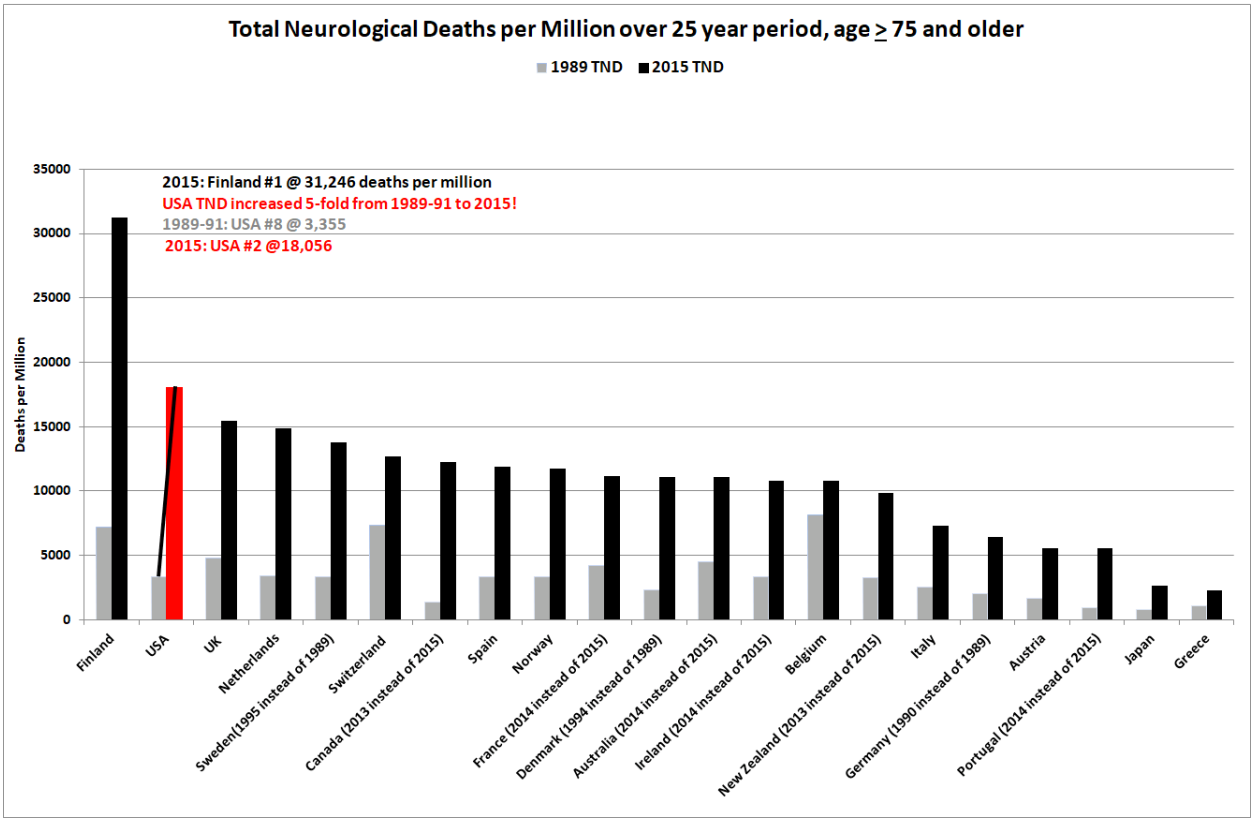
a) Data by Country, for 1989-91 to 2015, Ages 55-74.
(Data from Table 1 of the 2015 study and Table 3 of the 2019 study)
Appears all countries are showing increasing trend in TND, except for Belgium and France:



U.S. TND has doubled in ages 55-74. **Same as above, but only 1989-91 and 2015 data included:**



b) Data by Country, for 1989-91 to 2015, Age 75 and older. US TND has increased 5-fold!
(Data from Table 2 of the 2019 study)



Dr. Gerd Oberhard, Public Health Dept. of Salzburg, Austria, specifically warned about the effects of RF radiation including neurodegenerative diseases years ago, here https://www.youtube.com/watch?v=tChkIBpj06k

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Below are 10+ studies showing effect of Wi-Fi and cell phones on anxiety, depression, neurodegeneration, memory and/or learning.

1) Anxiety and OCD is an effect of diminished blood flow to brain https://www.ncbi.nlm.nih.gov/pubmed/?term=PMID%3A+8564319

Cell phone radiation can cause diminished blood flow in the brain, as shown in Aalto et al. "Mobile phone affects cerebral blood flow in humans". J Cereb Blood Flow Metab 2006;26(7):885–90 Full text http://journals.sagepub.com/doi/pdf/10.1038/sj.jcbfm.9600279

Belpomme's study (p. 260) says that diminished blood flow to the brain (hypoperfusion) is a biomarker for EHS http://ehs-mcs.org/fichiers/1454070991_Reliable_biomarkers.pdf
Heuser's study found that 7 out of 10 people with EHS had diminished blood flow to the brain https://www.afm-sicem.fr/images/images/Reviews%20on%20Environmental%20Health%20Functional%20brain%20MRI%20in%20patients%20complaining%20of%20electrohypersensitivity%20after%20long%20term%20exposure%20to%20electromagnetic%20fields.pdf

2) Mortazavi et al, 2011. The Pattern of Mobile Phone Use and Prevalence of Self-Reported Symptoms in Elementary and Junior High School Students in Shiraz, Iran. Iran J Med Sci June 2011; Vol 36 No 2

In a study of 469 healthy elementary and junior high school students, statistically significant higher prevalence of self-reported symptoms such as headache (P=0.009, table 1), myalgia (P=0.0002, table 2), palpitation (P=0.0001, table 2), fatigue (P=9×10-8, table 2), attention problems (P=0.0002, table 3) and nervousness (P=9×10-8, table 3) was found in students who had used mobile phones compared to those never used these phones. Furthermore, a statistically significant association was found between the time mobile phones were used in talk mode and the number of headaches per month (P=0.035), number of vertigo per month (P=0.036), number of sleeping problem per month (P=0.002), or even the site of headache (P=0)

Full Text https://www.researchgate.net/publication/215654709_The_Pattern_of_Mobile_Phone_Use_and_Prevalence_of_Self-Reported_Symptoms_in_Elementary_and_Junior_High_School_Students_in_Shiraz_Iran

3) Pall, M. "Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression" Journal of Chemical Neuroanatomy 75 (2016) 43–51

"Soviet and Western literature shows that much of the impact of non-thermal microwave exposures in experimental animals occurs in the brain and peripheral nervous system... These may be generated through roles of VGCC activation, producing excessive neurotransmitter/neuroendocrine release as well as oxidative/nitrosative stress and other responses… Excessive VGCC activity has been shown to have roles in producing neuropsychiatric changes in humans. Two U.S. government reports from the 1970s to 1980s provide evidence for many neuropsychiatric effects of non-thermal microwave EMFs, based on occupational exposure studies. 18 more recent epidemiological studies, provide substantial evidence that microwave EMFs … can each produce similar patterns of neuropsychiatric effects…Among the more commonly reported changes are sleep disturbance/insomnia, headache, depression… fatigue/tiredness…concentration/attention dysfunction, memory changes, dizziness, irritability, loss of appetite... restlessness/anxiety, nausea, skin burning/tingling/dermographism and EEG changes. In summary, then, the mechanism of action of microwave EMFs, the role of the VGCCs in the brain, the impact of non-thermal EMFs on the brain, extensive epidemiological studies performed over the past 50 years, and five criteria testing for causality, all collectively show that various non-thermal microwave EMF exposures produce diverse neuropsychiatric effects."

Full Text https://www.researchgate.net/publication/281261829_Microwave_frequency_electromagnetic_fields_EMFs_produce_widespread_neuropsychiatric_effects_including_depression

Another similar review paper by Pall in 2018, focusing only on health effects and neuropsychiatric effects from Wi-Fi, "Wi-Fi is an Important Threat to Human Health" Environmental Research Volume 164, July 2018, Pages 405-416 https://www.sciencedirect.com/science/article/pii/S0013935118300355

4) Buchner and Eger, 2011. A study done on a German town (Rimbach) of 60 people before (Jan/Feb 2004) and after (thru July 2005) a cell tower installation showed statistically significant effects on neurotransmitters at peak cell phone signal exposure levels of 60-100 uW/m2. Noradrenaline and adrenaline INCREASED, while dopamine and PEA DECREASED. Noradrenaline and adrenaline going up signify increased stress levels (or increased anxiety), and dopamine going down decreases ability to concentrate, and decreased PEA is implicated in ADD as low PEA appears in a large proportion of ADD (Ritalin, a chemical similar to PEA, is used in ADD treatment).

Study also says that children and chronically ill are more vulnerable to effects of wireless radiation, and that exposure to other wireless signals such as Wi-Fi amplifies the effects of the cell phone radiation on noradrenaline, adrenaline in children and the chronically ill (people with allergies)

Full text https://ecfsapi.fcc.gov/file/7520941673.pdf

5) Dasdag et al. "Effects Of 2.4 Ghz Radiofrequency Radiation Emitted From Wi-Fi Equipment On microRna Expression In Brain Tissue." *International Journal of Radiation Biology*, vol. 16, 2015, pp. 1-26.

Study showed that "long-term exposure of 2.4 GHz Wi-Fi may lead to adverse effects such as neurodegenerative diseases originated from the alteration of some miRNA expression. Results were statistically significant. Long Term exposure [24 hours a day for 1 year] to 2.4 GHz Wi-Fi radiation can alter expression of some of the miRNAs such as miR-106b-5p (adj p * _ 0.010) and miR-107 (adj p * _ 0.005). We observed that mir 107 expression is 3.3 times and miR-106b-5p expression is 3.65 times lower in the exposure group than in the control group. "

Full Text https://www.researchgate.net/publication/273637962_Effects_of_24_GHz_radiofrequency_radiation_emitted_from_Wi-Fi_equipment_on_microRNA_expression_in_brain_tissue

6) Saikhedkar N, et al. Effects of mobile phone radiation (900 MHz radiofrequency) on structure and functions of rat brain. Neurological Research, vol. 2, no. 6, 2014, pp. 2499-504.

Rats (age 30 days, 120 ¡ 5 g) were exposed to 900 MHz radio waves (cell phone) at an average SAR of 0.99 W/kg by means of a mobile hand set for 4 hours per day for 15 days. [Cell phones sold in the US are not to exceed a SAR of 1.6W/kg] "*A significant change in behavior, i.e., more anxiety and poor learning was shown by test animals as compared to controls and sham group. A significant change in level of antioxidant enzymes and nonenzymatic antioxidants, and increase in lipid peroxidation were observed in test rats. Histological examination showed neurodegenerative cells in hippocampal sub regions and cerebral cortex. Discussion: Thus our findings indicate extensive neurodegeneration on exposure to radio waves. Increased production of reactive oxygen species due to exhaustion of enzymatic and non-enzymatic antioxidants and increased lipid peroxidation are indicating extensive neurodegeneration in selective areas of CA1, CA3, DG, and cerebral cortex. This extensive neuronal damage results in alterations in behavior related to memory and learning."*

"A neuronal damage of the kind described here may not have immediate demonstrable consequences, but in the long run it may result in reduced brain reserve capacity that might be unveiled by other late neuronal diseases. We cannot exclude the possibility that after some decades of daily (often) use, a whole generation of users may suffer from the negative effects, perhaps as early as in middle age."

Full Text https://www.researchgate.net/publication/273950390_effect_of_mobile_phone_radiation_on_structure_and_functions_of_the_brain

7) Varghese, Rini, et al. "Rats exposed to 2.45 GHz of non-ionizing radiation exhibit behavioral changes with increased brain expression of apoptotic caspase 3." Pathophysiology (2017).

Rats were exposed to 2.45 GHz Wi-Fi for 4 h/day for 45 days at 7.88W/m2 (=788uW/cm2) [FCC limit is 1000uW/cm2 for 30 minutes, so exposure within US limits]

"*The exposed rats elicited memory decline and anxiety behavior. Exposure decreased activities of super oxide dismutase, catalase and reduced glutathione levels whereas increased levels of brain lipid peroxidation was encountered in the radiation exposed rats, showing compromised anti-oxidant defense. reduction in number of dendritic branching and intersections which corresponds to alteration in dendritic structure of neurons, affecting neuronal signaling. The study clearly indicates that exposure of rats to microwave radiation of 2.45 GHz leads to detrimental changes in brain leading to lowering of learning and memory and expression of anxiety behavior in rats along with fall in brain antioxidant enzyme systems.*"

Full Text http://www.pathophysiologyjournal.com/article/S0928-4680(17)30052-4/pdf

8) Zhang, Jet al, 2017. Effects of 1.8 GHz Radiofrequency Fields on the Emotional Behavior and Spatial Memory of Adolescent Mice. International Journal of Environmental Research and Public Health. **2017**, 14, 1344; doi: 10.3390/ijerph14111344

4 week exposure to 1.8GHz at 2.2 W/kg in mice increased anxiety-like behavior in rats. GABA levels decreased significantly after RF exposure.

Full Text https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5707983/pdf/ijerph-14-01344.pdf

9) Kim, Ju Hwan, et al. "Long-term exposure to 835 MHz RF-EMF induces hyperactivity, autophagy and demyelination in the cortical neurons of mice." Scientific Reports, vol. 7, no. 41129, 2017.

Study found that RF-EMF exposure led to myelin sheath damage and hyperactivity-like behaviour in mice exposed to 835 MHz RF-EMF at a specific absorption rate (SAR) of 4.0 W/kg for 5 hours/day during 12 weeks. Demyelination was induced in cortical neurons following prolonged RF-EMF exposure and suggests a potential cause of neurological or neurobehavioural disorders.

Full Text https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5247706/pdf/srep41129.pdf

10) Redmayne M, Johansson O. Could myelin damage from radiofrequency electromagnetic field exposure help explain the functional impairment electrohypersensitivity? A review of the evidence.Journal of Toxicology and Environmental Health, vol. 17, no. 5, 2014, pp. 247-58.

Review of the evidence for an association between myelin integrity and exposure to low-intensity radiofrequency electromagnetic fields (RF-EMFs) *"Overall, evidence from in vivo and in vitro and epidemiological studies suggests an association between RF-EMF exposure and either myelin deterioration or a direct impact on neuronal conduction, which may account for many electrohypersensitivity symptoms. The most vulnerable are likely to be those in utero through to at least mid-teen years, as well as ill and elderly individuals."*

Full Text http://www.avaate.org/IMG/pdf/redmayne_johansson_2014.pdf

11) Sage, C. and Burgio, E. (2017), Electromagnetic Fields, Pulsed Radiofrequency Radiation, and Epigenetics: How Wireless Technologies May Affect Childhood Development. Child Dev. doi:10.1111/cdev.12824

"New epigenetic studies are profiled in this review to account for some neurodevelopmental and neurobehavioral changes due to exposure to wireless technologies. Symptoms of retarded memory, learning, cognition, attention, and behavioral problems have been reported in numerous studies and are similarly manifested in autism and attention deficit hyperactivity disorders, as a result of EMF and RFR exposures where both epigenetic drivers and genetic (DNA) damage are likely contributors.

Technology benefits can be realized by adopting wired devices for education to avoid health risk and promote academic achievement."

Full Text https://eliant.eu/fileadmin/user_upload/de/pdf/Sage_Burgio_Childhood_2017_Epigenetics.pdf

12) Ezz et al, The effect of pulsed electromagnetic radiation from mobile phone on the levels of monoamine neurotransmitters in four different areas of rat brain. **Eur**opean **Rev**iew for **Med**ical and **Pharmacol**ogical **Sci**ences. 2013; 17: 1782-1788

Adult rats were exposed daily to EMR (frequency 1800 MHz, specific absorption rate 0.843 W/kg, power density 0.02 mW/cm2, modulated at 217 Hz) and sacrificed after 1, 2 and 4 months of daily EMR exposure as well as after stopping EMR for 1 month (after 4 months of daily EMR exposure). RESULTS: The exposure to EMR resulted in significant changes in DA, NE and 5-HT [serotonin] in the four selected areas of adult rat brain.
CONCLUSIONS: The exposure of adult rats to EMR may cause disturbances in monoamine neurotransmitters and this may underlie many of the adverse effects reported after EMR including memory, learning, and stress.

Full Text https://www.europeanreview.org/wp/wp-content/uploads/1782-1788.pdf

13) A 2016 study found altered brain structure in college students who were addicted to mobile phone use. Decreased brain grey matter volume and abnormal white matter integrity were found via functional magnetic resonance images (fMRI).
https://www.frontiersin.org/articles/10.3389/fpsyg.2016.00597/full

14) Sage and Herbert, 2013. Autism and EMF? Plausibility of a pathophysiological link – in 2 parts. Mechanisms explaining how EMFs can cause pathophysiological damage leading to autism . Chronically disrupted homeostasis, oxidative stress/free radical damage, cellular stress proteins, deficiencies of antioxidants such as glutathione, elevated intracellular calcium, peroxidation of cell membrane lipids, mitochondrial dysfunction,

immune system dysregulation, brain oxidative stress and inflammation, blood–brain barrier and brain blood flow alterations, alterations of electrophysiological oscillatory synchronization, de-tuning of the brain and organism, altered electrophysiology, disruption of electromagnetic signaling, synchrony, and sensory processing are all discussed. Part I https://www.pathophysiologyjournal.com/article/S0928-4680(13)00037-0/fulltext and Part II. https://www.pathophysiologyjournal.com/article/S0928-4680(13)00038-2/fulltext

To read more scientific research on effects of wireless radiation on the brain https://ehtrust.org/brain-development-cell-phones-wireless-scientific-research-neurotoxic-effects-wireless-radiation/