

# Summaries of Symptoms after Exposure to Wireless Utility Meters

People from coast to coast in the USA, and from one side of the world to the other, are becoming ill after exposure to the radiofrequency radiation emitted by wireless utility meters. Attached are the results from three surveys of symptoms reported in 2011, 2013, and 2014.

The Survey in 2011 included 318 respondents from 28 states in the United States, and from Canada. The Survey in 2013 included 210 respondents from 33 states in the United States, from Canada, and from Australia. The Survey in 2014 included 92 respondents from the other side of the world, Victoria, Australia. Altogether, 620 adults and children were included in the three surveys.

The attached bar graphs show the number of respondents in each survey who experienced new or worsened symptoms after exposure to the radiofrequency radiation from wireless utility meters in the respondents' environment. Each bar indicates the percentage of respondents who experienced each symptom. Respondents commonly experienced multiple symptoms. Each bar graph is followed by one page of additional information written by the person who analyzed the survey data for the Survey in 2011 and the Survey in 2014, or by me for the Survey in 2013.

The three surveys were conducted independently. They grouped symptoms into somewhat different categories, but many of those categories are similar enough to be comparable. Of the nine most frequently experienced categories of symptoms in each of the three surveys, seven appeared in all three of the surveys: insomnia; headaches; ringing in the ears; cognitive disturbances affecting concentration, memory, or learning; dizziness or loss of balance; cardiac disturbances such as heart palpitations or arrhythmia; and fatigue or weakness. Insomnia was the most frequently experienced symptom in all three of the surveys.

The surveys do not tell us how likely a given individual is to become symptomatic after exposure to the radiofrequency radiation from wireless utility meters. But the surveys do tell us which symptoms a person who does become symptomatic is most likely to experience. The large numbers of symptoms found reflect the many systems of the body that are disrupted by such radiation.

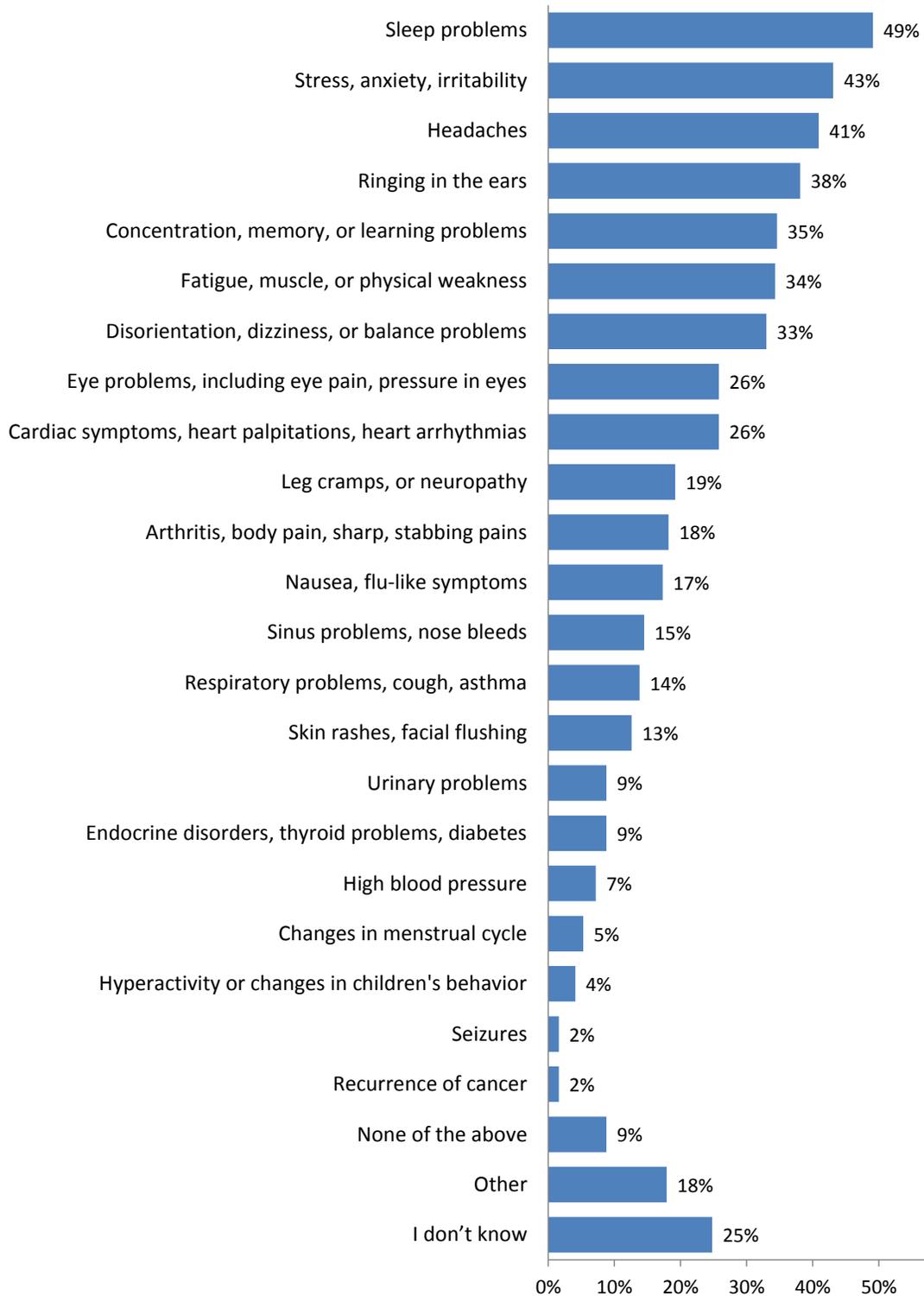
Other health effects may not be as easily sensed by the body as those represented by the symptoms described here. The development of these other health effects may go undetected for years. Examples include reproductive harm, DNA damage, and cancer.

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<sup>1</sup> Ronald M. Powell is a retired career U.S. Government scientist. He holds a Ph.D. in Applied Physics from Harvard University. During his Government career, he worked for the Executive Office of the President, the National Science Foundation, and the National Institute of Standards and Technology.

Survey in 2011

# New or Worsened Symptoms Reported by 318 Individuals after Exposure to Wireless Utility Meters in the USA<sup>2</sup>



<sup>2</sup> Ed Halteman, Ph.D., statistics, Wireless Utility Meter Safety Impacts Survey: Final Results Summary, September 13, 2011, p. 22 (<http://emfsafetynetwork.org/wp-content/uploads/2011/09/Wireless-Utility-Meter-Safety-Impacts-Survey-Results-Final.pdf>). 97 percent of respondents to full survey were in the USA, from 28 states, with most in California (78 percent) and New York (16 percent). In the Final Results Summary, the four clusters of symptom's with the fewest responses (2 to 5 percent each, totaling 13 percent) were included in "Other" but are broken out separately in the above bar graph, reducing the responses listed as "Other" (from 31 percent to 18 percent).

## OBJECTIVES

- To investigate reported public health and safety complaints about wireless utility meters.
- To evaluate the impacts on health and safety due to wireless utility meters.
- To determine whether further study is warranted.

## METHODS

- Survey was designed by the EMF Safety Network (Network).
- The survey was circulated online through various social media outlets including Network’s email list, Facebook, and the California EMF Safety Coalition (a discussion group).
- The survey was also posted on Network’s website: [www.emfsafetynetwork.org](http://www.emfsafetynetwork.org) where visitors were invited to take the survey.
- 443 responses were received from 7/13/2011 through 9/2/2011. *(318 of the 443 answered the health questions that formed the basis for the bar chart on symptoms. RMPowell)*
- Network commissioned Survey Design and Analysis (SDA) to provide this report of the survey findings.

## RESPONDENT MAKEUP

- 93% are over 40 years old and 43% are over 60 years old.
- 73% are women.
- 78% are from California.
- 68% have Pacific Gas and Electric (PG&E) as their utility provider.
- 49% are EMF Sensitive.
- 41% have had a new wireless meter installed in their home; of these . . .
  - 56% have had it installed for at least six months
  - 89% have electric meters, 53% gas meters and 10% water meters
  - 35% saw an increase in their utility bill
  - 26% have experienced some type of interference
  - 8% experienced burned out appliances or damaged electronics including TV, stereo, computer, refrigerator and other.
- 76% indicated they have wireless utility meters installed in their neighborhood, town or city.
  - 44% near their home
  - 36% in town

## TOP HEALTH ISSUES SINCE NEW METERS INSTALLED

- Sleep problems (mentioned by 49%)
- Stress, anxiety and irritability (43%)
- Headaches (40%) *(Listed as 41% on symptoms bar graph, rounded up from 40.9%. RMPowell)*
- Ringing in the ears (38%)
- Heart problems (26%)

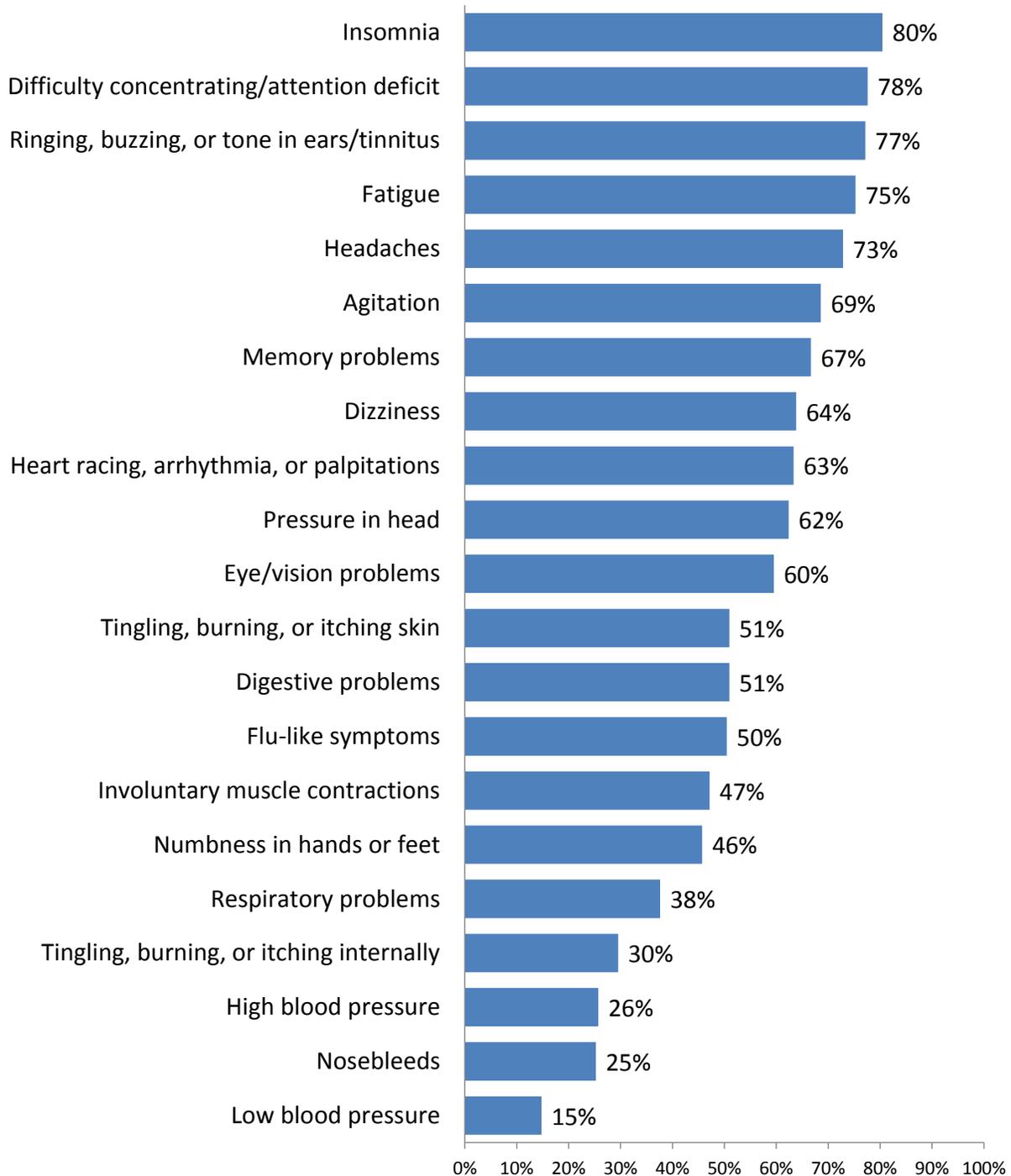
## UTILITY and PUBLIC UTILITY COMMISSION INTERACTIONS *(Title inserted by RMPowell.)*

- 40% (111 people) of those having wireless meters in their homes or community have complained to their utility provider.
  - 96% of these people were either “Unsatisfied” or “Very Unsatisfied” with the handling of their complaint.
- 32% (88 people) complained to the utilities commission.
  - 96% of these people were either “Unsatisfied” or “Very Unsatisfied” with the handling of their complaint
- 94% of respondents want to retain or restore their analog meters and 92% of these respondents do not think they should have to pay any additional money.

## STATISTICAL TESTING SHOWS THE TOP HEALTH SYMPTOMS ARE POSITIVELY ASSOCIATED WITH

- EMF Sensitivity
- Wireless meters installed in the home

# New or Worsened Symptoms Reported by 210 Individuals after Exposure to Wireless Smart Meters in the USA, Canada, and Australia<sup>3</sup>



<sup>3</sup> Richard H. Conrad, Ph.D. and Ed Friedman, B.S., Exhibit D – Smart Meter Health Effects Survey and Report, 2013, Appendix 5, page 62 (<http://www.mainecoalitiontostopsmartmeters.org/wp-content/uploads/2013/02/Exhibit-D-Smart-Meter-Health-Effects-Report-w-AppendicesV3-1-9Reduced-Appendices.pdf>). Data normalized to 210 respondents. Additional information, including the qualifications of the first author, Richard H. Conrad, Ph.D., can be found here: Pre-Filed Testimony of Richard Conrad, Ph.D., MPUC Docket No. 2011-00262, February 2013 (<http://www.mainecoalitiontostopsmartmeters.org/wp-content/uploads/2013/01/Exhibit-9-Conrad-Web.pdf>).

*Survey in 2013*      **Abstract of “Smart Meter Health Effects: Survey and Report”  
by Richard H. Conrad, Ph.D. and Ed Friedman, B.S.<sup>4</sup>**

### **Purpose of Survey**

This survey was designed to discover the health effects experienced by individuals exposed to smart meters, and to test the strength of the correlation between those effects and that exposure. The survey was distributed widely through internet sites and interest groups with this invitation: “If you feel your health has been affected by smart meters, we request your immediate help in studying these effects.” The results of the survey were submitted as legal testimony before the Maine Public Utilities Commission in 2013.

### **Survey Respondents**

Survey data was collected from December 4, 2012 to January 28, 2013. 210 survey documents were completed and used for analysis. About 75 percent of respondents were from the USA, with the rest from Canada and Australia. 73 percent were women. 52 percent were age 45 to 59, while 29 percent were older and 19 percent were younger. The highest academic degrees, and the number of respondents with them, were BS or BA (70), high school (61) or GED (4), MS or MA (42), PhD (9), MD (1), RN (1), DDS (1), and other medical (13).

### **Exposure of Respondents**

83 percent of respondents were exposed to at least 1 smart meter that was 4 to 50 feet from where they spent the most time. Within 50 feet of their residences, 39 percent were exposed to 1 to 2 meters; 32 percent to 3 to 5 meters; 12 percent to 6 to 9 meters; and 11 percent to 10 to 29 meters. Such high exposure may explain why the percentages of new or worsened symptoms in this survey were higher than in the 2011 and 2014 surveys.

### **Timing of Exposure versus Timing of Symptoms**

After smart meter installation or start of exposure, new or worsened symptoms were experienced within minutes for 20 percent of respondents, within hours for 14 percent, within days for 28 percent, and within months for 19 percent. Yet 42 percent did not discover that they had a smart meter until **after** new or worsened symptoms began. 82 percent of respondents were sure, and 17 percent were fairly sure, that their new or worsened symptoms correlated to smart-meter exposure. 17 percent moved and 37 percent wanted to.

### **Impact of Exposure on Respondents’ Use of Other Wireless Devices**

This survey assessed the impact of exposure to smart meters on the respondents’ ability to use other electronic devices that also emit radiofrequency radiation: computers, Wi-Fi, and cell phones. Exposure to smart meters significantly reduced the respondents’ ability to use those other electronic devices without symptoms.

**Computers:** The percent of respondents who used computers without symptoms was 79 before exposure and decreased to 39 after exposure. The percent of respondents who experienced symptoms when using computers was 21 before exposure and increased to 57 after exposure. The percent of respondents who did not use computers at all because of symptoms was 0 before exposure and increased to 2.4 after exposure.

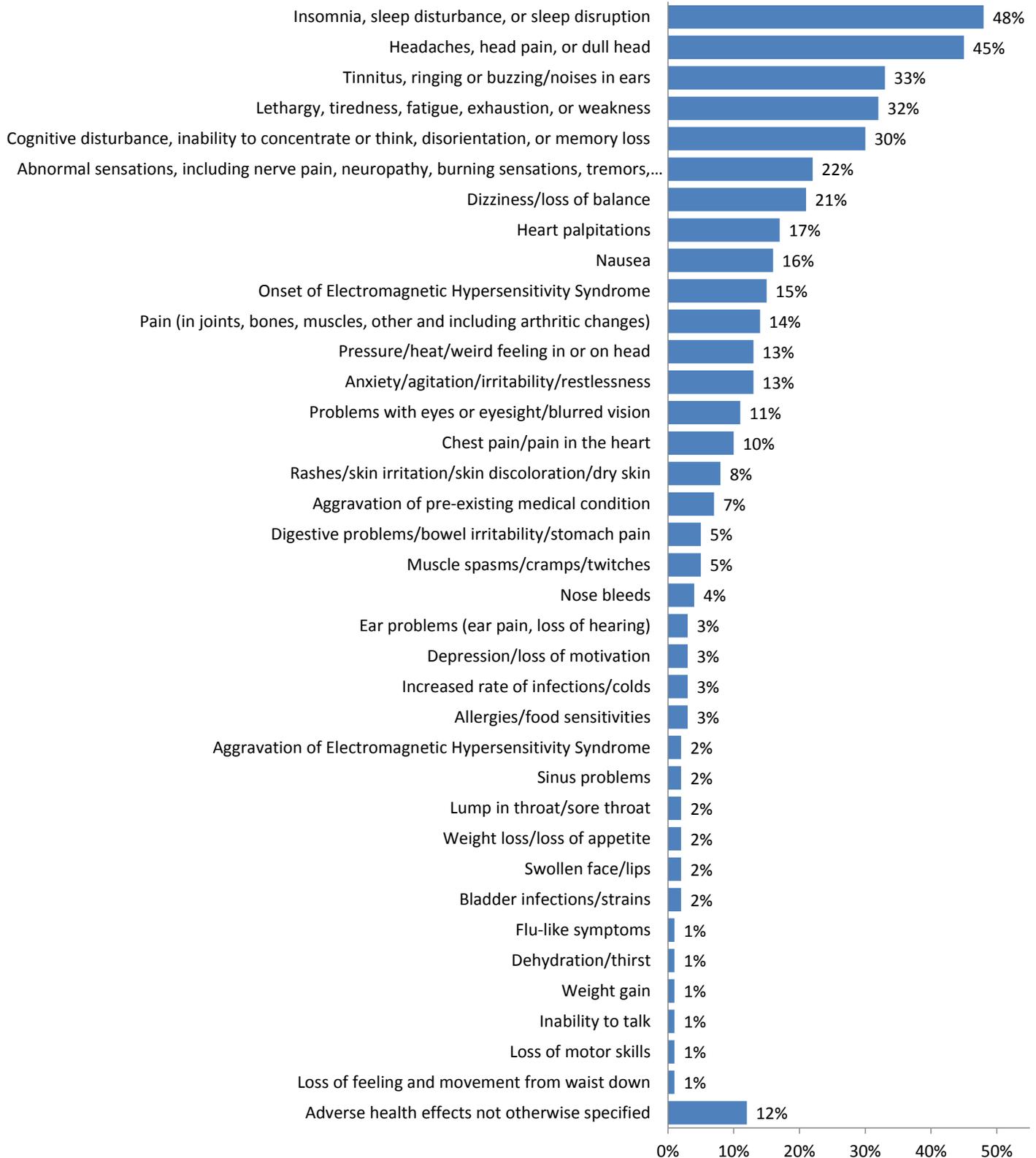
**Wi-Fi:** The percent of respondents who used Wi-Fi without symptoms was 40 before exposure and decreased to 18 after exposure. The percent of respondents who experienced symptoms when using Wi-Fi was 11 before exposure and increased to 28 after exposure. The percent of respondents who did not use Wi-Fi at all because of symptoms was 17 before exposure and increased to 41 after exposure.

**Cell Phones:** The percent of respondents using cell phones without symptoms was 50 before exposure and decreased to 24 after exposure. The percent of respondents who experience symptoms when using cell phones was 18 before exposure and increased to 39 after exposure. The percent of respondents who did not use cell phones at all because of symptoms was 14 before exposure and increased to 26 after exposure.

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<sup>4</sup> This abstract was written by RMPowell to accommodate the format of this summary document.

# New or Worsened Symptoms Reported by 92 Individuals after Exposure to Wireless Smart Meters in Australia<sup>5</sup>



<sup>5</sup> Federica Lamech, MBBS, Self-Reporting of Symptom Development from Exposure to Radiofrequency Fields of Wireless Smart Meters in Victoria, Australia: A Case Series. *Alternative Therapies*, Nov/Dec 2014, Vol. 20, No. 6, pages 28-38. NIH PMID 25478801 (<http://www.alternative-therapies.com> and <http://www.ncbi.nlm.nih.gov/pubmed/25478801>).

Altern Ther Health Med. 2014 Nov-Dec;20(6):28-39.

**Self-reporting of symptom development from exposure to radiofrequency fields of wireless smart meters in Victoria, Australia: a case series.**

Lamech F.

Abstract

**CONTEXT:**

In 2006, the government in the state of Victoria, Australia, mandated the rollout of smart meters in Victoria, which effectively removed a whole population's ability to avoid exposure to human-made high-frequency nonionizing radiation. This issue appears to constitute an unprecedented public health challenge for Victoria. By August 2013, 142 people had reported adverse health effects from wireless smart meters by submitting information on an Australian public Web site using its health and legal registers.

**OBJECTIVE:**

The study evaluated the information in the registers to determine the types of symptoms that Victorian residents were developing from exposure to wireless smart meters.

**DESIGN:**

In this case series, the registers' managers eliminated those cases that did not clearly identify the people providing information by name, surname, postal address, and/or e-mail to make sure that they were genuine registrants. Then they obtained consent from participants to have their deidentified data used to compile the data for the case series. The author later removed any individual from outside of Victoria.

**PARTICIPANTS:**

The study included 92 residents of Victoria, Australia.

**OUTCOME MEASURES:**

The author used her medical experience and judgment to group symptoms into clinically relevant clusters (eg, pain in the head was grouped with headache, tinnitus was grouped with ringing in the ears). The author stayed quite close to the wording used in the original entries. She then calculated total numbers and percentages for each symptom cluster. Percentages were rounded to the nearest whole number.

**RESULTS:**

The most frequently reported symptoms from exposure to smart meters were (1) insomnia, (2) headaches, (3) tinnitus, (4) fatigue, (5) cognitive disturbances, (6) dysesthesias (abnormal sensation), and (7) dizziness. The effects of these symptoms on people's lives were significant.

**CONCLUSIONS:**

Review of some key studies, both recent and old (1971), reveals that the participants' symptoms were the same as those reported by people exposed to radiofrequency fields emitted by devices other than smart meters. Interestingly, the vast majority of Victorian cases did not state that they had been sufferers of electromagnetic hypersensitivity syndrome (EHS) prior to exposure to the wireless meters, which points to the possibility that smart meters may have unique characteristics that lower people's threshold for symptom development.

PMID: 25478801