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UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
AT SAN FRANCISCO

FOOD & WATER WATCH, et al.,

Plaintiffs,

vs.

U.S. ENVIRONMENTAL PROTECTION
AGENCY, et al.

Defendants.

Civ. No. 17-CV-02162-EMC

**DECLARATION OF
HOWARD HU, MD, MPH, ScD**

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I, Howard Hu, MD, MPH, ScD, declare that:

1. I am a physician-scientist trained in internal medicine, occupational/environmental medicine, epidemiology and general public health who has held leadership positions in science and academia for over 2 decades.

2. I am also the Principal Investigator of ongoing research that is examining the impact of early-life exposures to fluoride on neurobehavioral development in the offspring participating in the Early Life Exposures in Mexico to Environmental Toxicants (ELEMENT) project.

I. SUMMARY OF QUALIFICATIONS

3. A complete summary of my qualifications and publications can be found in my Curriculum Vitae, which has been marked as Plaintiffs' Exhibit 5 and attached herein.

4. As relevant to my testimony here, I am an epidemiologist with decades of research experience investigating the impact of environmental toxicants on human health. In 1990, I received a Doctor of Science degree in Epidemiology from the Harvard School of Public Health, and since that time have taught epidemiology at Harvard, University of Michigan, and University of Toronto, where I served as Dean of the School of Public Health.

5. I hold editorial positions on leading environmental and occupational health journals, including the *American Journal of Industrial Medicine*, *Current Environmental Health Reports* and *Environmental Health Perspectives*, and serve as a peer reviewer for the *American Journal of Epidemiology*, *Epidemiology*, *Journal of the American Medical Association*, *Lancet*, *New England Journal of Medicine*, and *Pediatrics*, amongst others.

6. My own epidemiological research has resulted in hundreds of peer-reviewed publications in leading scientific journals. For the past 29 years, this research has been continuously funded by the National Institutes of Health (NIH) through a number of competitive R01 grants.

1 7. The Environmental Protection Agency (EPA) has funded several of my epidemiological
2 studies, including a \$7.8 million research grant to study the effects of metals mixtures on children's
3 health. I have also served as an expert advisor to the EPA, including as a member of EPA's Science
4 Advisory Board on Relative Risk Reduction Strategies and as an expert reviewer of EPA's recent draft
5 report on the concentration-response functions between lead exposure and cardiovascular disease.

6 8. In 1993, I co-founded the ELEMENT research project, a pregnancy and birth cohort that
7 has been funded by both the EPA and NIH. Since its inception, ELEMENT has evolved into a highly
8 successful, award-winning project involving collaborators at the University of Michigan, Harvard, and
9 other academic institutions in the U.S., Canada, and Mexico.

10 9. Through the ELEMENT cohort, we have studied how prenatal exposure to environmental
11 toxicants—including lead, mercury, and fluoride—affect children's health, including their
12 neurodevelopment. Thus far, the ELEMENT cohort has generated over 80 high-impact publications and
13 provided evidence contributing towards environmental health policies around the world, including the
14 EPA's national air standard for lead and the CDC's "Guidelines for the Identification and Management
15 of Lead Exposure in Pregnant and Lactating Women."

16 10. In 2012, following the National Research Council's (NRC) call for more research to
17 investigate the neurobehavioral risks of fluoride exposure, the team I lead successfully competed for a
18 peer-reviewed NIH RO1 grant to study the neurodevelopmental effects of pre- and post-natal fluoride
19 exposures. This research was funded with an understanding that it would provide a major contribution to
20 fluoride risk assessment and policy decision-making on the neurotoxicity concerns identified by the
21 NRC.

22 11. To date, my team has published five peer-reviewed studies on fluoride, including two
23 prospective studies on fluoride and neurodevelopment that were published in the world's two most
24

1 prominent environmental health journals: *Environmental Health Perspectives* and *Environment*
2 *International* (Bashash 2017, Bashash 2018, Cantoral 2019, Liu 2019, Thomas 2016). As with our own
3 research, the journal *Environmental Health Perspectives* is funded by the NIH.

4 **II. SUMMARY OF OPINIONS**

5 12. The ELEMENT prospective cohort studies of fluoride's neurodevelopmental effects are
6 methodologically rigorous studies that provide scientifically reliable and robust results.

7 13. The results of the ELEMENT prospective cohort studies are consistent with and support
8 the conclusion that fluoride is a developmental neurotoxicant at levels of exposure seen in the general
9 population in water-fluoridated communities.
10

11 **III. BASIS FOR OPINIONS**

12 **A. The Methodological Strengths of the ELEMENT Studies**

13 14. *Prospective Birth Cohort Study Design:* One of the key strengths of our ELEMENT
14 research is that it has utilized a prospective birth cohort design. Prospective studies (aka longitudinal
15 cohort studies designed at the outset to enable research on the topics of interest and that follow a defined
16 group of individuals) are recognized by epidemiologists as the ideal study design for investigating the
17 impact of environmental toxicants on human health, in part, because the measurement of exposure
18 precedes the development of disease/dysfunction. This is important because it permits greater
19 confidence in the causal relationship of an association since the requirement of temporality is satisfied
20 i.e., the exposure precedes the effect, which, in turn, is one of the components of the Bradford Hill
21 criteria. Where there is suspicion that a chemical may exert a toxic effect *in utero*, a birth cohort study
22 design is critical because it allows an assessment of exposure during the prenatal period.
23

24 15. *Effective Control for Other Factors that Influence IQ:* Our ELEMENT studies have
25 considered and controlled for a large number of factors known to affect neurodevelopment, which
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increases the rigor of the results. First, we excluded women from the study who had characteristics known to affect neurodevelopment, including gestational diabetes, renal disease, hypertension, circulatory diseases, use of illicit drugs, and alcohol consumption. Second, our analyses of fluoride and neurodevelopment controlled for a large number of potential confounders, including maternal age, maternal education, maternal IQ, birth weight, gestational age at time of delivery, sex of child, birth order, maternal smoking, and marital status. Third, we performed sensitivity analyses which controlled for the quality of the child's home environment (i.e., HOME),¹ as well as prenatal lead and mercury exposures.

16. ***Blinded Assessments:*** Our studies employed a “blinded” study design where neither the examiners nor the subjects were aware of the subject's fluoride exposure status at the time of the neurodevelopmental exams. A blinded study design is superior to a non-blinded study because it helps protect against bias, including unconscious bias, in the assessment.

17. ***Individual Biomarkers of Both Prenatal and Postnatal Exposure:*** As cohort studies, our investigations have collected and utilized individual measurements of fluoride exposure, covariates, and the outcomes of interest. Cohort studies with individual measurements of exposure, covariates and outcomes are considered much more robust than studies with group-level metrics (otherwise known as “ecological studies”) because the accuracy and precision of individual-level measures are far superior to the estimates of these parameters that are associated with ecological studies. In our studies, we measured prenatal fluoride exposure by testing archived samples of the mother's urine that were collected during pregnancy. Urine fluoride is a well-accepted biomarker of total fluoride exposure. As the EPA has

¹ The HOME Score is a rating that is performed by a research observer who gains permission to enter the home and observe the interactions between the offspring and other family members, as well as other characteristics of the home environment. It is intended to try to capture the ability of the home to enrich a child's educational development and skill development. It is often highly correlated with socio-economic status, but it also has some independent value of its own in determining a child's neurodevelopmental trajectory.

1 recognized, “archives of biological samples from birth cohort studies . . . provide critical information on
2 the prenatal and childhood determinants of adult disease” (EPA-NIEHS 2017, p. 9). The archived urine
3 samples in our studies were tested under the oversight and direction of Dr. Angeles Martinez-Mier, a
4 leading authority on the measurement of fluoride in urine and plasma.

5 18. As I acknowledge and discuss further below, there are some limitations with our urine-
6 based exposure estimates. These limitations, however, do not provide a plausible explanation for the
7 results we have observed as they create *non-differential* imprecision in the exposure variable (in this
8 case, the non-differential exposure misclassification is sometimes referred to as “random” or “classical”
9 measurement error associated with exposure). It is a basic epidemiologic axiom that non-differential
10 errors, such as non-differential exposure misclassification, bias the results towards the null (i.e., no
11 association exists), rather than create spurious associations where none otherwise exist. I discuss this
12 further below.
13

14 19. ***Large Cohort Sizes:*** Our studies have involved a sufficiently large number of mother-
15 offspring pairs to permit statistical analyses that are stable and robust. In our 2017 study (“Bashash
16 2017”), we investigated fluoride’s relationship with intelligence among 299 mother-offspring pairs. This
17 included 287 mother-offspring pairs for the analysis of intelligence at age 4, and 211 mother-offspring
18 pairs for an analysis of intelligence at ages 6-12. In our 2018 study (“Bashash 2018”), we investigated
19 the relationship between fluoride and symptoms of Attention-Deficit Hyperactivity Disorder (ADHD)
20 among a total of 213 mother-offspring pairs, with the ADHD assessment conducted between the ages of
21 6 and 12.
22

23 20. ***Reliable Neurocognitive Tests:*** Our 2017 study on intelligence used validated,
24 standardized neurocognitive tests that were administered by a team of psychologists. For the 4-year old
25 children, we used the McCarthy Scales of Children’s Abilities (MSCA), and focused on the General
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Cognitive Index (GCI) score. For the 6-12 year old children, we used the Spanish version of the Wechsler Abbreviated Scale of Intelligence (WASI)² to assess Full-Scale IQ. All raw scores were standardized for age and sex. The examining psychologists were trained and supervised by an experienced developmental psychologist, and independent testing confirmed a very high correlation (0.99) in the scoring, thus confirming a high degree of inter-examiner reliability.

21. ***Reliable Neurobehavioral Tests:*** Behaviors associated with ADHD were assessed using the Spanish version of the Conners' Rating Scales-Revised (CRS-R)³ and Conners' Continuous Performance Test (CPT-II, 2nd Edition).⁴ All measures of ADHD-behaviors were standardized for age- and sex. Higher T-scores (mean of 50, SD of 10) indicate poorer performance. All psychometric tests were applied under the supervision of an experienced psychologist.

22. ***Appropriate Statistical Analyses that Did Not Assume Linearity:*** We used the same standard statistical analyses for our fluoride studies as we have used for our other ELEMENT studies. These included regression analyses that appropriately adjusted for potential confounders, as well as Generalized Additive Models (GAM) that visualized adjusted associations between fluoride and neurodevelopment for purposes of assessing the linearity of the relationship. We did *not* assume

² The WASI shows strong criterion validity with the full-length Wechsler Intelligence Scale for Children (WISC-III; ages 6-16 yrs), and the Wechsler Adult Intelligence Scale (WAIS; ages 16+ yrs). The correlation coefficient between the Full Scale IQ of the WASI and WISC-III is 0.81 (Wechsler, 1991), and 0.92 between the WASI and the WAIS-III (Wechsler, 1999), indicating a high covariance between the abbreviated and full-length measures of intellectual ability. The WASI is also correlated with another abbreviated IQ test, the Kaufman Brief Intelligence Test ($r = 0.89$), providing evidence for convergent validity (Hays et al., 2002). Finally, the WASI demonstrates excellent internal consistency (reliability=0.976) (based on data from Tables 5.1 and 5.8 of the WASI manual).

³ The CRS-R contains three ADHD scales that correspond with the Diagnostic and Statistical Manual of Mental Disorders – 4th edition (DSM-IV) criteria for ADHD: 1) DSM-IV Inattention Index, 2) DSM-IV Hyperactive-Impulsive Index, and 3) DSM-IV Total Index (inattentive and hyperactive-impulsive behaviors combined). It also examines seven types of behavior problems that were derived through factor analysis, including: Oppositional, Anxious-Shy, Cognitive Problem/Inattention, Hyperactivity, Perfectionism, Psychosomatic, and Social Problems. For our study, we examined the three DSM-IV ADHD scales as our primary outcomes because these scales are intended to screen for ADHD, and are commonly used to study the association between diverse environmental contaminants and ADHD- behavior problems.

⁴ The CPT-II is a computer-administered signal detection paradigm. Using the CPT-II, we measured errors of omission and commission, and hit reaction time (response latency).

linearity in the dose-response relationship. Additionally, we took appropriate steps to eliminate the influence of outliers and influential points.

B. Prenatal Fluoride Exposure Is Associated with Substantial and Significant Adverse Effects on IQ and ADHD-Behaviors in the ELEMENT Cohort

23. In the ELEMENT cohort, we found that prenatal fluoride exposure has a linear, dose-response relationship with reduced IQ among both 4-year old and 6-12 year old children (Bashash 2017).⁵ In our main model that adjusted for potential confounders, we found that each 0.5 mg/L increase in maternal urinary fluoride (which approximates the interquartile range, i.e., the difference between the 25th v. 75th percentile) was significantly associated with a loss of 3.15 GCI points among the 4-year-olds, and a loss of 2.5 IQ points among the 6-to-12 year olds. These are substantial reductions in intelligence that rival the effect sizes associated with lead exposure. As one measure of practical impact developed and published in 2009 by an expert from the Economics Policy Institute, each IQ point lost due to lead exposure was estimated to represent a loss of \$17,815 in present discounted value of lifetime earnings (in 2006 USD) (Gould 2009).

24. Visual assessment of the adjusted associations between fluoride and intelligence confirmed the monotonic, mostly linear nature of the relationships (see Figures A and B). Notably, there was no evidence of a threshold among the 4-year olds, although there was some suggestion of a threshold at approximately 0.8 mg/L among the 6-12 year olds.

⁵ We have subsequently reported an analysis, in abstract form, of neurocognitive outcomes at ages 1 to 3, as measured through the Mental Development Index (Thomas 2018). These results are consistent with the age 4 and age 6-12 analyses in that they show significant adverse associations with maternal urinary fluoride. I do not rely on these results here, however, since they have not yet been published in full

Figure A: Visual Association Between Maternal Urinary Fluoride and Intelligence at Age 4

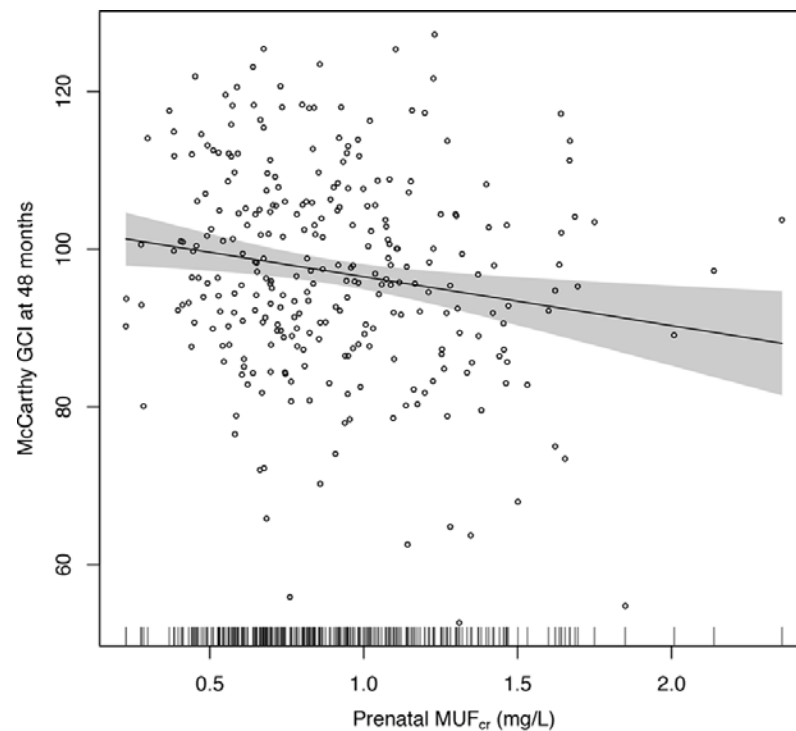
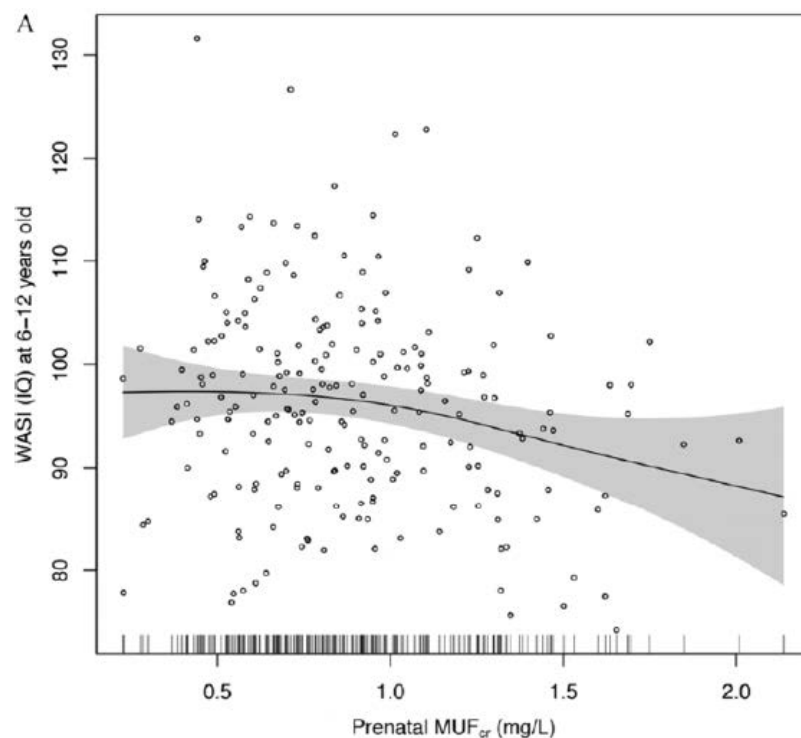


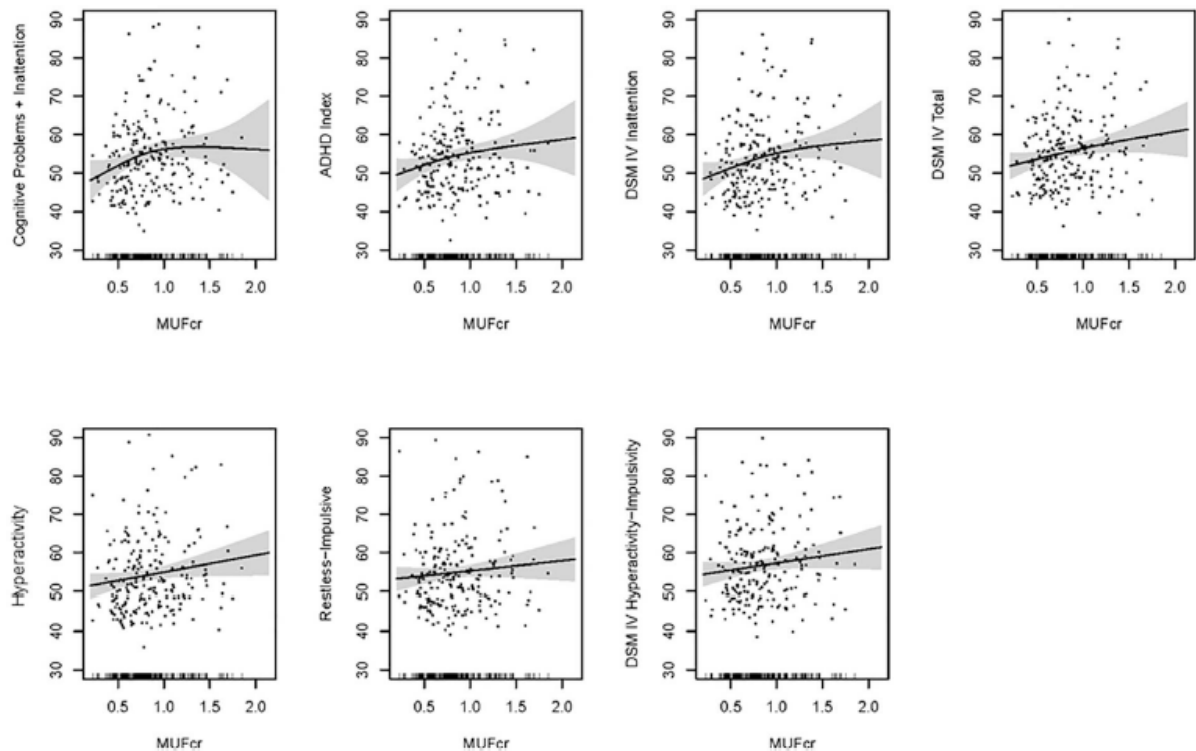
Figure B: Visual Association Between Maternal Urinary Fluoride and Intelligence at Ages 6-12



1 25. In contrast with prenatal exposures, we did not find statistically significant associations
2 between IQ and childhood urinary fluoride levels at ages 6 to 12, although there was some suggestion of
3 an adverse effect. This suggests that the timing of fluoride exposure is an important determinant of
4 fluoride's neurodevelopmental effects, and is consistent with exposures occurring prenatally being more
5 detrimental than those occurring during school-aged years. This is plausible given fluoride's passage
6 through the placental barrier, and the known enhanced vulnerability of the developing brain to
7 neurotoxins during the *in utero* period.

8
9 26. In addition to IQ, we have also found a significant association between prenatal fluoride
10 exposure and some attention deficit hyperactivity disorder (ADHD)-like behaviors on the CRS-R test,
11 including cognitive problems and inattention (Bashash 2018). As with our IQ analyses, the associations
12 were linear, although—as we have found for lead (Huang 2016)—there was some indication in some of
13 the analyses of a ceiling effect at higher doses (i.e., the dose-response curve for cognitive problems and
14 inattention began to flatten above 1 mg/L).

15
16 27. The effect sizes between prenatal fluoride and ADHD behaviors in our cohort were
17 substantial. For those effects which reached statistical significance, increases of 0.5 mg/L in maternal
18 urinary fluoride were associated with 2.4 to 2.8-point higher scores (higher scores reflect indicate poorer
19 performance). Whereas IQ is standardized to a mean of 100, the ADHD behavior scales are standardized
20 to a scale of 50. The effect sizes that we found for prenatal fluoride are similar to what we have found
21 for childhood blood lead levels (Huang 2016).
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Figure C: Association Between Maternal Urinary Fluoride & ADHD Behaviors

28. We did not find statistically significant associations between fluoride and ADHD-behaviors on the CPT-II test. Other studies of environmental chemicals have reported similar discrepancies between the two tests, suggesting that they are assessing different constructs. The stronger association that we found between fluoride and ADHD behaviors on the CRS-R scale may be explained by the CRS-R's focus on constructs that rely on attention (e.g., new learning, ability to hold information and complete tasks, organizational skills, etc).

29. The relationship we observed between fluoride and inattention is consistent with some animal research that has reported a relationship between prenatal fluoride exposure and hypoactive behavioral patterns (Mullenix 1995), as well as prior epidemiological research associating fluoride with impaired working memory (Choi 2015). Working memory is linked with the ability to control attention and it is common for youth with ADHD to have weaknesses in working memory (Kasper 2012).

Fluoride's effect on working memory may relate to an effect on the dopamine system, which fluoride has been found to alter in animal studies (Pal & Sarkar 2014). Dopamine is an important modulatory neurotransmitter in planning and initiation of motor responses, activation, switching, reaction to novelty and processing of reward (Fararone 2015).

30. Some have suggested that the “scatter” in the above scatterplots is a basis to doubt the relation between fluoride and the neurodevelopmental outcomes. Such scatter, however, is typical in epidemiological studies of neurotoxicants, as can be seen in the following figure from our study on lead and neurocognitive effects which the EPA relied upon as evidence of low-level lead neurotoxicity when the Agency set the national air standard for lead (Tellez-Rojos 2006, Fig 1, reproduced as Figure D below). We also found similar scatter in our analysis of blood lead and ADHD behaviors, as measured by CRS-R (Huang 2016, Fig. 1, reproduced as Figure E below). The scatter relates to the fact that there are multiple factors that impact on intelligence and behavior; however, unless they are confounders (which we controlled for), they do not preclude the ability to focus on the specific effect of fluoride.

Figure D: Association Between Childhood Blood Lead Levels and Mental Development Index

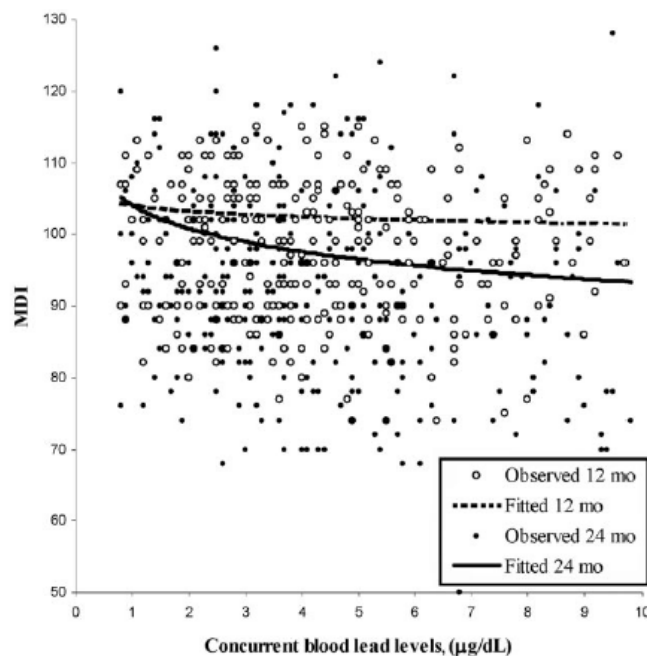
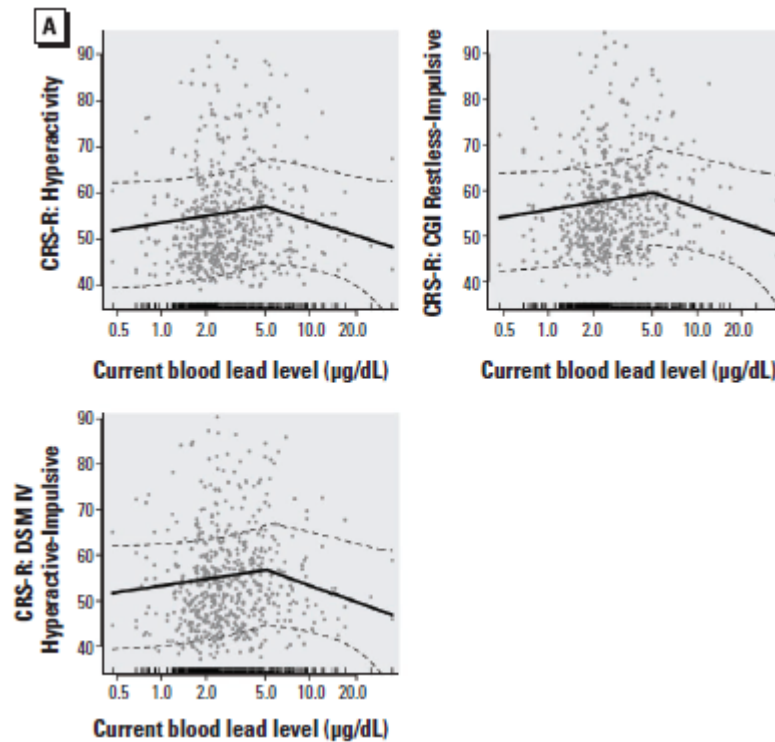


Figure E: Association Between Childhood Blood Lead Levels and ADHD Behaviors



C. The Limitations of Our Studies Do Not Provide Plausible Alternative Explanations for the Results

31. Every epidemiological study, including our studies on fluoride and neurodevelopment, has its limitations. Some of these limitations could theoretically be avoided through the use of human experiments where the toxicant is delivered to the study participants in a controlled and randomized manner. Human experimentation on neurotoxicants, however, is strictly prohibited for obvious ethical reasons. We are thus left with “observational” studies to investigate the impact of environmental toxicants on human health, with prospective cohort studies being the study design best suited for this purpose.

32. As is often the case with epidemiological studies of environmental toxicants, there are limitations in the exposure measurements that we have used in the ELEMENT studies. Our use of spot samples to collect the urine introduces some imprecision into the exposure measurement because urinary

1 fluoride concentrations can fluctuate somewhat throughout the day. This imprecision would have been
2 reduced through the use of 24-hour urine collection samples, and, to a lesser extent, fasting first-morning
3 voids, which are both considered more rigorous measures of fluoride exposure. We compensated for this
4 limitation by using “timed” samples (i.e., second void in the morning) and adjusting for urinary
5 creatinine. Urinary fluoride concentrations fluctuate during the day in large part because fluctuations in
6 an individual’s hydration during the day result in fluctuations in urinary dilution (and therefore, urinary
7 concentrations). Adjusting for urinary creatinine is particularly important because the resulting measure
8 adjusts for urinary dilution. As a result, measures of fluoride in spot urine samples adjusted for
9 creatinine have been found to have excellent agreement with 24-hour samples (Zohouri 2006). Timed
10 spot samples also have an important advantage over 24-hour samples in that they are less imposing on
11 study participants. This is an important consideration when designing cohort studies because the
12 imposition of difficult tasks like collecting 24-hour urines serve to reduce participation, which, in turn,
13 reduces the study’s sample size and statistical power.⁶
14

15 33. Another limitation in our exposure measurements is that, for most of the mothers, we did
16 not have urine samples for every trimester. In our age 4 IQ analysis, 49%, 42%, and 9% of the mother-
17 offspring pairs had urine samples for one, two, and all three trimesters, respectively. In the age 6-12
18 analysis, the respective percentages were 56%, 39%, and 5%; while in the ADHD study, the respective
19 numbers were 57%, 36.4%, and 6.5%. It is common for prospective cohort studies to only have one or
20 two exposure measurements during the prenatal period, but this does not introduce undue imprecision in
21 the exposure estimate, as exposures to a toxicant have limited variation during pregnancy.
22

23 34. Importantly, the imprecision in our exposure measurements does not explain the large
24 and significant associations we observed between maternal urinary fluoride and neurodevelopmental
25

26 ⁶ To put it in simple terms, less people will volunteer to participate in a study if it requires them to
27 collect all of their urine throughout the entire day, including while they are in public spaces, such as
28 their work environment and restaurants, etc.

1 effects. Imprecision in exposure measurements (of the classical or random type, as noted above) is a
2 type of non-differential error that introduces scatter into the analysis which has a generally expected
3 effect of biasing the results towards the null hypothesis. To put it another way, imprecisions in exposure
4 measurements make it *harder*, not easier, to detect an association between an exposure and outcome,
5 much like background noise makes it harder to hear a sound or signal of interest. Imprecision in the
6 exposure measurement is thus anticipated to *obscure* an association, rather than create spurious
7 associations where none otherwise exist. Because of this, improvement in the measurement of a
8 particular exposure tends to reveal and strengthen associations associated with that exposure, not
9 eliminate them.
10

11 35. Another limitation with our studies is, as with most observational studies, we could not
12 rule out the potential for uncontrolled confounding from factors that we did not measure. For example,
13 we did not have data on arsenic which is a neurotoxicant that has been associated with fluoride in certain
14 rural drinking water supplies. While it is always preferable to have more data than less, it is unlikely that
15 arsenic is a meaningful confounder in our cohort. To be a confounder, a covariate must be associated
16 with *both* the outcome *and* exposure. In our cohort, the main source of fluoride is from *salt*, not water.⁷
17 Accordingly, even if arsenic is correlated with fluoride in rural water supplies in Mexico, this
18 association is unlikely to be materially associated with fluoride exposures in our cohort.
19

20 36. Finally, an additional limitation in our studies is that we did not have information on the
21 iodine status of our cohort. Iodine has been theorized to be a potential effect-modifier for fluoride's
22 nervous system effects, i.e., deficiencies of iodine may magnify fluoride's effects, and vice versa (NRC
23 2006). However, failure to control for an effect modifier is unlikely to produce an association between
24 exposure and outcome that does not otherwise exist. Moreover, in Mexico, salt is required by law to be
25

26 ⁷ The water in Mexico City has low levels of fluoride (i.e., 0.16 mg/L) and thus does not present a
27 meaningful exposure in our cohort (Cantoral et al. 2019).

1 iodized. Fluoride levels in our cohort are thus likely correlated with *increased* iodine. To the extent that
2 iodine modifies the effect of fluoride in our population, it is more likely to be in the direction of
3 *reducing* toxicity rather than magnifying it.

4 **D. Implications of Our Findings to the General Population in Water-Fluoridated**
5 **Areas**

6 37. In 2016, we published the largest characterization to date of urinary and plasma fluoride
7 levels throughout pregnancy (Thomas, et al. 2016). At the time we published this study, there had yet to
8 be a population-based study of fluoride exposures among pregnant women in North America, although
9 there were two small-scale studies available from Israel and Poland. The lack of data from North
10 America prevented us, at that time, from comparing the urinary fluoride levels in our cohort with
11 populations from Canada or the United States.

12 38. Urine and plasma fluoride are metrics of the total absorbed dose of fluoride, sometimes
13 referred to as the “internalized” or “bioavailable” dose. These internalized doses do not currently permit
14 one to directly estimate the amount of fluoride that is ingested (i.e., the “external” exposure), nor do they
15 permit the determination of source apportionment of the fluoride exposures. Internalized doses,
16 however, are more relevant than external intake in predicting toxic effects, since they reflect the
17 concentration of toxics that are being delivered to target organs in the body.
18

19 39. Our 2016 study presented the urinary and plasma fluoride levels from 825 and 330
20 pregnant women from our cohort, respectively. The urine samples were collected and measured using
21 the procedures discussed above for our neurodevelopmental papers (i.e., early morning 2nd voids that
22 were adjusted for creatinine), and both the urine and plasma samples were tested under the direction of
23 Dr. Angeles Martinez-Mier from Indiana University, a world leader in the measurement of fluoride in
24 biological samples.
25

26 40. The average creatinine-adjusted urinary fluoride level across all three trimesters in the
27

1 ELEMENT cohort was 0.91 mg/L, with a standard deviation of 0.4 mg/L.⁸ The average plasma fluoride
 2 level across all three trimesters was 0.0221 mg/L, with a standard deviation of 0.0164 mg/L.⁹

3 41. By the time we published our 2018 study on ADHD behaviors, general population data
 4 had become available on maternal urinary fluoride levels in pregnancy (Till 2018). As we noted in our
 5 2018 study, the maternal fluoride levels in the Canadian study are similar to the levels in our cohort
 6 (Bashash 2018). The mean (creatinine-adjusted) maternal urinary fluoride level among pregnant women
 7 living in the water-fluoridated areas of Canada was 0.87 mg/L, with a standard deviation of 0.50 mg/L,
 8 which is clearly in the same range as our cohort (i.e., mean = 0.91 mg/L, SD = 0.4 mg/L). The urine
 9 samples in the Canadian study were tested by Dr. Martinez-Mier using the same creatinine-adjustment
 10 method, which increases the comparability of the data.
 11

12 42. The similarity in maternal urinary fluoride levels between pregnant women in the
 13 ELEMENT cohort and water-fluoridated areas of the Canadian cohort is consistent with the fact that
 14 both populations are receiving so-called “optimal” levels of fluoride through fluoridation programs (i.e.,
 15 salt fluoridation in Mexico, and water fluoridation in Canada). Since salt fluoridation programs are
 16 designed to replicate the doses provided by fluoridated water, it is a reasonable, first-order expectation
 17 that populations living in salt-fluoridated and water-fluoridated areas will receive similar doses of
 18 fluoride.
 19

20 43. The maternal urinary fluoride data from the ELEMENT cohort and water-fluoridated
 21 areas of Canada support the conclusions that the two populations have essentially the same *internalized*
 22 doses of fluoride. The internalized doses in water-fluoridated areas are thus in the range that we have
 23

24 ⁸ The 75th and 90th percentile values were 1.09 mg/L and 1.37 mg/L, respectively.

25 ⁹ We tested for and found no correlation between creatinine-adjusted urinary fluoride and
 26 sociodemographic variables, including maternal age, maternal education, child sex, smoking status, birth
 27 order, and cohort. Although we found a trend towards increasing urinary fluoride levels through the first
 28 22-23 weeks of pregnancy, and a reduction thereafter, these trends were not statistically significant
 (Thomas 2016).

1 found to be associated with substantial and significant neurodevelopmental harms in the ELEMENT
2 cohort.

3 44. Although direct comparisons of *external* fluoride intake cannot yet be made, such
4 information is not necessary to generalize the neurodevelopmental results from the ELEMENT cohort to
5 water-fluoridated areas.

6 45. There is no identified reason to believe that the neurodevelopmental effects of fluoride
7 will differ by the source of exposure, be it fluoridated salt or fluoridated water; once inside the body the
8 source of fluoride is immaterial.

9 46. For the reasons stated, it is my opinion to a reasonable degree of scientific certainty that
10 the results of the ELEMENT studies support the conclusion that fluoride is a developmental
11 neurotoxicant at levels of internalized exposure seen in water-fluoridated communities.
12

13
14 I declare under penalty of perjury, under the laws of the United States, that the foregoing
15 is true and correct to the best of my knowledge and belief.

16 Executed on May 20, 2020, in Seattle Washington.

17
18
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20 HOWARD HU, MD, MPH, ScD

IV. REFERENCES

- Bashash M, Thomas D, Hu H, Martinez-Mier EA, Sanchez BN, Basu N, Peterson KE, Ettinger AS, Wright R, Zhang Z et al: Prenatal Fluoride Exposure and Cognitive Outcomes in Children at 4 and 6-12 Years of Age in Mexico. *Environ Health Perspect* 2017, 125(9):097017.
- Bashash M, Marchand M, Hu H, Till C, Martinez-Mier EA, Sanchez BN, Basu N, Peterson KE, Green R, Schnaas L et al: Prenatal fluoride exposure and attention deficit hyperactivity disorder (ADHD) symptoms in children at 6-12years of age in Mexico City. *Environ Int* 2018, 121(Pt 1):658-666.
- Cantoral A, Luna-Villa LC, Mantilla-Rodriguez AA, Mercado A, Lippert F, Liu Y, Peterson KE, Hu H, Téllez-Rojo MM, Martinez-Mier EA. Fluoride Content in Foods and Beverages From Mexico City Markets and Supermarkets. *Food and Nutrition Bulletin*. 2019 Jul 25:0379572119858486.
- Choi AL, Sun G, Zhang Y, Grandjean P. Developmental fluoride neurotoxicity: a systematic review and meta-analysis. *Environ Health Perspect* 2012, 120(10):1362-1368.
- Environmental Protection Agency / National Institute of Environmental Health Sciences [EPA-NIEHS]. 2017. NIEHS/EPA Children's Environmental Health and Disease Prevention Research Centers: Impact Report. EPA/600/R-17/407.
- Faraone, S.V., Asherson, P., Banaschewski, T., Biederman, J., Buitelaar, J.K., Ramos- Quiroga, J.A., et al.. Attention-deficit/hyperactivity disorder. *Nat. Rev. Dis. Prim.* 2015; 1, 15020.
- Gould E. Childhood lead poisoning: conservative estimates of the social and economic benefits of lead hazard control. *Environ Health Perspect.* 2009 Jul;117(7):1162-7.
- Hays JR, Reas DL, Shaw JB. Concurrent validity of the Wechsler abbreviated scale of intelligence and the Kaufman brief intelligence test among psychiatric inpatients. *Psychol Rep.* 2002 Apr;90(2):355-9.
- Huang S, Hu H, Sánchez BN, Peterson KE, Ettinger AS, Lamadrid-Figueroa H, et al. Childhood blood lead levels and symptoms of attention deficit hyperactivity disorder (ADHD): a cross-sectional study of Mexican children. *Environ Health Perspect* 2016, 124(6):868–874.
- Kasper, L.J., Alderson, R.M., Hudec, K.L. Moderators of working memory deficits in children with attention-deficit/hyperactivity disorder (ADHD): a meta-analytic review. *Clin. Psychol. Rev.* 2012; 32, 605–617.
- Liu Y, Téllez-Rojo M, Hu H, et al. Fluoride exposure and pubertal development in children living in Mexico City. *Environ Health* 2019;18(1):26.
- Mullenix PJ, Denbesten PK, Schunior A, Kernan WJ. Neurotoxicity of sodium fluoride in rats. *Neurotoxicol Teratol* 1995, 17(2):169–177.
- NRC. 2006. Fluoride in Drinking Water: A Scientific Review of EPA's standards. National Academies Press, Washington, D.C.

- 1 Pal, S., Sarkar, C., Protective effect of resveratrol on fluoride induced alteration in protein and nucleic
2 acid metabolism, DNA damage and biogenic amines in rat brain. *Environ. Toxicol. Pharmacol.* 2014,
3 38, 684–699.
- 4 Téllez-Rojo MM, Bellinger DC, Arroyo-Quiroz C, Lamadrid-Figueroa H, Mercado-Garcia M, Schnaas-
5 Arrieta L, Wright RO, Hernández-Avila M, Hu H. Longitudinal associations between blood lead
6 concentrations lower than 10 microg/dL and neurobehavioral development in environmentally exposed
7 children in Mexico City. *Pediatrics* 2006;118(2):e323-e330.
- 8 Thomas DB, Basu N, Martinez-Mier EA, Sanchez BN, Zhang Z, Liu Y, Parajuli RP, Peterson K,
9 Mercado-Garcia A, Bashash M et al: Urinary and plasma fluoride levels in pregnant women from
10 Mexico City. *Environ Res* 2016, 150:489-495.
- 11 Thomas D, Sanchez B, Peterson K, Basu N, Martinez-Mier EA, Mercado-Garcia A, Hernandez-Avia M,
12 Till C, Bashash M, Hu H, Tellez-Rojo M. Prenatal fluoride exposure and neurobehavior among children
13 1-3 years of age in Mexico. *British Medical Journal* 2018; 75(Suppl 1):A10.
- 14 Till C, Green R, Grundy JG, Hornung R, Neufeld R, Martinez-Mier EA, Ayotte P, Muckle G, Lanphear
15 B: Community Water Fluoridation and Urinary Fluoride Concentrations in a National Sample of
16 Pregnant Women in Canada. *Environ Health Perspect* 2018, 126(10):107001.
- 17 Wechsler, D. (1991). Wechsler intelligence scale for children, 3rd ed. (WISC-III). San Antonio, TX:
18 Psychological Corporation.
- 19 Wechsler, D. (1999). Wechsler abbreviated scale of intelligence (WASI) manual. San Antonio, TX:
20 Psychological Corporation.
- 21 Zohouri F, Swinbank C, Maguire A, Moynihan P. 2006. Is the fluoride/creatinine ratio of a spot urine
22 sample indicative of 24-h urinary fluoride? *Community Dent Oral Epidemiol* 34(2):130–138,
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**CURRICULUM VITAE OF
HOWARD HU, MD, MPH, ScD**

CURRICULUM VITAE

Date Prepared: May, 2019

NAME: Howard Hu

PRIMARY AFFILIATION: School of Public Health, University of Washington

SECONDARY AFFILIATION: School of Public Health, University of Michigan

CONTACT: Howard Hu, M.D., M.P.H., Sc.D.

Email: hhu5@uw.eduLINKS: https://deohs.washington.edu/faculty/hu_howard
<https://www.linkedin.com/in/howard-hu-059703a/?trk=public-profile-join-page>

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EDUCATION:

9/1973-6/1976	Biology	B.Sc.	Brown University
9/1977-6/1982	Medicine	M.D.	Albert Einstein College of Medicine
9/1979-6/1980 (degree in 6/1982*)		M.P.H. (Occ Hlth)	Harvard School of Public Health
9/1985-6/1986	Epidemiology	M.S.	Harvard School of Public Health
7/1986-6/1990	Epidemiology	Sc.D.	Harvard School of Public Health

* Awarding of the Harvard M.P.H. to medical students is delayed until the M.D. degree is conferred

POSTDOCTORAL TRAINING:

Research Fellowships

7/1987-6/1988 Occupational Health Research Fellow, Dept. of Environmental Health
Harvard School of Public Health

Internship and Residencies

7/1982-6/1983	Intern in Medicine	Boston City Hospital
7/1983-6/1984	Junior Assistant Resident, Internal Medicine	Boston City Hospital
7/1984-6/1985	Senior Assistant Resident, Internal Medicine	Boston City Hospital
7/1985-6/1987	Resident, Occupational Medicine	Harvard School of Public Health

CERTIFICATION AND LICENSURE:

1984	Massachusetts Medical License Registration
1985	American Board of Internal Medicine, Diplomate
1987	American Board of Preventive Medicine, Diplomate (Occupational Medicine)
2006	Michigan Medical License Registration
2013	College of Physicians & Surgeons of Ontario
2018	Washington State Medical License Registration

ACADEMIC APPOINTMENTS:

9/1988-6/1992	Instructor in Medicine Department of Medicine, Harvard Medical School
9/1988-6/2006	Associate Physician (Clinical and Research), Channing Laboratory, Department of Medicine, Brigham & Women's Hospital
9/1990-6/1994	Assistant Professor of Occupational Medicine Department of Environmental Health, Harvard School of Public Health

CV: Howard Hu, M.D., M.P.H., Sc.D.

7/1992-6/1997 Assistant Professor of Medicine
Department of Medicine, Harvard Medical School

7/1994-6/2002 Associate Professor of Occupational Medicine
Department of Environmental Health, Harvard School of Public Health

7/1997-8/2006 Associate Professor of Medicine
Department of Medicine, Harvard Medical School

7/2002-8/2006 Professor of Occupational and Environmental Medicine (tenured)
Department of Environmental Health, Harvard School of Public Health

9/2006-6/2012 Chair and Professor of Environmental Health Sciences (tenured), Department of
Environmental Health Sciences, University of Michigan School of Public Health

9/2006-8/2009 Adjunct Professor of Occupational and Environmental Medicine
Department of Environmental Health, Harvard School of Public Health

9/2006-6/2012 Research Associate Physician, Channing Laboratory, Department of
Medicine, Brigham & Women's Hospital

5/2007-2012 Professor of Epidemiology, University of Michigan School of Public Health

5/2007-2012 Professor of Internal Medicine, University of Michigan Medical School

1/2009-2012 NSF International Endowed Department Chair, University of Michigan School of
Public Health, Department of Environmental Health Sciences

7/2012-2018 Professor of Environmental Health, Epidemiology and Global Health (tenured)
Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario,
Canada (on sabbatical/administrative leave, 2017-2018)

7/2012-2018 Professor, School of Medicine, University of Toronto, Toronto, Ontario, Canada

7/2012- Adjunct Professor, Department of Environmental Health Sciences, University of
Michigan School of Public Health

7/2012-2013 Director, Dalla Lana School of Public Health, University of Toronto, Toronto,
Ontario, Canada

7/2013-6/2017 Founding Dean, Dalla Lana School of Public Health, a Faculty of the University
of Toronto, Toronto, Ontario, Canada

7/2017- Affiliate Professor (started as Visiting Scholar until December, 2017),
Department of Occupational and Environmental Health Sciences, University of
Washington School of Public Health, Seattle, WA

ADMINISTRATIVE APPOINTMENTS:

7/1991-6/2006 (Founding) Director, Metals Epidemiology Research Group, Channing Laboratory,
Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, and
Department of Environmental Health, Harvard School of Public Health

7/1992-6/1995 Director, Commission to Investigate the Health and Environmental Effects of Nuclear
Weapons Production, International Physicians for the Prevention of Nuclear War

7/1996-6/2006 Director, Residency Program in Occupational and Environmental Medicine, Harvard
School of Public Health

7/1996-8/2006 Director, Occupational and Environmental Medicine Core, National Institute for
Occupational Safety and Health Educational Resource Center at the Harvard School of

CV: Howard Hu, M.D., M.P.H., Sc.D.

Public Health

- 7/1998-6/2004 (Founding) Medical Editor, Environmental Health Perspectives (official journal of NIEHS)
- 7/2000-8/2006 Associate Director, the Harvard NIEHS Environmental Sciences Center, Harvard School of Public Health
- 7/2004-6/2009 (Founding) Principal Investigator and Director, Harvard Center for Children's Environmental Health and Disease Prevention Research (co-PI and co-Director after 9/1/08)
- 9/2006-6/2012 Chair, Department of Environmental Health Sciences, University of Michigan School of Public Health
- 9/2006-2012 Director, Occupational Epidemiology Core, NIOSH Education and Research Center, University of Michigan
- 9/2006-2012 Co-Director, Michigan-Harvard/Harvard-Michigan Metals Epidemiology Research Group
- 7/2009-2011 Director, NIA T32 Training Grant in Aging and Public Health, University of Michigan School of Public Health
- 1/2010-2012 Chair, Faculty Steering Committee on Global Health, University of Michigan School of Public Health
- 4/2011-2012 (Founding PI) and Director, University of Michigan NIEHS P30 Core Center.
- 7/2012-2013 Director, Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada
- 7/2013-6/2017 Founding Dean, Dalla Lana School of Public Health, a Faculty of the University of Toronto, Toronto, Ontario, Canada

CLINICAL APPOINTMENTS:

- 7/1985-6/1987 Attending Physician, Emergency Department, Whidden Memorial Hospital
- 7/1985-6/1988 Assistant Visiting Physician, Department of Medicine, Boston City Hospital
- 1/1985-6/2006 Consultant in Occupational and Environmental Medicine, Center for Occupational and Environmental Medicine, Northeast Specialty Hospital (formerly known as the Olympus Specialty Hospital, the Massachusetts Respiratory Hospital, and Norfolk County Hospital).
- 3/1987-9/1987 Attending Physician, Occupational Health Program, University Hospital/Boston University Medical Center
- 7/1988-9/2006 Associate Physician, Brigham and Women's Hospital
- 7/1990-6/1995 Occupational/Environmental Medicine Consultant, Brigham and Women's Hospital Employee Health Services
- 7/2007-2012 Associate Physician, Division of General Medicine, Department of Medicine, University of Michigan Health System
- 1/2019-present Staff Physician, RotaClinic-Lake City, Seattle, WA

OTHER ACADEMIC POSITIONS and MAJOR VISITING APPOINTMENTS:

CV: Howard Hu, M.D., M.P.H., Sc.D.

7/1987-6/1990 Visiting Physician, South Cove Health Center, Boston (Chinatown)
 7/1996-8/2006 Associate, Center for Health and the Global Environment, Harvard Medical School
 2/1997 Alice Hamilton Visiting Professor, Division of Occupational and Environmental
 Medicine, Department of Medicine, University of California at San Francisco
 11/2000- Visiting Scientist, Sri Ramachandra Medical College and Research Institute
 7/2010- Senior Consultant, Tianjin Centers for Disease Control and Prevention, Tianjin,
 China
 10/2012- Visiting Professor, Shanghai Key Laboratory of Children's Environmental Health,
 Xinhua Hospital, Shanghai Jiao-Tung University, China
 7/2013-6/2016 Visiting Professor, Shanghai Jiao Tong School of Medicine, China
 5/2015- Affiliate Scientist to the Li Ka Shing Knowledge Institute, St. Michael's Hospital,
 Toronto, Canada

MAJOR RESEARCH INTERESTS:

1. Environmental and molecular epidemiologic research related to heavy metals, potential endocrine disruptors, other neurotoxicants, carcinogens, etc.
2. Gene-environment interactions; epigenetic dysregulation
3. Fetal/early life exposures and long-term effects
4. Aging-environment interactions
5. Environmental health, health inequities and health disparities, human rights
6. Health and the global environment
7. "Big Data" for population health
8. Environmental sensitivities/Multiple chemical sensitivities

GRANTS (as PI, Co-PI, or primary mentor only):

Past Funding:

1980 (summer) Montefiore Hospital, Bronx NY, PI; \$2,000 (approx)
 A study of rural and occupational health in Tulua, Colombia, South America
 1982 (summer) Albert Einstein College of Medicine, PI; \$3,000 (approx)
 A study of occupational/environmental health in Shanghai, China
 7/1987-6/1989 NIEHS Center Grant ES00002 Pilot Project, PI; \$12,000
 The Long-term Renal and Neurologic Effects of Childhood Plumbism
 7/1989-6/1990 NIEHS subcontract 7083-1, PI; \$50,000 (approx)
 The Use of X-Ray Fluorescence to Measure Lead Burden and Childhood Lead
 Exposure
 7/1990-6/1992 Agency for Toxic Substances and Disease Registry, PI; \$150,000 (approx)
 "Clinical Environmental/ Occupational Medicine Research Fellowship Award",
 7/1990-6/1991 NIEHS Center Grant ES00002 Pilot Project, PI; \$12,000
 The Metabolic Effects of Pregnancy and Lactation on Lead Burden

CV: Howard Hu, M.D., M.P.H., Sc.D.

7/1990-6/1991 Harvard School of Public Health Basic, PI
Research Support Grant; \$10,000
K-X-Ray Fluorescence Measured Lead Burden

10/1991-11/1991 NIOSH Special Grants, PI; \$50,000 (approx)
The Carpenters Lead Project

4/1991-3/1996 NIEHS/R01, PI; \$2,200,000 (approx)
The Epidemiology of Lead, Diet and Blood Pressure

7/1991-6/1996 NIEHS/R01 supplement, PI; \$240,000 (approx)
The Epidemiology of Lead, Diet and Blood
Pressure--Research Supplement for Minority Investigator

7/1992-6/1995 NIEHS/R01 (Office of Research on Women), PI; \$200,000 (approx)
Lead and Hypertension in Women

7/1993-6/1996 NIEHS/subcontract, PI; \$150,000 (approx)
Exposure to Neurotoxins as Risk Factors for Amyotrophic Lateral Sclerosis

7/1995-6/1998 State of Washington, Department of Labor, PI; \$350,000 (approx)
SPECT Imaging of the Brain in Patients with Multiple Chemical Sensitivity
Syndrome and Controls

7/1996-6/1997 NIEHS Center Grant ES00002 Pilot Project, PI; \$15,000
Electrocardiographic abnormalities in association with low-level lead exposure
among middle-aged to elderly men: the Normative Aging Study

4/1995-3/2000 NIEHS Project PI (Program Project PI: Richard Monson); \$1,800,000 (approx)
Lead Exposure, Accumulation in Bone, and Reproductive Toxicity Among Men and
Women In Mexico

4/1995-3/2000 NIEHS Project PI (Program Project PI: Richard Monson); \$1,900,000 (approx)
Lead Exposure, Accumulation in Bone, and Cognitive Toxicity Among Elderly Men
and Women

6/1997-5/2002 NIEHS/R01 ES05257 PI; \$2,312,274
Lead Biomarkers, Aging, and Chronic Disease

7/1997-6/1999 NIEHS Center Grant ES00002 Pilot Project, PI; \$10,000
The effect of genetic polymorphisms of metallothionein-IIA on mRNA levels in
middle-aged to elderly men: the Normative Aging Study

7/1998-6/2003 NIEHS/R01 PI (with no-cost extension; 5R01ES007821); \$2,291,833
Lead Dose Biomarkers, Reproduction, and Infant Outcomes

7/1999-6/2000 NIEHS Center Grant ES00002 Pilot Project, co-PI; \$14,000
Magnetic Resonance Spectroscopy in the Evaluation of Lead Neurotoxicity: the
Normative Aging Study

7/2000-6/2001 MAVERIC (Massachusetts Area Veterans Epidemiology Resource and Institute
Center) Pilot Project PI (with Dr. Robert Wright, co-PI); \$10,000
The Use of Magnetic Resonance Spectroscopy in Lead Poisoning

7/2000-6/2001 NIOSH Center Grant Pilot Project, PI (with Dr. Robert Wright, co-PI); \$12,000
Interaction between ApoE Genotype and Lead Exposure in the Development of
Cognitive Impairment

7/2002-6/2004 The Rasmussen Foundation/Health Care Without Harm; \$50,000

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- Medical Use of Phthalate Containing Products in the Neonatal Intensive Care Unit and Biomarkers of Neonatal Phthalate Metabolites
- 7/2002-6/2003 NIEHS Center Grant Pilot Project, PI; \$8,000
Vitamin D Receptor Gene and Bone Lead in Reproduction
- 3/2004-2/2005 The Critelli Family Foundation; \$10,000
Review of Environmental Cadmium Exposure and Toxicity
- 4/2000-3/2007 NIEHS Project Leader (Program Project PI: Richard Monson; 5P01ES05947); \$2,472,677; Controlled Trial in Pregnancy of Dietary Supplements for the Suppression of Bone Resorption and Mobilization of Lead into Plasma (no cost extension)
- 4/2000-3/2007 NIEHS Project co-Leader (Program Project PI: Richard Monson; 5P01ES05947); \$1,210,000 (approx); A Community-Based Study of Lead Exposure Pathways, Biomarkers of Dose, Health Effects, and Phytoremediation Strategies at the Tar Creek Superfund Site (no cost extension)
- 4/2002-9/2007 NIEHS/R01 PI (5R01ES010798); \$3,011,295
Gene-Metal Interactions and Parkinson's Disease
- 10/2003-9/2007 NCMHI/P20 Project Leader (MD000501-01; Hughes Harris, PI); \$828,781 (Project)
"FAMU and Harvard Center for Health and Health Care Disparities"
- 8/2003-7/2008 NIEHS/R01 PI (2R01ES05257-11A2); \$3,357,424 (became co-PI in 2007 after move to University of Michigan)
Lead-Gene Interactions and Cognition
- 6/2004-3/2009 NIEHS/P01 PI (5 P01ES012874-01); \$6,662,670 (became co-PI in 2006 after move to University of Michigan)
Metals Mixtures and Children's Health (Center for Children's Environmental Health and Disease Prevention Research)
- 7/2002-12/2009 NIH/R03 PI (1R03TW005914; no cost ext through 2008); \$192,000 (approx)
Lead, Genes, and Cognition in Children in Chennai, India
- 9/2006-7/2011 NIEHS/R01 PI (R01ES0007821); \$3,116,831
Fetal Origins of Neurobehavior: Lead and Cholesterol Metabolism Interactions
- 7/2006-6/2011 NIEHS/R01 co-PI (R01ES013744; PI Wright), \$3,200,000
Stress, Lead, Iron Deficiency and Neurodevelopment
- 7/2006-6/2011 NIEHS/R01 co-PI (R01ES014930; PI Wright), \$2,800,000
Metal Mixtures and Neurodevelopment
- 2/2008-2/2010 Michigan Institute for Clinical and Health Research (MICHR; home of the UM CTSA; UL1RR024986) Pilot Project PI; \$26,000 (no cost extension)
Epigenetics of Early Life Events and Environmental Toxicants
- 4/2009-4/2010 Michigan Alzheimer's Disease Research Center Pilot Project PI, \$25,000
Environment, Epigenetics and Alzheimer's Disease (no cost extension)
- 12/2009-12/2010 University of Michigan Center for Global Health Pilot Project PI, \$25,000
Climate Variability and Impacts on Mortality and Morbidity in Chennai, India: A Pilot Project Stemming from the 2009 U.S.-India Workshop on Climate Change and Public Health, Goa India (no cost extension)

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- 9/2009-9/2010 Michigan Institute for Clinical and Health Research (MICHHR; home of the UM CTSA; UL1RR024986) Pilot Project PI; \$26,000 (no cost extension)
Epigenetics and Epigenomics in the Etiology of Alzheimer Disease
- 7/2008-6/2011 NIA/T32 PI (T32AG027708); \$450,000
Interdisciplinary Training Program in Aging and Public Health
- 4/2010-3/2015 NIEHS P42 Superfund Co-Inv, Project 2, Co-investigator (P42ES017198; PI: Alshawabkeh, Project 2 Leader: Meeker) Puerto Rico Testsites For Exploring Contaminant Threats, \$12,000,000
- 4/1/2011-6/2015 NIEHS Core Environmental Health Sciences Center, Founding PI and Director (until 2012; now consultant; P30 ES017885), \$ 4,620,100;
“Lifestage Exposures and Adult Disease”
- 4/2010-3/2014 NIEHS/EPA P20 Co-PI and Clin Health Specialist (P20 ES018171; PI Peterson) Formative Children’s Environmental Health and Disease Prevention Center, \$1,959,960; “Perinatal Exposures, Epigenetics, Child Obesity & Sexual Maturation”
- 7/1/2013-6/30/2014 CIHR, Canadian Institute for Health Services and Policy Research; Planning Grants-Priority Announcement: Partnerships for Health System Improvement; PI, \$24,992
“The Surviving Opioid Overdose with Naloxone (SOON) Project and Roundtable”
- 07/1/11-06/30/16 NIEHS K01 ES019909 (co-mentor; PI: Somers)
“Immune dysfunction associated with early life heavy metal exposure”
- 4/1/12-3/30/17 NIEHS R01ES013744 (consultant; PI: Wright; Mt Sinai School of Medicine)
“Stress-Lead Interactions and Child Development”
- 7/1/2012-7/1/2017 European Commission (EC), Funded under FP7-Health, Project 304925, co-Investigator; PI, epidemiologic studies, \$6,000,000 E
“A novel micronutrient-based strategy to prevent hearing impairments: test and road to market for age-related hearing loss and preservation of residual hearing”

Current Funding

- 6/1/2012-7/1/2019 1R01ES021446-01, PI, \$4,140,000 (parent + supplement awards);
“Prenatal and Childhood Exposure to Fluoride and Neurodevelopment”
- 5/15/2015-5/15/2019 Health Canada; PI, \$200,000 (Phase 1); \$1,400,000 (proposed Phase 2)
“A Community-based First Nation Study of Cancer and the Environment in Northern Ontario”
- 4/1/13-3/31/23 NIEHS/EPA P01ES022844 (co-inv; PI: Peterson at the University of Michigan)
“Lifecourse Exposures & Diet: Epigenetics, Maturation & Metabolic Syndrome.”
- 7/1/16-6/30/21 CIHR (co-PI; Director; PI: Jeffrey Brook at the Dalla Lana School of Public Health) \$4,700,000 CDN
“CANadian Urban Environmental (CANUE) Health Research Consortium”
- 9/1/16-8/31/21 NIH 5R01ES026033-02, (consultant; PI: Arora at Mt. Sinai School of Medicine)
\$648,000 “Novel Biomarker to Identify Critical Windows of Susceptibility to Metal Mixture”

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Applications Under Review

Wellcome Trust, co-investigator (PI: P Landrigan)

“Quantifying the Cognitive and Economic Benefits of Reducing Air Pollution to Achieve Climate Change Mitigation”

Competitive Renewal Application In Progress

R01ES021446-01, PI, \$4,140,000

A Prospective Study of Early Life Exposure to Fluoride, Thyroid Function, and Neurobehavioral Outcomes

Amended Application In Progress

R01ES007821-11, PI, \$4,800,000;

Early Life Toxicants and Cardiovascular Outcomes” (priority score 27 by CASE Study section; 25th percentile)New Application in Progress

Wellcome Trust, xxx, multiple-PI

Addressing Two Critical Gaps in Understanding the Impacts of Lead Exposure on the Global Burden of Disease: (a) Impacts on Cardiovascular Disease; (b) Exposures and Sources in Low and Middle-Income Countries

HONORS AND AWARDS:

1978-1982 National Health Service Corps Scholarship

1985-1988 National Research Service Award

1990-1992 Agency for Toxic Substances and Disease Registry Clinical Environmental Medicine Award

1994 Will Solimene Award of Excellence, American Medical Writers Association, for: Chivian E, McCally M, Hu H, Haines H, eds. *Critical Condition: Human Health and the Environment*. Cambridge: The MIT Press, 1993.

1997 Alice Hamilton Lecturer, University of California at San Francisco

1998 First Prize for Best Infant Nutrition Research, Instituto Danone, Mexico (for González-Cossío T, Peterson KE, Sanín L, Fishbein SE, Palazuelos E, Aro A, Hernández-Avila M, Hu H. “Decrease in birth weight in relation to maternal bone lead burden.” Published in *Pediatrics*)

1999 National Institute for Environmental Health Sciences “Progress and Achievement of the

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CV: Howard Hu

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- Year Award", 1998-1999
- 1999 True Memorial Lecturer, Maine Medical Center, Portland ME.
- 2000-2001 Faculty Sabbatical Award, Harvard School of Public Health
- 2000-2001 Senior Fulbright Scholar in India
- 2001 Hoopes Prize, Faculty Mentorship (for Senior Thesis of Charles Lin, "More than Black and White: Lead Poisoning as an Environmental Justice Issue in Boston")
- 2003 Best Paper in Preventive Medicine by a Medical Student (for Senior Thesis of Vanitha Janakiraman; Janakiraman V, Hu H, Mercado-Garcia A, Hernandez-Avila M. A randomized crossover trial of nocturnal calcium supplements to suppress bone resorption during pregnancy. *Am J Prev Med* 2003;24:260-4.). American College of Preventive Medicine, Ulrich and Ruth Frank Foundation for International Health.
- 2004 Das Travel Grant Award, The South Asia Initiative, Harvard University (for Travel in India)
- 2005 Adolph G. Kammer Merit in Authorship Award, the American College of Occupational and Environmental Medicine (for Rhodes D, Spiro A, Aro A, Hu H "Relationship of Bone and Blood Lead Levels to Psychiatric Symptoms: The Normative Aging Study", Published in the *Journal of Occupational and Environmental Medicine*)
- 2006 Teacher of the Year Award, Occupational/Environmental Medicine Residents, Harvard School of Public Health
- 2006 Harriett Hardy Award, the New England College of Occupational and Environmental Medicine
- 2009 Linus Pauling Award for Lifetime Achievements, American College for the Advancement of Medicine
- 2011 Award for Excellence, American Public Health Association
- 2015 John R. Goldsmith Award for Outstanding Contributions to Environmental Epidemiology, International Society for Environmental Epidemiology
- 2016 Election to Fellowship, Canadian Academy of Health Sciences

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

Memberships

- 1981- American Public Health Association (APHA)
- 1982-2006 Massachusetts Coalition for Occupational Safety and Health
- 1983-1989 American College of Physicians
- 1985- Physicians for Social Responsibility
- 1987- Physicians for Human Rights
- 1990- International Society for Environmental Epidemiology (ISEE)
- 1990-2000 American Association for the Advancement of Science
- 1990-2006 Association of Occupational and Environmental Clinics (AOEC)
- 1991- International Physicians for the Prevention of Nuclear War (IPPNW)

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1994-1996 Society for Occupational and Environmental Health (SOEH)
2000-2012 American College of Occupational and Environmental Medicine (ACOEM)
2009-2012 Society of Toxicology
2012- Canadian Public Health Association (CPHA)

Committee Assignments

1981-1982 Program Committee, Occupational Safety and Health Section, APHA
1987-1988 Program Committee, Asian-American Caucus, APHA
1992-1998 Membership Committee, ISEE
1995-1998 Quality Assurance Committee, AOEC
1997-1998 Program Committee, 1998 Superfund Basic Research Program, Annual National Meeting
2001-2006 Program Committee, New England College of Occupational and Environmental Medicine
Annual Meetings

EDITORIAL POSITIONS AND BOARDS:

1977-1982 Einstein Community Health Newsletter
1988-1992 Bookreview Co-Editor, Section on Occupational Safety and Health, Am Public Health
Assoc.
1993- Journal of Health and Human Rights
1998- Environmental Health Perspectives (Founding Medical Editor, 1998-2004; Associated
Editor, 2004-)
2004- American Journal of Industrial Medicine
2007-2009 Faculty of 1000 Medicine
2017- Current Environmental Health Reports
2017- Faculty of 1000 Medicine

PEER REVIEW SERVICE

American Journal of Epidemiology
American Journal of Industrial Medicine
Archives of Environmental and Occupational Health
Biomed Central
Circulation
Environmental Health
Environmental Health Perspectives
Environment International
Environmental Research
Epidemiology

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Indian Journal of Medical Research
 Journal of Health and Human Rights
 Journal of the American Medical Association
 Kidney International
 Lancet
 New England Journal of Medicine
 Pediatrics
 PLOS One
 Science of the Total Environment

TEACHING:

1. LOCAL CONTRIBUTIONS (at the Harvard School of Public Health, 1985-2006)

1985-	“Toxicology of the Kidney and Urinary Tract” Guest Lecturer for TOX204a,b
1988-	“Occupational Health” Guest Lecturer for EH201a,b
1989-1992	“Lead Toxicology” Guest Lecturer for TOX204a,b
1990-	<u>Grand Rounds in Occupational/Environmental Medicine</u> Director
1990-2000	<u>Introduction to Occupational and Environmental Medicine (EH232c,d)</u> Course director, lecturer
1990-	“The Epidemiology of Lead Exposure, Dose, and Toxicity” Guest Lecturer for EPE215c,d and EPE215t
1990-	“Solvent toxicity” Fundamentals of Industrial Hygiene, Continuing Education Department
1992	"Current Research on Lead", Metals Epidemiology Research Group Seminar Presenter
1992	"Lead Poisoning Without a Known Source in a Hyperthyroid Patient" Case discussant, Grand Rounds in Occupational and Environmental Medicine
1992-	“Biological Markers of Lead Dose” Guest Lecturer, EHE280c,d
1994-	“Screening for Lead Toxicity” Guest lecturer, EPI227d
1994-	“Lead Exposure and Biological Monitoring” Guest Lecturer, ID263b
1994-	“Case Study: Lead” Guest Lecturer and Case Discussant, EH202d
1996-	<u>Introduction to Environmental Health (EH201b)</u>

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- 1997- Course director and lecturer
Human Health and Global Environment Change (EH278a,b)
 Course Co-developer, Co-director, and lecturer

Hospital courses and Invited Teaching Presentations (Harvard-affiliated Hospitals)

- 1990 Guest Lecturer on Occupational Medicine
 Residency Program, Department of Medicine, Brigham and Women's Hospital
- 1994 Speaker, Grand Rounds; "Is Lead a Ticking Time Bomb?"
 Department of Obstetrics and Gynecology, Brigham and Women's Hospital
- 1994 Speaker, Grand Rounds; "Is Lead a Ticking Time Bomb?"
 Department of Medicine, Brockton V.A. Hospital
- 1994 Speaker, Symposium on Preventive Medicine and Clinical Epidemiology,; "Is Lead a Ticking Time Bomb"; Brigham and Women's Hospital
- 1995 Discussant, "Multiple Chemical Sensitivity", Occupational/Environmental Medicine
 Grand Rounds, Occupational Health Program, Harvard School of Public Health
- 1996 Guest lecturer, "Lead Toxicity as a Paradigm for a Regional and Global Health Hazard", Environmental Health Student Group, Holmes Society, Harvard Medical School
- 1997 Speaker, "Mobilization of maternal bone lead as a hazard to the fetus", Grand Rounds, Dept. of Neonatology, Beth Israel Hospital, Boston, MA
- 2000 Guest lecturer, "Update on Lead Toxicity Research", Program in Pediatric Toxicology, Children's Hospital
- 2000 Discussant, "Adult Lead Toxicity", Weekly Case Round, Department of Medicine, Brigham and Women's Hospital, Boston.
- 2000 Lecturer, "Update on Lead Toxicity, Hypertension, and Chronic Renal Failure", Renal Rounds, Division of Nephrology, Department of Medicine, Brigham and Women's Hospital, Boston.
- 2002 Lecturer, "Maternal Bone Lead as a Threat to Fetal Development", Program in Neonatology, Beth Israel-Deaconess Hospital, Boston, MA

Doctoral student committees

Chair and member:

- | | |
|-----------------------|---|
| Dr. Rokho Kim | Dr.P.H. Occupational Health and Epidemiology, '96 |
| Dr. Yawen Cheng | Sc.D. Epidemiology, '98 |
| Dr. Sharon Tsaih | Sc.D. Epidemiology, '99 |
| Dr. Hung Yi Chuang | Sc.D. Occupational Health, '99 |
| Dr. Adrienne Ettinger | Sc.D. Environmental Health, '03 |
| Dr. Florence Wang | Sc.D. Environmental Health, '05 |
| Dr. Sung K. Park | Sc.D. Environmental Health, '05 |
| Dr. Pradeep Rajan, | Sc.D. Occupational Health, '06 |

Member/Advisor:

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Dr. How Ran Guo	Sc.D. Occupational Health, '94
Dr. Joshua Cohen	Sc.D. Health Policy and Management, '94
Dr. Jane Hoppin	Sc.D. Environmental Health, '95
Dr. Salma Elreedy	Sc.D. Environmental Health, '97
Dr. Mary Jean Brown	Sc.D. Maternal and Child Health, '00
Dr. Brisa Sanchez	Sc.D. Biostatistics, '06
Dr. Ami Zota	Sc.D. Environmental Health, '07
Dr. Ananya Roy	Sc.D. Environmental Health, '08
Dr. Elissa Wilker	Sc.D. Environmental Health, '09

Post-doctoral fellow mentor:

Dr. Marinelle Payton (Channing Lab), Dr. Susan Korrick (Channing Lab), Dr. Rokho Kim (Channing Lab), Dr. Viji Potula (HSPH Research Fellow), Dr. Barbara Nowak (Visiting Scientist from Silesian University School of Medicine, Poland), Dr. Robert Wright (Channing Lab), Dr. Ming Tsuang Wu (HSPH Research Fellow), Dr. Yawen Cheng (Channing Lab), Dr. Geeta Mathur (neonatology fellow at the Brigham and Women's Hospital), Dr. Sri Hari Bojja (HSPH Research Fellow), Dr. Hae-Kwan Cheong (Visiting Scientist from Dongguk University School of Medicine, S. Korea), Dr. Sahar Elmarsafawy (HSPH Research Fellow), Dr. Jing Lu (Visiting Scientist from the Chinese Academy of Preventive Medicine), Dr. Dieter Affeln (Occ/Env Med Fellow), Dr. Ahmed Gomaa (Occ/Env Med Fellow), Dr. Chris Leffler (Occ/Env Med Fellow), Dr. Ronald Dykeman (Occ/Env Med Fellow), Dr. Uma Dhanabalan (Occ/Env Med Fellow), Dr. Hsien-Wen Hsu (Occ/Env Med Fellow), Dr. Betty Ann Cohen (Occ/Env Med Fellow), Dr. Arvin Chin (Occ/Env Med Fellow), Dr. Daniel Rhodes (Occ/Env Med Fellow), Dr. Richard Wittman (Occ/Env Med Fellow), Dr. Sun-Dong Lee (Visiting Scientist from Sangji University, Korea), Dr. Ronald Green (Occ/Env Med Fellow), Dr. Erma Lawson (Environmental Health Fellow), Dr. Marc Weisskopf (Environmental Health Fellow), Dr. Bridget Bagert (Occ/Env Med Fellow), Dr. John Jarrell (Visiting Scientist from University of Calgary), Dr. Jennifer Weuve (Environmental Health Fellow), Dr. Karen Chou (Visiting Scientist from Michigan State), Dr. Nitin Jain (Channing Laboratory Fellow), Dr. Adrienne Ettinger (Children's Center Scientist), Dr. Sam Myers (Fellow in Alternative and Complementary Medicine), Dr. Marcelo Targino (Occ/Env Med Fellow), Dr. Manish Arora (Post-doctoral fellow from University of Sydney), Dr. Huiling Nie (Post-doctoral fellow from McMaster University).

Other faculty mentorship:

Elizabeth Rubinstein (HMS Summer research), Alicia Marier (HMS Summer research), Vanitha Janakiraman (HMS Summer research), Young-Sook Lim (Harvard College Summer research), Charles Lin (Harvard College Senior thesis research), Ed Hsieh (Harvard College Summer research), Naveen Thomas (Emory University Medical School Senior thesis research), Shreekrishna Akilesh (Harvard Dental School summer research), Christine Pace (HMS Summer research)

Advisory and supervisory responsibilities

1985-1987 Attending Physician, outpatient general medicine clinic, Boston City Hospital; weekly precepting for housestaff and medical students

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- 1990-2006 Preceptor, Residency in Occupational and Environmental Medicine, Harvard School of Public Health at the Mass Respiratory Hospital
- 1990-2006 Advisor to general M.P.H. students, Harvard School of Public Health.

2. LOCAL CONTRIBUTIONS (at the University of Michigan, 2006-2012)

- 2006- Principles of Environmental Health (EHS-500)
Course director and lecturer
- 2006- Environmental Epidemiology (EHS-608)
Guest lecturer on birth cohorts and environmental epidemiology
- 2006- Occupational and Environmental Disease (EHS-501)
Guest lecturer on metals exposure and health effects; Course Director (2009-)
- 2007- Metals Exposure, Biomarkers and Toxicity: A Multi-disciplinary Environmental Epidemiology Approach (EHS-698 reading course)
Course director and lecturer
- 2008-2009, Topics in Environmental Health Sciences (EHS-688)
2010-2011 Course director and lecturer
- 2009 Occupational and Environmental Disease (EHS-501)
Course director and lecturer
- 2009- On-line (Long-distance Foundations in Public Health Certificate Program): Principles of Environmental Health (EHS-500-801)
Course director and lecturer
- 2009 Introduction to Public Health (HMP-200)
Guest lecturer on environmental health
- 2009- Seminars in Aging and Public Health (EPID 813)
Course director and lecturer
- 2011 Seminar on Public Health in China (HMP-xxx)
Guest lecturer on "Environmental Health in China"

Post-doctoral fellow mentor:

Dr. Sung Kyun Park (Environmental Health Sciences Fellow, now Research Assistant Professor), Dr. Brisa Sanchez (Biostatistics Research Assistant Professor, now Assistant Professor), Dr. Richard Pilsner (Robert Wood Johnson Health & Society Fellow), Dr. Aimin Zhang (Environmental Health Sciences Fellow, Toxicology Training Grant), Dr. Ananya Roy (Environmental Health Sciences Fellow), Dr. David Cantonwine (Reproductive Sciences Fellow).

Doctoral Student Advisor (principal)

- | | |
|------------------|---|
| David Cantonwine | Ph.D. Environmental Health Sciences (2009) |
| Myriam Afeiche | Ph.D. Environmental Health Sciences (co-mentor with Karen Peterson; 2010) |
| Yoon-Hyeong Choi | Ph.D. Environmental Health Sciences (co-mentor with Sung Kyun Park; 2011) |

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Katie F. Bush	Ph.D. Environmental Health Sciences (co-mentor with Marie O'Neill; 2011)
Kelly Bakulski	Ph.D. Environmental Health Sciences (2012)
Gamola Fortenberry	Ph.D. Environmental Health Sciences (co-mentor with John Meeker; 2013)
Siyang Huang	Ph.D. Environmental Health Sciences (2013)
Deena Thomas	Ph.D. Environmental Health Sciences (2014)
Rebecca Tutino	Ph.D. Environmental Health Sciences (2015)
Zishaan Farooqui	Ph.D. MD-PhD Medical Scientist Training Program (2015)

Masters Student Thesis Advisor

Bradley Lampe (OEE), Troy Meissner (OEE), Pheba Alexander (OEE), Brian Davis (OEE & HBHE), Aaron Leftwich (OJOC program), Suengwon Lee (Nutrition), Allen Zhong (OEE), Graham Newman (OEE), Jacqueline Barkoski (OEE)

Undergraduate Thesis Advisor

Lauren Schwartz (Neuroscience, LSA)

3. LOCAL CONTRIBUTIONS (at the University of Toronto, 2012-present)

2012	Determinants of Community Health (Faculty of Medicine) Guest lecturer on 'The Future of Medicine & Public Health in a Crowded, Diverse, Aging, Stratified, Urbanized, Polluted, Hot, Thirsty, Hungry, Debt-Ridden World'.
2012-	CHL5004H Introduction to Public Health Guest lecturer on "The Future of Public Health (and Your Role !) in a Hot, Flat, Crowded...and Diverse, Aging, Stratified, Urbanized, Polluted, Thirsty, Hungry, Debt-Ridden World". "What is Public Health?", "Climate Change and Health"
2012-	CHL 5912F Industrial Toxicology. Guest lecturer on the "Toxicology of Metals".
2013-2014	Department of Family & Community Medicine "Building Blocks" (short course for International post-graduate primary care trainees); Guest lecturer on "Public Health & Primary Care"
2013-	CHL5701H Doctoral Seminar, Collaborative Doctoral Program in Global Health Guest lecturer on "The Challenges of Environmental Health in a Rapidly-Changing World, from the Molecular to the Global".
2014	JCR1000 "Interdisciplinary Approach to Global Challenges" Guest lecturer on "Global Environmental Health"
2014-	PHS100H1 "Grand Opportunities in Global Health"; Guest lecturer on "Urban Environments"
2015	Public Health & Preventive Medicine Residency Rounds "Physicians, Climate, and other Global Environmental Changes: Our Role"
2016	<u>CHL5004H Introduction to Public Health, Course Co-Director (with Professor Erica</u>

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- 2016 DiRuggiero)
CHL 7001H F6 Environmental-Molecular Epidemiology, Course Co-Moderator (with Professor Morteza Bashash)
- 2016 CHL5701H Doctoral Seminar, Collaborative Doctoral Program in Global Health, Course Co-Director (with Professors Erica DiRuggiero and Abdallah Daar)
- 2016 Joint Seminar, “The Impact on Intelligence, Behaviour, and Society of Lead Exposure: A Case Study of a Global Pollutant and On-going Research”; Collaborative Program in Neurosciences and Collaborative Global Health Doctoral Program, University of Toronto
- 2016 CHL5420H “Global Health Research Methods”
 Guest lecturer on “The Early Life Exposures in Mexico to Environmental Toxicants Project (ELEMENT): A Global Health Collaboration Case Study”

Masters student research advisor

Maele Marchand

Doctoral student advisor

Adele Carty

Doctoral student thesis committee member

Laura Bogaert

Doctoral student thesis examination committee member

Claudie CY Wong (doctoral student in epidemiology, Jockey School of Public Health and Primary Care, Chinese University of Hong Kong)

Zilong Zhang (doctoral student in epidemiology, Jockey School of Public Health and Primary Care, Chinese University of Hong Kong)

Post-doctoral fellow mentor:

Siyang Huang, Ph.D.; Morteza Bashash, Ph.D.; Roman Pabayo, Sc.D. (Harvard School of Public Health); Tripler Pell, M.D., M.P.H.

4. LOCAL CONTRIBUTIONS (at the University of Washington, 2017-present)

Doctoral student thesis research mentor

Megan Suter

Doctoral student special projects advisor

Rachel Shaffer

Joey Frostad

Rebecca De Buen

5. NIH K-grant mentorship:

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Robert Wright, M.D., M.P.H. (K-23 ES000381, “*Neurochemical and Genetic Markers of Lead Toxicity*”), 2000-2005; Dr. Wright is now Prof of Pediatrics, Mt. Sinai School of Medicine
 Marc Weisskopf, Ph.D. (K-01 ES012653, “*New Biomarkers of Neurotoxicity*”), 2004-2009; Dr. Weisskopf is now Associate Prof of Occup Health, Harvard Sch Public Health
 Sung Kyun Park, Sc.D. (K-01 ES016587; “*Environment, Novel Aging Outcomes, and Genetics*”), 2009-2014; Dr. Park is now Assistant Prof, Department of Epidemiology, University of Michigan Sch Public Health
 Emily Somers, Ph.D. (K-01 ES019909; “*Immune Dysfunction Associated with Early Life Heavy Metals Exposure*”), 2011-2016; Dr. Somers is now Associate Prof, Division of Rheumatology, Department of Internal Medicine, University of Michigan Medical School

COMMITTEE, ORGANIZATIONAL, AND VOLUNTEER SERVICE

National/International

1978-1982 Taskforce on Occupational and Environmental Health, Co-coordinator, Am Med Stu Assoc
 1989 Ad Hoc Study Committee, National Institute for Environmental Health Sciences Council
 1989-2006 Association of Occupational and Environmental Medicine Clinics (AOEC)-- (through the Northeast Specialty Hospital Center for Occupational and Environmental Medicine)
 1989-1990 Member, Relative Risk Reduction Strategies Committee, Science Advisory Board, U.S. Environmental Protection Agency
 1989-1992 Member, Board of Directors, Physicians for Human Rights, Boston, MA
 1991 National Institutes of Health, General Clinical Research Center Program, Site Visit Team
 1992- Member, National Advisory Committee, Physicians for Human Rights, Boston, MA
 1992 Special Study Section member (R3/S1/B3), National Institutes of Health
 1994 Ad Hoc Reviewer, National Institutes of Health, General Dental Research Center Program
 1994- Advisory Board, Institute for Energy and Environmental Research
 1994-1996 Associate, Project on Global Environmental Change and Health, Physicians for Social Responsibility
 1995 Ad Hoc Reviewer, National Institutes of Health, Diagnostic Radiology Study Section
 1996- Membor, Editorial Board, Health and Human Rights—an International Journal
 1995-1998 Advisory Committee, Consortium for Environmental Education in Medicine, Cambridge, MA.
 1996-1997 Reviewer, Agency for Toxic Substances and Disease Registry
 1997-1998 Program Committee, Annual Mtg, NIEHS Superfund Basic Research Group Centers
 1998-2013 (Founding) Medical Editor (1998-2004); Associated Medical Editor (2004-), Environmental Health Perspectives (official journal of NIEHS)
 2001 Ad Hoc Reviewer, National Institutes of Health, R-13 applications

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- 2002-2006 External Advisory Committee, Program Project on Lead and Osteoporosis, University of Rochester
- 2003-2005 Member, Ad-Hoc Expert Panel to Form Medical Management Guidelines for Lead-Exposed Adults, (supported by NIOSH and AOEC)
- 2003-2009 Member, Working Group on Lead and Pregnancy, Advisory Committee on Childhood Lead Poisoning Prevention, U.S. Centers for Disease Control and Prevention
- 2004 Ad Hoc Reviewer, National Institutes of Health, K-23 applications
- 2004 Ad Hoc Reviewer, Draft of "Immunization Safety Review: Vaccines and Autism" Immunization Safety Review Committee, Institute of Medicine, National Academies of Science
- 2004 Finalist (one of 8), Search for Director, National Institute for Environmental Health Sciences, U.S. National Institutes of Health
- 2005 Member, Strategic Planning Conference, National Institute for Environmental Health Sciences, Research Triangle Park, NC
- 2006 Ad Hoc Reviewer, Draft of "Preterm Birth: Causes, Consequence, and Prevention" Committee on Understanding Premature Birth and Assuring Health Outcomes, Institute of Medicine, National Academies of Science
- 2006 Member, External Advisory Committee, NIEHS Center, University of Rochester
- 2007 Member, Ad Hoc Study Section, Special Emphasis Panel/Scientific Review Group 2007/05 ZES1 JAB-C (DI) (NIEHS Discover Centers)
- 2007-2010 Member, Board on Population Health and Public Health Practice, Institute of Medicine, National Academies, Washington DC.
- 2007 Member, Ad Hoc Review Panel, Centers of Excellence Program, Swedish Council for Working Life and Social Research.
- 2007-2008 Member, Search Committee for Director of Extramural Research, NIEHS
- 2007 Special Consultant, Ad Hoc Study Section, Special Emphasis Panel/Scientific Review Group 2008/01 ZAR1 CHW-G (NIAMS Arthritis Centers)
- 2008 Report Reviewer, Draft National Research Council Report, "The National Children's Study Research Plan: A Review", National Academies
- 2008 Report Reviewer, Draft National Research Council Report, "Gulf War and Health: Updated Literature Review of Depleted Uranium", Institute of Medicine, National Academies
- 2008-2009 Data Safety Monitoring Board, "d-Penicillamine Chelation in lead-poisoned Children—A Phase II/III Trial" (R01FD003361; PI: Michael Shannon)
- 2008 Subcommittee to review Draft Report on Bisphenol A, Science Board, Food and Drug Administration
- 2008 Planning Committee, International Symposium on the Environmental and Health Consequences of Metal Mining and Smelting
- 2008-2009 Co-Chair, Planning Committee, "Climate Change Impacts on Public Health in India", Workshop that took place in Goa, India in Aug-Sept 2009 co-sponsored by UM Center for Global Health, the US Centers for Disease Control and Prevention and the Indian Council for Medical Research

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- 2008 Finalist (one of 2), Search for Director, National Institute for Environmental Health Sciences, U.S. National Institutes of Health
- 2009-2012 Member, Board on Environmental Studies and Toxicology, National Research Council
- 2009 Reviewer, NIH Challenge Grants, Special Emphasis Panel/Scientific Review Group
2009/10 ZRG1 GGG-F
- 2009-2010 External Member, Academic Program Review Site Visit Committee, Department of Environmental and Occupational Health Sciences, University of Washington School of Public Health
- 2010-2012 Member, External Advisory Committee, University of Rochester NIEHS P30 Core Center
- 2010 Member, Ad-hoc review committee, National Health Research Institutes of Taiwan, Special Emphasis Panel—NHRI-Kaoshiung Medical College Program Project on “: “Gene Environment Interaction in the Genesis of Asthma and Allergic Diseases”
- 2010-2012 Member, Advisory Board, Institute of Public Health, Florida Agricultural & Mechanical University, Tallahassee, FL
- 2011 Reviewer, NIEHS Career Development Awards, Special Emphasis Panel/Scientific Review Group 2011/05 ZES1 LKB-J (K9)
- 2011-2016 Member, NIEHS National Advisory Environmental Health Sciences Council
- 2012 Member, Editorial Board, Journal of Alzheimer’s Disease
- 2015 Member and External Reviewer, School of Population and Public Health Review Committee, University of British Columbia, Vancouver, B.C.
- 2016- Chair, Board of Directors, Canadian Urban Environmental Health Research Consortium, (National Consortium based out of the Dalla Lana School of Public Health)
- 2017- Member, Energy Research Committee, Health Effects Institute, Boston, MA
- 2017-2018 Executive Co-Chair, Workshop on the Global Burden of Disease-Pollution and Health Initiative, March 1-2, 2018, Institute for Health Metrics and Evaluation, Seattle, WA
- 2017- Executive Co-Leader, Global Burden of Disease-Pollution and Health Initiative
- 2019- Member, Research Advisory Committee, Centre of Environmental Health, The Public Health Foundation of India and the Tata Institute of Social Sciences, New Delhi, India
- 2019- Reviewer, draft report on trace metals levels in pregnancy women, Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention, Atlanta

Regional

- 1988-1990 Health Facilities Appeals Board, Member, Dept. Public Health, Comm. Of Mass.
- 1988-2006 Advisory Board, Massachusetts Department of Public Health, Sentinel Event Notification System for Occupational Risks (SENSOR) Project
- 1989-1995 Advisory Board, Massachusetts Division of Occupational Hygiene, Lead Registry Project
- 1990-1992 Board of Directors, Member, Health Care for All, Boston, Massachusetts
- 1993-1995 Faculty Council, Member, Harvard School of Public Health
- 1995-2006 Faculty Advisory Committee, Public Health Practice Program, Harvard School of Public Health

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1996-2006 Advisory Board, Boston VA Environmental Hazards Center, Boston

1997-2001 Faculty Steering Committee, Center for Children's Health, Harvard School of Public Health

1996-2006 Senior Epidemiology Consultant, Massachusetts Veterans Epidemiology Research and Information Center, Boston.

1996-2006 Associate, Center for Health and the Global Environment, Harvard Medical School

1997-2002 Faculty Advisory Committee on Continuing Professional Education, Harvard School of Public Health

1998-2006 Faculty Steering Committee, Masters of Public Health program, Harvard School of Public Health

2001-2003 Board of Directors, New England College of Occupational and Environmental Medicine

2001-2006 Associate Director, Harvard NIEHS Environmental Sciences Center, Harvard School of Public Health

2001-2006 Senior Advisory Council Member, Lowell Center for Sustainable Production, University of Massachusetts, Lowell, MA

2003-2006 Member, Human Subjects Committee, Harvard School of Public Health

2003-2006 Advisory Committee, Occupational Health Services Research Program, Harvard School of Public Health

2006 Study Section Review Committee, Pilot Project Program, Graham Environmental Sustainability Institute, School of Natural Resources and Environment, University of Michigan

2006-2007 Chair, Planning Committee, Health Sector, May 8-10, 2007 National Summit on Coping with Climate Change, University of Michigan

2007-2009 Member, Advisory Committee, SPH Practice Committee, University of Michigan School of Public Health

2007-2012 Member, Residency Advisory Committee, General Preventive Medicine Residency, University of Michigan School of Public Health

2008-2009 Member, Steering Committee, NIA T32 Training Grant on Aging Research (PI: Mary Haan), University of Michigan School of Public Health

2008-2013 Member, Advisory Committee, Outstanding New Environmental Scientist Awardee (Marie O'Neill), NIEHS

2008-2009 Member, Search Committee for Director of the Risk Science Center, University of Michigan School of Public Health

2009 Co-Chair, Planning Committee, Workshop on Predicting and Preventing Climate Change Impacts on Public Health, Goa, India (Collaboration with the UM Center for Global Health, the US Centers for Disease Control and Prevention, and the Indian Council for Medical Research)

2009-2011 Director and PI, NIA T32 Training Grant on Aging Research, University of Michigan School of Public Health

2009-2010 Member, Planning Committee, University Research Corridor (U of M, Michigan State, Wayne State) symposium on environmental health sciences in January 2010

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2009-2012 Faculty Associate, Center for Global Health, University of Michigan
 2009-2012 Member, Internal Advisory Board, Cancer Epidemiology Education in Special Populations Program, University of Michigan School of Public Health
 2009-2011 Chair, Steering Committee on Global Health, University of Michigan School of Public Health
 2010-2012 Member, Executive Committee, Graham Environmental Sustainability Institute, University Of Michigan
 2010-2012 Member, Committee on Diversity, University of Michigan School of Public Health
 2012-2017 Chair, Executive Committee, Dalla Lana School of Public Health, University of Toronto
 2012-2017 Chair, Tenure Committee, Dalla Lana School of Public Health, University of Toronto
 2012-2017 Chair, Decanal Promotions Committee, Dalla Lana School of Public Health, University of Toronto
 2012-2017 Chair, Executive Advisory Committee, Institute for Global Health Equity & Innovation, Dalla Lana School of Public Health, University of Toronto
 2013-2015 Interim Director, Institute for Global Health Equity & Innovation, Dalla Lana School of Public Health, University of Toronto
 2013-2014 Co-Chair, Research Committee, Dalla Lana School of Public Health, University of Toronto
 2014-2017 Chair, Executive Advisory Committee, Institute for Health Policy Management and Evaluation, University of Toronto
 2014 Chair, Ad-hoc Committee to create an Institute for Indigenous Health (based on a \$10 million endowment gift made to DLSPH), Dalla Lana School of Public Health, University of Toronto; Chair, Executive Advisory Committee beginning 2015
 2015-2017 Chair, Executive Advisory Committee, Joint Centre for Bioethics, University of Toronto
 2015- Chair (2015-2017); Member (2017-present), Taskforce on Environmental Health, Ministry of Health and Longterm Care, Province of Ontario
 2016-2017 Chair, Executive Advisory Committee, Centre for Critical Qualitative Health Research, University of Toronto
 2017-2018 Executive Co-Chair, Workshop on the Global Burden of Disease-Pollution and Health Initiative (a collaboration between the Global Alliance on Health and Pollution and the Institute for Health Metrics), Seattle, WA

Hospital

1982-1985 Occupational Safety and Health Committee, Member, Boston City Hospital, Boston
 1983-1984 House Officers Association, Treasurer, Boston City Hospital
 1984-1985 House Officers Association, Co-President, Boston City Hospital

OTHER PUBLIC SERVICE

1987 Member, Fact-finding tour on "The Health Effects of Massive Exposure to Tear Gas",

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- Seoul, South Korea, July 11-18 (Sponsored by Physicians for Human Rights, American College of Physicians)
- 1988 Member, Fact-finding tour on "Chemical Weapons and the Iraqi Kurdish refugees", Turkey Oct 6-16 (Sponsored by Physician for Human Rights and the MacArthur Foundation)
- 1990 Leader, Fact-finding tour on "Health and Human Rights in Burma (Myanmar)", Thailand-Burma Dec. 26-Jan 6 (Sponsored by Physician for Human Rights and the MacArthur Foundation)
- 2009 Consultant and senior advisor, Fact-finding tour on "Mining and Potential Exposures and Health Effects in Guatemala", August 2009 (Sponsored by Physicians for Human Rights)

CONSULTING POSITIONS

- 1987-1989 Consultant, "In-Vivo Total Body Lead Analysis by X-Ray Fluorescence", NIH/SBIR Grant 2R44ES03918-02
- 1988-1989 Consultant, "Boston Area Health Coalition Demonstration Project", DHHS/MP000003-A1
- 1993-1995 Consultant, Employee Health Services, Brigham and Women's Hospital
- 1994 Consultant, Public Welfare Foundation, Washington, DC (review of Environmental Programs)
- 1997-2006 Consultant, Pediatric Environmental Health Center, Children's Hospital, Boston, MA
- 2000 Consultant, Doris Duke Foundation, New York, NY (review of potential Environment and Medicine programs)
- 2009-2010 Consultant and Member, Academic Program Review Site Visit Committee, Department of Environmental and Occupational Health Sciences, University of Washington School of Public Health, Seattle, WA
- 2011 Consultant, JPB Foundation, New York, NY (review of Environmental Health programs)
- 2014- Advisor, Hearing Health Sciences, Ann Arbor MI and Amsterdam, Netherlands

VISITING PROFESSORSHIPS

- 1997 Alice Hamilton Visiting Professor, University of California at San Francisco
- 2000-2001 Visiting Professor, Sri Ramachandra Medical College & Research Institute, Chennai, India
- 2004 Visiting Professor, Department of Environmental Medicine, University of Rochester
- 2013 Visiting Professor, Shanghai Key Laboratory, Shanghai Jiao-Tung University

SEMINARS AND EXTRAMURAL INVITED PRESENTATIONS (last 15 years, since 2003; prior presentations upon request)

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- 2003 Guest lecturer, "Lead as a trans-generational toxin", Seminar series, Department of OB/GYN, Brigham and Women's Hospital
- 2003 Plenary speaker, "Clinical opportunities in environmental health", Annual Leadership Retreat, National Institute for Environmental Health Sciences, Greensboro, NC.
- 2003 Discussant, "Uncontrolled Hypertension in a Painter", Grand Rounds in Occupational/Environmental Medicine, Harvard School of Public Health
- 2003 Discussant, "A 53-Year Old Teacher with Chemical Sensitivities", Grand Rounds in Occupational/Environmental Medicine, Harvard School of Public Health
- 2003 Lecturer, "Pestilence and Progress: The Future of Public Health through the Lens of Blood", Center for Blood Research Symposium, Museum of Science, Boston, MA.
- 2003 Speaker, "Bones, Genes, Plasma, and Lead: New Frontiers in Understanding the Toxicity of an Old Hazard", Distinguished Lecture Series. National Center for Environmental Health/Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention, Atlanta GA.
- 2003 Plenary speaker, "Biomarkers, Genes, Interactions and Lead: New Insights from Research on an Old Hazard", Superfund Basic Research Program Annual Meeting, Dartmouth University, Hanover, NH.
- 2003 Special Lecturer, "Lead Exposure and Chronic Disease: Recent Research on Susceptible Sub-populations", Florida Agricultural and Mechanical University, Tallahassee, FL.
- 2004 Speaker, "New Frontiers in Understanding the Toxicity of Lead", Department of Environmental Medicine, University of Rochester, Rochester, NY.
- 2004 Presenter, "Lead Exposure During Pregnancy: Mobilization of Maternal Bone Lead Stores and Their Threat to the Fetus", Semi-annual meeting of the Childhood Lead Poisoning Prevention Branch, Centers for Disease Control and Prevention, Baltimore, MD
- 2004 Presenter, "Environmental Medicine", Annual meeting of the Editorial Board, *Environmental Health Perspectives*, Baltimore MD
- 2004 Plenary speaker, "Metals, Genes, and Neurodegeneration: the Approach of the Metals Epidemiology Research Group at the Harvard School of Public Health", National Institute for Environmental Health Sciences Conference on Neurodegeneration.
- 2004 Discussant, "Suspected Lead Toxicity" Grand Rounds in Occupational/Environmental Medicine, Harvard School of Public Health
- 2004 Discussant, "Mercury Exposure in a Metal Worker", Grand Rounds in Occupational/Environmental Medicine, Harvard School of Public Health
- 2004 Presenter, "Effects of Our Environment on Intellect, Behavior, Life and Death," Leadership Council meeting, Harvard School of Public Health
- 2004 Guest Speaker, "Biomarkers, Genes, Interactions and Lead: New Insights from Research on an Old Hazard", Department of Environmental Health, University of Michigan School of Public Health
- 2004 Guest Speaker, "Medicine, Public Health, and the Great American Melting Pot: A Second-Generation Chinese-American Reflects on His Personal Odyssey", Sponsored by the Asian Student Association, Harvard School of Public Health
- 2004 Speaker, "Aging, the Environment and Genetics: Recent Insights from

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- Epidemiologic Studies of Environmental Lead Exposure”, Annual Leadership Retreat, National Institute for Environmental Health Sciences, Pinehurst, NC.
- 2004 Plenary Speaker, “Guidelines for the Management of Lead-Exposed Adults: Recommendations by a National Expert Panel Based on Recent Research”, New England College of Occupational and Environmental Medicine Annual Meeting
- 2005 Lecturer, “Biomarkers, Genes, Interactions and Lead: New Insights from Research on an Old Hazard”, Sri Ramachandra Medical College and Research Institute, Chennai, Tamil Nadu, India
- 2005 Lecturer, “Your Child's IQ, Behavior and Neuropathology: Genes or Environment?”, the Harvard Club of Boston, Boston, MA
- 2005 Guest Speaker, “Metals, Neurodevelopment, and Neurodegeneration: The Work of the Metals Epidemiology Research Group at HSPH”, Neurostatistics Working Group, Harvard School of Public Health, Boston, MA.
- 2005 Plenary Speaker, “Aging, the Environment and Genetics: Recent Insights from Epidemiologic Cohort Studies of Environmental Lead Exposure”, NIEHS Symposium on Aging and the Environment, Duke University, Durham, NC.
- 2005 Plenary Speaker, “SPECT Imaging and Chemical Intolerance”, NIEHS/NIAA symposium on “Chemical Intolerance and Addiction: a Shared Etiology?”, Research Triangle Park, NC
- 2005 Workshop Presenter, “Social and Environmental Threats: the Unnecessary Epidemics”, Harvard School of Public Health Leadership Council Annual Conference, Boston, MA
- 2005 Keynote Speaker, “Our Food, Our Water, Our Homes: Toxic Metals”, The Boston Foundation, Boston, MA.
- 2006 Invited Speaker (invited by David Schwartz, NIEHS Director), “Goal IV: Improve and Expand Community-Linked Research”, Roundtable on Environmental Health Sciences, Research, and Medicine; Institute of Medicine, National Academy of Sciences, Wash DC.
- 2006 Speaker, “The Future of Environmental Health Sciences at the University of Michigan”, Dean’s Advisory Board, University of Michigan School of Public Health, Ann Arbor, MI
- 2006 Keynote Speaker and Harriett Hardy Annual Lecturer, “The ‘E’ in Occupational/ Environmental Medicine: the Present and the Future”, New England College of Occupational Medicine Annual Meeting, New Bedford, MA
- 2007 Speaker, “The Future of Environmental Health Sciences at the University of Michigan”, Meetings of the UMSPH Alumni Council and the EHS Emeritus Faculty, Ann Arbor, MI
- 2007 Moderator and Speaker, “The Normative Aging Study: Health Effects of Lead”, Symposium on the Health Effects of Lead, 2007 Annual Meeting of the International Society for Environmental Epidemiology, Mexico City, Sept 8, 2007
- 2007 Guest Lecture, “Uncovering the Impact of the Environment on Disease: Big Opportunities for Physician-Scientists”, Medical Scientist Training Program, University of Michigan Medical School
- 2007 Guest Lecture, “Industrialization, Pollution and Public Health in India: Can India Survive Modernization?”, Osher Institute, Ann Arbor, MI
- 2007 Plenary Speaker, “Environmental Equity: Local and Global Challenges and the Balance Between Research and Advocacy”, Michigan’s Premier Public Health Conference,

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- October 16, 2007, Dearborn, MI
- 2007 Board Member Lecture, "Metals, Genes, Health and Human Rights: from the Molecular to the Global", Fall Meeting of the Board of Population Health and Public Health Practice, Institute of Medicine, National Academies of Science, Washington DC, Dec 13, 2007.
- 2008 Speaker, "MDs as Leaders for Change in Environmentalism", 2008 Annual Regional Political Leadership Institute, American Medical Student Association, University of Michigan Medical School, February 16, 2008
- 2008 Speaker, Grand Rounds, "The Impact of Environmental Pollutants on Disease: New Insights and Implications for Research and Medical Practice" Department of Medicine, University of Michigan Health System.
- 2008 Guest Lecture, "Emerging Insights into the Pervasive Influence of Environment Toxicants on Reproductive Outcomes and Offspring Development: Lead as a Case Study", Reproductive Sciences Program, University of Michigan
- 2008 Panelist, "Environmental Health in China", Public Health Grand Rounds, Division of Health Practice, University of Michigan School of Public Health
- 2008 Keynote Speaker, "Human Health and the Role of Water", Symposium on Water, Health & The Environment, Graham Environmental Sustainability Institute, University of Michigan
- 2008 Guest Speaker, "Lead Exposure and Toxicity: New Insights Using Molecular Epidemiology" Wadsworth Laboratories and SUNY-Albany
- 2008 Speaker: "Impact of Climate Change on Human Health: Vulnerability" 5th AKKA World Kannada Conference, Chicago IL
- 2008 Speaker, "The 'E' in Occupational/Environmental Medicine: the Present and the Future", Michigan Occupational/Environmental Medicine Annual Meeting, Mackinac Island, MI
- 2008 Speaker, "Impact of Climate Change on Human Health", University of Michigan Chapter of the American Medical Student Association, Ann Arbor, MI
- 2008 Speaker, "Early Life Origins of Adult Chronic Disease: Environmental Health and Toxicology at a Crossroads" Michigan Chapter of the Society for Toxicology, Ann Arbor, MI
- 2009 Speaker, "Evidence for Lead as an Environmental Stressor of Alzheimer's Disease and the Role of Epigenetics", Symposium Panel, Annual Meeting of the Society for Toxicology, Baltimore, MD
- 2009 Keynote Speaker, "Lead, Late-Life and Early Life Effects, and the Emerging Field of Environmental Epigenetics: Looking Ahead", Annual Meeting of the American College for the Advancement of Medicine, San Diego, CA
- 2009 Speaker, "Lead Toxicity and Mechanistically-Oriented Molecular Epidemiology: Targeting the Epigenetics of Alzheimer's Disease", Seminar Series, Institute for Environmental Health Sciences, Wayne State University, Detroit, MI
- 2009 Speaker, "Climate Change Impacts on Health in the Developing World", Research Discussion Series, University of Michigan Center for Global Health
- 2009 Speaker, "Autism, Aggressive Behavior, Anxiety, and Alzheimer's: are Environmental Toxicants Playing a Major Etiologic Role?", Department of Psychology, University of Michigan
- 2009 Speaker, "Early Life Exposures and Endocrine Disruption: Evidence from Molecular

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- 2009 Epidemiology”, Pediatric Endocrine Seminar, University of Michigan Medical School
- 2009 Distinguished Speaker, “Lead Toxicity: Twenty Years of Research On The Poison That Keeps on Poisoning” 10th Anniversary of the Department of Microbiology and Environmental Toxicology, University of California at Santa Cruz
- 2010 Speaker, “The Centers for Disease Control and Prevention & the Environmental Protection Agency: Potential Funding Opportunities for Regional Collaboration in Michigan”, University Research Corridor Symposium on Environmental Health, Detroit, MI.
- 2010 Speaker, “The Future of Public Health”, University of Washington School of Public Health
- 2010 Speaker, “The Environment Meets the Epigenome: Is This Where Autoimmunity Begins?” Symposium on Autoimmunity and Epigenetics, University of Michigan
- 2010 Keynote Speaker, “A New Twist to an Old Story: The Evidence for Early Life Lead Exposure as a Risk Factor for Alzheimer's Disease through Epigenetic Programming”, NIEHS Environmental Health Sciences Center and Toxicology Training Program Retreat, University of Rochester, NY
- 2010 Speaker, “Lead Toxicity: Twenty Years of Research on The Poison That Keeps on Poisoning” and “Environmental Health Sciences at the University of Michigan”, Tianjin Centers for Disease Control, Tianjin, China
- 2010 Speaker, “Pediatric Lead Toxicity”, Xinhua Hospital and the Shanghai Jiao-Tung Medical University Department of Pediatrics, Shanghai, China
- 2010 Speaker, “Environmental Health Sciences at the University of Michigan”, Fudan University, Shanghai, China
- 2010 Speaker, “Alzheimer’s Disease, Epigenetics and the Environment”, Symposium Update, Alzheimer’s Disease Association, Ann Arbor, MI
- 2010 Speaker, “Environmental Justice, Progress (and the Lack Thereof) and the Role of Research”, Roundtable on Environmental Health Sciences, Research and Medicine, Institute of Medicine, National Academies, Washington DC.
- 2010 Speaker, “White Coats, Population Science and Poison Gas: A Life Spent at the Intersection of Academic Medicine, Global Health & Human Rights”, Robert Wood Johnson Clinical Fellows Program, University of Michigan Medical School, Ann Arbor, MI
- 2011 Speaker, “The Three Most Difficult Challenges to Molecular Epidemiologic Research on Gene-Environment Interactions: Lead Toxicity as a Case Study.” Department of Human Genetics, University of Michigan Medical School, Ann Arbor, MI
- 2011 Speaker, “The Integration of Data on Environmental Carcinogens with Population and Genetic Resources”, “Opportunities & Challenges for Translational Research on Cancer Prevention”, Translational Cancer Prevention & Biomarkers Workshop, Mazamdur-Shaw Cancer Center, Bangalore, India.
- 2011 Speaker, “Success in the Academy”, Faculty Panel, Students of Color of Rackham, Rackham Graduate School, University of Michigan
- 2011 Speaker, “White Coats, Population Science and Poison Gas: Fact-Finding Missions by Health Professionals for Human Rights”, Sujal Parikh Memorial Symposium, University of Michigan Medical School.
- 2011 Speaker, “The Analysis of Biomarker Data to Ascertain the Contribution of Environmental

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- Exposures to the Etiology of Disease: Lead Exposure and Toxicity as a Case Study”, Department of Computational Medicine and Bioinformatics, University of Michigan Medical School.
- 2012 Speaker, “Research and Analysis Linking Upstream and Downstream Disparities Work”, Webinar hosted by the Health & Environmental Funders Network, Bethesda, MD, with 52 Foundations related Health.
- 2012 Keynote Speaker, “The Future of Public Health & Medicine in a Crowded, Diverse, Stratified, Hot, Urbanized, Polluted, Thirsty, Hungry and Debt-Ridden World”. E.J. Van Liere Memorial Convocation and Health Sciences Center Research Day, West Virginia University, Morgantown, West Virginia
- 2012 Plenary Speaker, “Transgenerational Impacts of Pollutants on Offspring: Recent Insights and Case Studies”, Connaught Global Challenge International Symposium, University of Toronto.
- 2012 Speaker, “Environmental Impacts on Aging (+ an update on the Dalla Lana School of Public Health)”, Community Medicine Rounds, University of Toronto
- 2012 Speaker, “The Environment & Public Health in a Research-Intensive University: Opportunities for Scholarship in a Crowded, Diverse, Stratified, Hot, Urbanized, Polluted, Thirsty, Hungry and Debt-Ridden World”, School for the Environment, University of Toronto
- 2012 Speaker, “Big Public Health Challenges (& Opportunities) in a Crowded, Diverse, Aging, Stratified, Urbanized, Polluted, Hot, Thirsty, Hungry, Debt-Ridden World”, External Advisory Meeting, Public Health Ontario, Toronto
- 2012 Speaker, “Canadian Public Health Schools (in a Crowded, Diverse, Aging, Stratified, Urbanized, Polluted, Hot, Thirsty, Hungry, Debt-Ridden World): The View from Toronto, External Advisory Board Meeting, Institute for Population and Public Health, Canadian Institutes for Health Research, Toronto
- 2012 Speaker, “Sustainable Development and Health: The Global Mining Industry”, Canadian Society for International Health Annual Meeting, Ottawa
- 2012 Speaker, “Big Public Health Challenges (& Opportunities) in a Crowded, Diverse, Aging, Stratified, Urbanized, Polluted, Hot, Thirsty, Hungry, Debt-Ridden World”, Xinhua Hospital/Shanghai Jiao-Tung University, Shanghai, China.
- 2012 Speaker, “The Impact of Population-Wide Lead Exposure and Gene-Lead Interactions on Chronic Disease”, Genetic Grand Rounds, Sick Kids Hospital, Toronto.
- 2012 Speaker, “Looking behind the curtain: Lead Toxicity as a Case Study of Methodologic Challenges in Gene-Environment Interactions Research”, Strategic Training in Advanced Genetic Epidemiology (STAGE), Dalla Lana School of Public Health, University of Toronto.
- 2012 Keynote speaker: “Public Health—the Next Frontier in Health Professions Education”. Council of Health Sciences annual retreat, University of Toronto.
- 2013 Speaker, “White Coats, Population Science and Poison Gas: Lessons from a Life Spent at the Intersection of Academic Medicine, Global Health & Human Rights”, Joint Center for Bioethics, University of Toronto
- 2013 Speaker, “Gauging environmental impact on the development of chronic inflammation”,

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- Connaught Global Challenge Workshop, University of Toronto.
- 2013 Speaker, “The Future of Public Health & Medicine in a Crowded, Diverse, Aging, Stratified, Urbanized, Polluted, Hot, Thirsty, Hungry, Debt-Ridden World”, Grand Rounds, Department of Medicine, University of Toronto.
- 2013 Speaker, “Metals, Mega-trends, and Me: Reflections on Research and the Vision for the Dalla Lana SPH”, Occupational and Environmental Medicine Grand Rounds, St. Michael’s Hospital, Toronto, ON.
- 2013 Speaker, “Air pollution and Cardiovascular Disease: Health Impacts, Mechanisms, and Research Opportunities”, University of Toronto & FMUSP-InCor Symposium on Cardiology, Sao Paulo, Brazil.
- 2013 Speaker: “Lead Exposure’s Impact on Health and Policy: A History of Neglect and Missed Opportunities”, Public Health Policy Rounds, CIHR Strategic Training Program in Public Health Policy, University of Toronto.
- 2013 Speaker: “Lead Toxicity: The Long Tail of Health Impacts (and On-going Research Opportunities!) From an Historical Environmental Air Pollutant”, Southern Ontario Centre for Air Pollution and Aerosol Research, University of Toronto.
- 2013 Speaker: “Water and Sanitation”, Water, Sanitation and Hygiene (WASH) Canada, Toronto, Ontario, Canada
- 2014 Speaker: “Conflict and Public Health”, Ontario Medical Association, Toronto, Canada
- 2014 Panelist: “Judging Evidence: Finding a Place for Variation in an Evidence-Based World”, Health Quality Ontario, Toronto, Canada
- 2014 Speaker: “The Grand Convergence: Creating Health in a Globalized World”, Special meeting of the Canadian Chamber of Commerce in Shanghai
- 2014 Speaker: “The Grand Convergence: Creating Health in a Globalized World”, Jockey School of Public Health and Primary Care, Chinese University of Hong Kong, Hong Kong, China
- 2015 Speaker: “The Grand Convergence: Creating Health in a Globalized World”, School of Public Health and the ASEAN Institute, Mahidol University, Bangkok, Thailand
- 2015 Speaker: “Gene-environment Interactions and the Role of Big Data in Environmental Health” Seminar series, School of the Environment, University of Toronto, Toronto, Canada
- 2015 Speaker: “Global Health Security”, Ill with Illness—Economic, Social & Security Barriers to the Provision of Global Health, Munk School of Global Affairs, University of Toronto, Toronto, Canada
- 2015 Speaker: “The Dalla Lana School of Public Health: Big Ideas and Initiatives for Creating Health in a Globalized World”, Speaker Series, University of Toronto Alumni of Toronto.
- 2015 Speaker: “Unique Scientific Opportunities for the Precision Medicine Initiative National Research Cohort: Exposomics, Data Linkage, and Global Collaborations”. Working group on President Obama’s Precision Medicine Initiative (Chaired by Francis Collins, Director, NIH)
- 2015 Speaker: “What is the Role of Schools of Public Health in the 21st Century?” 50th Anniversary Celebration of the Department of Epidemiology, Biostatistics and Occupational Health, McGill University, Montreal, Quebec.
- 2015 Welcoming Address: “Global Public Health and Mental Health”, Going Global for Mental Health conference, Centre for Addictions and Mental Health/Department of Psychiatry/Dalla

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- Lana School of Public Health, Toronto, ON
- 2015 John Goldsmith Memorial Lecture: “Big Data, Environmental (and Social) Epidemiology, Power and Politics”, Opening Plenary Session, International Society for Environmental Epidemiology Annual Meeting, Sao Paulo, Brazil
 - 2015 Inaugural Speaker: “The Future of Public Health and Medicine in a Crowded and Complex World”, Global Health Leadership Series, PSG Medical School & the Shanti Ashram Foundation, Coimbatore, Tamil Nadu, India
 - 2016 Speaker “The Future of Public Health & Medicine in a Crowded, Diverse, Aging, Stratified, Urbanized, Polluted, Hot, Thirsty, Hungry, Debt-Ridden World”, Indian Institutes of Public Health—Hyderabad, Hyderabad, India
 - 2016 Speaker: “Integration of Public Health & Health Care: The Unmet Agenda for a Truly Sustainable Health System”, Board of Directors Retreat, Toronto East General Hospital, Toronto
 - 2016 Plenary speaker: “Health Promotion, Prevention and Health Protection: Innovative Initiatives”, 6th Asia-Pacific Conference on Public Health | 1st ASEAN Health Promotion Conference Bangkok, August
 - 2016 Speaker: “Big Data, Environmental (and Social) Epidemiology, Power and Politics”, Mount Sinai School of Medicine, New York, NY
 - 2016 Plenary Speaker: “The Impact of Environmental Toxicants on Health: Recent Epidemiologic Approaches & Advances”, International College of Integrative Medicine Annual Meeting, Toronto, ON
 - 2016 Plenary Speaker: “Big Data and Implications for Environmental Health”, 15th Anniversary Conference, Jockey Club School of Public Health & Primary Care, Chinese University of Hong Kong, Hong Kong
 - 2016 Plenary Speaker: “Innovations in Assessing Lead Poisoning and Child Health: Policy & Clinical Implications”, Chinese University of Hong Kong-Fudan-Oxford International Symposium on Health Impacts of Environmental Exposures”, Hong Kong
 - 2016 Speaker: “Addressing a Changing Environment (and Impacts on Health, AKA Can India Survive Modernization?)”, Indian Institutes of Technology Alumni, Canada, International Conference 2016, Toronto.
 - 2016 Plenary Speaker, “Hidradenitis Suppurativa: Research Directions from a Population Health Perspective”, Symposium on Hidradenitis Suppurativa Advances, Toronto.
 - 2016 Plenary Speaker, “Children’s Environmental Health”, The 2016 Annual National Conference on Children’s Healthcare, Shanghai, China
 - 2016 Special Guest Speaker, “Big Data, Environmental (and Social) Epidemiology, Power and Politics”, Shanghai Municipal Center for Disease Control, Shanghai, China
 - 2016 Lecturer, “Lead and Human Health: Recent Research and Associated Lessons for Science & Policy”, Fudan University School of Public Health, Shanghai, China
 - 2017 Lecturer, “The Impact of Environmental Toxicants on Health: Recent Epidemiologic Approaches & Advances”, Saw Swee Hock School of Public Health, National University of Singapore, Singapore
 - 2017 Lecturer, “The Future of Academic Public Health”, Saw Swee Hock School of Public Health,

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- National University of Singapore, Singapore
- 2017 Lecturer, “Recent Advances in Understanding, Preventing, and Reversing the Impact of Environmental Factors on Health”, Society of Chinese Bioscientists in America, Li Ka Shing Knowledge Institute, St. Michael’s Hospital, Toronto, ON
- 2017 Lecturer, “Environmental Epidemiology in the Era of Exposomics, Lifecourse Epidemiology, Big Data and Big Science”, Department of Environmental Health, Harvard School of Public Health, Boston, MA
- 2017 Speaker, “The Role of a Re-emergent Canadian School of Public Health in a Hot, Hungry, Polluted, Aging, Polarized World Prone to Pandemics, Chronic Disease, and Unsustainable Health Systems”, Royal Canadian Institute for Science, Toronto, ON
- 2017 Speaker, “The Early Life Exposures in Mexico to Environmental Toxicants (ELEMENT) Birth Cohort Study: Current Research on Fluoride and Neurodevelopment”, Seminar Series in Environmental Epidemiology, University of Washington School of Public Health, Seattle, WA
- 2017 Plenary Speaker: “New realities arising from the extractive industries and agri-business: the Pollution and health perspective,” Hong Kong Summit of Global Health Leaders. University of Hong Kong, Hong Kong
- 2018 Plenary Speaker: “The GBD-Pollution and Health Initiative: Challenges & Opportunities”, Workshop on the Global Burden of Disease-Pollution and Health Initiative, Institute for Health Metrics, University of Washington, Seattle, WA
- 2018 Guest Lecturer: “Partnerships, Local Responsiveness, National and Global Impacts”, University of Iowa College of Public Health, Iowa City, IA
- 2018 Plenary Speaker: “Current Research on Fluoride and Neurodevelopment: The Early Life Exposures in Mexico to Environmental Toxicants (ELEMENT) Birth Cohort Study”, Annual meeting of the International Academy of Oral Medicine and Toxicology, Denver, CO
- 2018 Speaker, “Recent Epidemiologic Research on Lead Toxicity: New Surprises regarding an Old Global Pollutant”, Department of Environmental and Occupational Health Sciences Seminar Series, University of Washington School of Public Health, Seattle, WA
- 2018 Speaker: “The Early Life Exposures in Mexico to Environmental Toxicants (ELEMENT) Birth Cohort Study: Current Research on Fluoride and Neurodevelopment”, Symposium on Fluoride research, Annual meeting of the International Society for Environmental Epidemiology/International Society for Exposure Science, Ottawa, ON
- 2018 Panelist, “The Fluoridation Decision: Considering the Evidence for Benefits, Possible Risks as well as Ethical World Views”, Annual meeting of the International Society for Environmental Epidemiology/International Society for Exposure Science, Ottawa, ON
- 2018 Speaker: “Grand Opportunities”, The UC-Irvine School of Population Health and the Samueli College of Health Sciences, Irvine, CA
- 2018 Speaker, “The Global Burden of Disease-Pollution and Health Initiative”, Office of the Director and the Global Environmental Health Program, U.S. National Institute for Environmental Health Sciences, Research Triangle Park, NC
- 2019 Speaker, “Evaluating, treating and managing disabilities of patients with chemical intolerance”, Symposium on Chemical Intolerance—A Way Forward, Marilyn Brachman

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Hoffman Foundation and the Hoffman Program on Chemicals and Health at the Harvard T.H. Chan School of Public Health, Dallas, TX

2019 Guest Lecturer: “The Global Burden of Disease-Pollution and Health Initiative”, Center for Population Health Sciences, Stanford University, Palo Alto, CA

INVENTIONS/PATENTS: n/a

BIBLIOGRAPHY: (H-index, as of April, 2019, Google Scholar: 83)

Peer-reviewed journals

1. Hu H, Markowitz SB. A case-study of industrial bladder cancer. *Einstein Quarterly Review of Biology and Medicine* 1982;1:29-35.
2. Hu H. Benzene and myelofibrosis. *Annals of Internal Medicine* 1987;106:171-172
3. Hu H, Milder FL, Burger DE. X-Ray Fluorescence: Issues surrounding the application of a new tool for measuring burden of lead. *Environmental Research* 1989;49:295-317.
4. Hu H, Fine J, Epstein P, Kelsey K, Reynolds P, Walker B. Tear Gas: Harrassing agent or toxic chemical weapon? *JAMA* 1989;262:660-663.
5. Hu H, Cook-Deegan R, Shukri A. The use of chemical weapons: Conducting an investigation using survey epidemiology. *JAMA* 1989;262:640-643.
6. Hu H, Tosteson T, Aufderheide AC, Wittmers L, Burger DE, Milder FL, Schidlovsky G, Jones KW. Distribution of lead in human bone: I. Atomic absorption measurements. *Basic Life Sci* 1990;55:267-274.
7. Burger DE, Milder FL, Morsillo PR, Adams BB, Hu H. Automated bone lead analysis by k-x-ray fluorescence for the clinical environment. *Basic Life Sci* 1990;55:287-292.
8. Schidlovsky G, Jones KW, Burger DE, Milder FL, Hu H. Distribution of lead in human bone: II. Proton microprobe measurements. *Basic Life Sci* 1990;55:275-280.
9. Jones KW, Schidlovsky G, Burger DE, Milder FL, Hu H. Distribution of lead in human bone: III. Synchrotron x-ray microscope measurements. *Basic Life Sci* 1990;55:281-286.
10. Hu H, Milder FL, Burger DE. X-ray fluorescence measurements of lead burden in subjects with low-level community lead exposure. *Arch Environ Health* 1990;45:335-341.

CV: Howard Hu, M.D., M.P.H., Sc.D.

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11. Hu H, Win KU, W, Arnison ND. Burma: Health and human rights. *Lancet* 1991;337:1335.
12. Hu H. A 50-year follow-up of childhood plumbism: hypertension, renal function, and hemoglobin levels among survivors. *Am J Dis Child* 1991;145:681-687.
13. Hu H. Knowledge of diagnosis and reproductive history among survivors of childhood plumbism. *Am J Publ Health* 1991;81:1070-1072.
14. Hu H, Milder FL, Burger DE. The use of K-X-Ray Fluorescence for measuring lead burden in epidemiological studies: high and low lead burdens and measurement uncertainty. *Environ Health Perspect* 1991;94:107-110.
15. Hu H, Pepper L, Goldman R. Effect of repeated occupational exposure to lead, cessation of exposure, and chelation on levels of lead in bone. *Am J Ind Med* 1991;20:723-735.
16. Hu H. Toxic weapons, epidemiology, and human rights. *Polit Politics and Life Sci* 1992;February:3-4.
17. Hu H, Sparrow D, Weiss S. Association of serum albumin with blood pressure in the Normative Aging Study. *Am J Epidemiol* 1992;136:1465-1473.
18. Hu H, Christiani D. Reactive airways dysfunction after exposure to tear gas. *Lancet* 1992;339:1535.
19. Hu H. Physicians, IPPNW, and the Environment. *PSR Quarterly* 1993;3:79-87.
20. White RF, Diamond R, Proctor S, Morey C, Hu H. Residual cognitive deficits 50 years after lead poisoning during childhood. *Br J Industr Med* 1993;50:613-622.
21. Hu H, Beckett L, Kelsey K, Christiani D. The left-sided predominance of asbestos-related pleural disease. *Am Rev Resp Dis* 1993;148:981-984.
22. Payton M, Hu H, Sparrow D, Young JB, Landsberg L, Weiss ST. Relation between blood lead and urinary biogenic amines in community-exposed men. *Am J Epidemiol* 1993;138:815-825.
23. Hu H, Kotha S. Ethics and epidemiology: International Guidelines. *Polit Life Sci* 1993;February:29-30.
24. Goldman RH, White R, Kales SN, Hu H. Lead poisoning from mobilization of bone stores during thyrotoxicosis. *Am J Industr Med* 1994;25:417-424.

CV: Howard Hu, M.D., M.P.H., Sc.D.

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25. Bellinger D, Hu H, Titlebaum L, Needleman HL. Attentional correlates of dentin and bone lead levels in adolescents. *Arch Environ Health* 1994;49:98-105.
26. Watanabe H, Hu H, Rotnitzky A. Correlates of bone and blood lead levels in carpenters. *Am J Industr Med* 1994;26:255-264.
27. Hu, H. Decision-making in human health impact assessments: a clinician's perspective. *Environ Impact Assess Rev* 1994;14:439-450.
28. Hu H, Watanabe H, Payton M, Korrick S, Rotnitzky A. The relationship between bone lead and hemoglobin. *JAMA* 1994;272:1512-1517.
29. Payton M, Hu H, Sparrow D, Weiss ST. Low-level lead exposure and renal function in the Normative Aging Study. *Am J Epidemiol* 1994;140:821-829.
30. Aro ACA, Todd AC, Amarasiriwardena C, Hu H. Improvements in the calibration of ¹⁰⁹Cd K x-ray fluorescence systems for measuring bone lead *in vivo*. *Phys Med Biol* 1994;39:2263-2271.
31. Guo H-R, Chiang H-S, Hu H, Lipsitz SR, Monson RR. Arsenic in drinking water and urinary cancers: a preliminary report. *Environ Geochem Health* 1994;s16:119-128.
32. Hoppin JA, Aro ACA, Williams PL, Hu H, Ryan PB. Validation of K-xrf bone lead measurements in young adults. *Environ Health Perspect* 1995;103:78-83.
33. Smith CM, Wang X, Hu H, Kelsey KT. A polymorphism in the δ -Aminolevulinic acid dehydratase gene may modify the pharmacokinetics and toxicity of lead. *Environ Health Perspect* 1995;103:248-253.
34. Hu H, Aro A, Rotnitzky A. Bone lead measured by X-ray fluorescence: Epidemiological methods. *Environ Health Perspect* 1995;103(Suppl 1):105-110.
35. Kim R, Aro A, Rotnitzky A, Amarasiriwardena C, Hu H. K x-ray fluorescence measurements of bone lead concentration: the analysis of low-level data. *Phys Med Biol* 1995;40:1475-1485.
36. Kim R, Hu H, Rotnitzky A, Bellinger D, Needleman H. A longitudinal study of chronic lead exposure and physical growth in Boston children. *Environ Health Perspect* 1995;103:952-957.
37. Hu H, Kotha S, Brennan T. The role of nutrition in mitigating environmental insults: policy and ethical issues. *Environ Health Perspect* 1995;103(Suppl 6):185-190.
38. Smith CM, Hu H, Wang X, Kelsey K. Delta-aminolevulinic acid dehydratase genotype is not associated with hematocrit or hemoglobin levels among construction trade workers exposed to low

CV: Howard Hu, M.D., M.P.H., Sc.D.

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levels of lead. *Medicine Lavoro* 1995;86:229-235.

39. Makhijani A, Hu H, Yih K. Nuclear wastelands: Nuclear weapons production worldwide and its environmental and health effects. *Med Global Surv* 1995;2:26-34.
40. Potula V, Hu H. Occupational and lifestyle determinants of blood lead levels among men in Madras, India. *Int J Occup Environ Health* 1996;2:1-4.
41. Hu H, Hashimoto D, Besser M. Levels of lead in blood and bone of women giving birth in a Boston hospital. *Arch Environ Health* 1996;51:52-58.
42. Hu H, Aro A, Payton M, Korrick S, Sparrow D, Weiss ST, Rotnitzky A. The relationship of bone and blood lead to hypertension: The Normative Aging Study. *JAMA* 1996;275:1171-1176.
43. Kim R, Rotnitzky A, Sparrow D, Weiss ST, Wager C, Hu H. A longitudinal study of low-level lead exposure and impairment of renal function: The Normative Aging Study. *JAMA* 1996;275:1177-1181.
44. Proctor SP, Rotnitzky A, Sparrow D, Weiss ST, Hu H. The relationship of blood lead and dietary calcium to blood pressure in the Normative Aging Study. *International Journal of Epidemiology* 1996;25:528-536.
45. Kim R, Hu H, Rotnitzky A, Bellinger D, Needleman H. Longitudinal relationship between dentin lead levels in childhood and bone lead levels in young adulthood. *Arch Environ Health* 1996;51:375-382.
46. Hu H, Payton M, Korrick S, Aro A, Sparrow D, Weiss ST, Rotnitzky A. Determinants of bone and blood lead levels among community-exposed middle-aged to elderly men: the Normative Aging Study. *Am J Epidemiol* 1996;144:749-759.
47. Hernandez-Avila M, Gonzalez-Cossio T, Palazuelos E, Romieu I, Aro A, Fishbein E, Peterson K, Hu H. Dietary and environmental determinants of blood and bone lead levels in lactating postpartum women living in Mexico City. *Environ Health Perspect* 1996;104:1076-1082.
48. Potula V, Hu H. Relationship of hemoglobin to occupational exposure to motor vehicle exhaust. *Tox Industr Health* 1996;12:629-637.
49. Kim R, Hu H, Sparrow D, Weiss S. The relationship between low-level lead exposure and uric acid concentration in the serum: the Normative Aging Study. *Korean J Occup Med* 1996;8:490-498.
50. Guo H-R, Chiang H-S, Hu H, Lipsitz SR, Monson RR. Arsenic in drinking water and incidence of urinary cancers. *Epidemiology* 1997;8:545-550.

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51. Kim R, Landrigan C, Mossman P, Sparrow D, Hu H. Age and secular trends in bone lead levels in middle-aged and elderly men: three-year longitudinal follow-up in the Normative Aging Study. *Am J Epidemiol* 1997;146:586-591.
52. Hoppin JA, Aro A, Hu H, Ryan PB. In vivo bone lead measurement in suburban teenagers. *Pediatrics* 1997;100:365-370.
53. González-Cossío T, Peterson KE, Sanín L, Fishbein SE, Palazuelos E, Aro A, Hernández-Avila M, Hu H. Decrease in birth weight in relation to maternal bone lead burden. *Pediatrics* 1997;100:856-862.
54. Hu H, Rabinowitz M, Smith D. Bone lead as a biological marker in epidemiologic studies of chronic toxicity: Conceptual paradigms. *Environ Health Persp* 1998;106:1-8.
55. Payton M, Riggs KM, Spiro A, Weiss ST, Hu H. Relations of bone and blood lead to cognitive function: The VA Normative Aging Study. *Neurotox Teratol* 1998;20:19-27.
56. Amarasiriwardena C, Lupoli N, Potula V, Korrick S, Hu H. Determination of total arsenic concentration in human urine by inductively coupled plasma mass spectrometry: a comparison of the accuracy of three analytical methods. *Analyst* 1998;123:441-445.
57. Gassert TH, Hu H, Kelsey KT, Christiani DC. Long-term health and employment outcomes of occupational asthma and their determinants. *J Occup Environ Med* 1998;40:481-491.
58. Hu H. Grand rounds in environmental and occupational medicine. *Environ Health Persp* 1998;106:A262.
59. Cheng Y, Willett W, Schwartz J, Sparrow D, Weiss ST, Hu H. The relation of nutrition to bone lead levels in middle-aged to elderly men: The Normative Aging Study. *Am J Epidemiol* 1998;147:1162-1174.
60. Wright RO, Hu H, Maher TJ, Amarasiriwardena C, Chaiyakul P, Woolf AD, Shannon MW. Effect of iron deficiency anemia on lead distribution after intravenous dosing in rats. *Tox Industr Health* 1998;14:547-551.
61. Cheng Y, Schwartz J, Vokonas P, Weiss ST, Aro A, Hu H. Electrocardiographic conduction disturbances in association with low level lead exposure: the Normative Aging Study. *Am J Cardiol* 1998;82:594-599.
62. González-Cossío T, Sanín LH, Hernández-Avila M, Rivera J, Hu H. Longitud y peso al nacer: El papel de la nutrición materna. [Length and weight at birth: The role of maternal nutritional status.]

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

37

Salud Pública Mex [Public Health in Mexico] 40:119-126, 1998.

63. Hernandez-Avila M, Smith D, Meneses F, Sanin LH, Hu H. The influence of bone and blood lead on plasma lead levels in environmentally exposed adults. *Environ Health Perspect* 1998;106:473-477.
64. Hu H. Bone lead as a new biologic marker of lead dose: Recent findings and implications for public health. *Environ Health Perspect* 1998;106(Suppl 4):961-967.
65. Farias P, Hu H, Rubenstein E, Meneses-Gonzalez F, Fishbein E, Palazuelos E, Aro A, Hernandez-Avila M. Determinants of bone and blood lead levels among teenagers living in urban areas with high lead exposure. *Environ Health Perspect* 1998;106:733-737.
66. Kales SN, Aldrich JM, Polyhronopoulos GN, Artzeronian D, Gassert T, Hu H, Kelsey K, Sweet C, Christiani DC. Fitness for duty evaluations in hazardous material firefighters. *J Occup Environ Med* 1998;40:925-931.
67. Guo HR, Lipsitz S, Hu H, Monson R. Using ecological data to estimate a regression model for individual data: the association between arsenic in drinking water and incidence of skin cancer. *Environ Res* 1998;79:82-93.
68. Amarasiriwardena CJ, Lupoli N, Potula V, Korrick S, Hu H. Determination of the total arsenic concentration in human urine by inductively coupled plasma mass spectrometry: a comparison of the accuracy of three analytical methods. *Analyst*. 1998;123:441-5.
69. Korrick SA, Hunter DJ, Rotnitzky A, Hu H, Speizer FE. Lead and hypertension in a sample of middle-aged women. *Am J Public Health* 1999;89:330-335.
70. Wright RO, Shannon MW, Wright RJ, Hu H. Association between iron deficiency and Low-level lead poisoning in an urban primary care clinic. *Am J Public Health* 1999;89:1049-1053.
71. Potula V, Serrano J, Sparrow D, Hu H. Relationship of lead in drinking water to bone lead levels twenty years later in Boston men: the Normative Aging Study. *J Occup Environ Med* 1999;41:349-355.
72. Elreedy S, Krieger N, Ryan PB, Sparrow D, Weiss ST, Hu H. Individual and census measures of socioeconomic position as determinants of bone lead concentrations among community-exposed men: the Normative Aging Study. *Am J Epidemiol* 1999;150:129-141.
73. Aguilar-Madrid G, Piacitelli G, Juarez-Perez CA, Vazquez-Grameix JH, Hu H, Hernandez-Avila M. Chronic occupational exposure to inorganic lead at a printing press in Mexico City. *Salud Publica* 1999;41:42-54.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

38

74. Moy E, Hu H, Christiani DC. A retired shipyard worker with rapidly progressive pulmonary interstitial fibrosis. *Environ Health Perspect* 1999;107:321-327.
75. Chuang HY, Lee, M-L T, Chao KY, Wang JD, Hu H. The relationship of personal hygiene habits to blood lead levels in a longitudinal study of battery workers in Taiwan: 1991-1997. *Am J Industr Med* 1999;35:595-603.
76. Tsaih SW, Schwartz J, Lee ML, Amarasiriwardena C, Aro A, Sparrow D, Hu H. The interrelationships of lead in bone and blood to lead in urine among middle-aged to elderly men: the Normative Aging Study. *Environ Health Persp* 1999;107:391-396.
77. Hu H, Stern A, Rotnitzky A, Schlesinger L, Proctor S, Wolfe J. Development of a brief questionnaire for screening for multiple chemical sensitivity syndrome. *Tox Industr Health* 1999;15:582-588.
78. Kales SN, Aldrich JM, Polyhronopoulos GN, Leitao EO, Artzerounian D, Gassert G, Hu H, Kelsey KT, Sweet C, Christiani DC. Correlates of fitness for duty in hazardous materials firefighters. *Am J Industr Med* 1999;36:618-629.
79. Guang L, Wang X, Hu H, Xu X. A comparative study on the lead levels in capillary and venous blood. *J Environ Health (China)* 1999;16:103-105.
80. Aro A, Amarasiriwardena C, Lee M-L, Kim R, Hu H. Validation of K x-ray fluorescence bone lead measurements by inductively coupled plasma mass spectrometry in cadaver legs. *Med Phys* 2000;27:119-123.
81. Hoppin JA, Aro A, Hu H, Ryan PB. Measurement variability associated with KXRF bone lead measurement in young adults. *Environ Health Persp* 2000;108:239-242.
82. Hernandez-Avila H, Villalpando CG, Palazuelos E, Hu H, Villalpando ME, Martinez R. Determinants of blood lead levels across the menopause transition. *Arch Environ Health* 2000;55:355-360.
83. Shadick NA, Kim R, Weiss S, Liang MH, Sparrow D, Hu H. Effect of low level lead exposure on hyperuricemia and gout among middle aged and elderly men: the normative aging study. *J Rheumatol*. 2000 Jul;27(7):1708-12. PubMed PMID: 10914856.
84. Counter SA, Buchanan LH, Ortega F, Amarasiriwardena C, Rifai N, Hu H. Environmental lead contamination and pediatric lead intoxication in an Ecuadoran village. *Int J Occup Environ Health* 2000;6:169-176.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

39

85. Brown MJ, Hu H, González-Cossío T, Peterson KE, Sanín LH, Kageyama, ML, Palazuelos E, Aro A, Schnaas L, Hernández-Avila M. Determinants of bone and blood lead concentrations in the early postpartum period. *Occup Environ Med* 57:535-541, 2000.
86. Chuang HY, Schwartz J, Tsai S-Y, Lee M-L T, Wang J-D, Hu H. Vibration perception thresholds in workers with long-term lead exposure. *Occup Environ Med* 2000;57:588-594.
87. Wu M-T, Demple B, Bennett RAO, Christiani DC, Fan R, Hu H. Individual variability in the zinc inducibility of metallothionein-IIA mRNA in human lymphocytes. *Toxicol Environ Health* 2000; 61A:553-567.
88. Vig EK, Hu H. Lead toxicity in older adults. *J Am Geriatrics Soc.* 2000;48:1501-1506.
89. Cheng Y, Schwartz J, Sparrow D, Aro A, Weiss ST, Hu H. A prospective study of bone lead level and hypertension: the Normative Aging Study. *Am J Epidemiol* 2001;153:164-171.
90. Hu H. Poorly-controlled hypertension in a painter with chronic lead toxicity. *Environ Health Perspec* 2001;109:95-99.
91. Brown MJ, Gardner J, Sargent JD, Swartz K, Hu H, Timeri R. Prevention effectiveness of housing policies to reduce lead exposure: risk factors associated with recurrent pediatric lead poisoning in addresses with lead poisoned children in the past. *Am J Public Health* 2001;91:621-624.
92. Chuang HY, Hu H, Schwartz J, Palazuelos E, Aro A, Amarasingwardena C, Hernandez-Avila M. The inter-relationships between lead levels in maternal venous blood, maternal bone, and umbilical cord blood: implications for plasma lead. *Environ Health Perspec* 2001;109:527-532.
93. Potula V, Hegarty-Steck M, Hu H. A pilot study of blood lead levels in relation to paint and dust lead levels: the Lead-Safe Cambridge Program. *Am J Public Health* 2001;91:1973-1975.
94. Sanín LH, González-Cossío T, Romieu I, Peterson KE, Ruíz S, Palazuelos E, Hernández-Avila M, Hu H. Effect of maternal lead burden on infant weight and weight gain at one-month of age among breastfed infants. *Pediatrics* 107:1016-1023, 2001.
95. Hu H, Aro A, Sparrow D, Kelsey K. The relationship of bone and blood lead levels to polymorphisms of amino-levulinic acid dehydratase among middle-aged to elderly men: the Normative Aging Study. *Environ Health Perspec* 2001;109:827-832.
96. Tsaih SW, Korrick S, Lee M-L T, Schwartz J, Amarasingwardena C, Aro A, Sparrow D, Hu H. The influence of bone resorption on the mobilization of lead from bone among middle-aged to elderly men: the Normative Aging Study. *Environ Health Perspec* 2001;109:995-999.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

40

97. Hu H. Progress in research on lead toxicity research: Peeling the onion. *Biomedicine* 2001;21(2&3): 1-17.
98. Guo H-R, Yu H-S, Hu H, Lipsitz SR, Monson RR. Arsenic in drinking water and skin cancers: cell-type specificity. *Cancer Causes and Controls* 2001;12:909-16.
99. Téllez-Rojo MM, Hernández-Avila M, González-Cossío T, Romieu I, Aro A, Palazuelos E, Schwartz J, Hu H. Impact of breastfeeding on the mobilization of lead from bone. *Am J Epidemiol* 2002;155:420-428.
100. Dykeman R, Aguilar-Madrid G, Smith T, Juarez-Perez A, Piacitelli G, Hu H, Hernandez-Avila M. Lead exposure in Mexican radiator repair workers. *Am J Industrial Med* 2002;41:179-187.
101. Smith D, Hernandez-Avila M, Tellez-Rojo MM, Mercado A, Hu H. The relationship between lead in plasma and whole blood in women. *Environ Health Persp* 2002;110:263-268.
102. Hernandez-Avila M, Peterson KE, Gonzalez-Cossio T, Sanin LH, Aro A, Schnaas L, Hu H. Effect of maternal bone lead on length and head circumference of newborns and 1-month-old infants. *Arch Environ Health* 2002;57:482-8.
103. Wolfe J, Erickson DJ, Proctor SP, Hu H. Risk factors for the development of multisymptom illness in U.S. veterans of the Gulf War: the Ft. Devens Cohort study. *J Occup Environ Med* 2002;44:271-281.
104. Gomaa A, Hu H, Bellinger D, Schwartz J, Tsaih S-W, González-Cossío T, Schnaas L, Peterson K, Aro A, Hernández-Avila M. Maternal bone lead as an independent risk factor for fetal neurotoxicity: A prospective study. 2002;*Pediatrics* 110:110-118.
105. Kamel F, Umbach DM, Munsat TL, Shefner JM, Hu H, Sandler DP. Lead exposure and amyotrophic lateral sclerosis (ALS). *Epidemiology* 2002;13:311-319.
106. Elmarsafawy SF, Tsaih SW, Korrick S, Dickey JH, Sparrow D, Hu H. Occupational determinants of bone and blood lead levels in middle aged and elderly men from the general community: the Normative Aging Study. *Am J Industrial Med* 2002;42:38-49.
107. Korrick SA, Schwartz J, Tsaih SW, Hunter DJ, Aro A, Rosner B, Speizer FE, Hu H. Correlates of bone and blood lead levels among middle-aged and elderly women. *Am J Epidemiol*. 2002 Aug 15;156(4):335-43. PubMed PMID: 12181103.
108. Wittman R, Hu H. Cadmium exposure and nephropathy in a 28-year old female metals worker. *Env Health Persp* 2002;110:1261-6.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

41

109. Hu H, Hernandez-Avila M. Lead, bones, and pregnancy: the poison within? *Am J Epidemiol* (Commentary) 2002;156:1088-91.
110. Oliveira S, Aro A, Sparrow D, Hu H. Seasonality as a modifier of the relationship between bone lead levels and blood lead levels: the Normative Aging Study. *Arch Env Health* 2002;57:466-72.
111. Wright RO, Tsaih S-W, Schwartz J, Wright R, Hu H. Association between iron deficiency and blood lead level in a longitudinal analysis of children followed in an urban primary care clinic. *J Peds* 2003;142:9-14.
112. Wu MT, Kelsey K, Schwartz J, Sparrow D, Weiss S, Hu H. A δ -aminolevulinic acid dehydratase (ALAD) polymorphism may modify the relationship of low-level lead exposure to uricemia and renal function: the Normative Aging Study. *Env Health Persp* 2003;111:335-41.
113. Hernandez-Avila M, Gonzalez-Cossio T, Hernandez-Avila JE, Romier I, Peterson KE, Aro A, Palazuelos E, Kageyama Escobar ML, Hu H. Dietary calcium supplements to lower blood lead levels in lactating women: a randomized placebo-controlled trial. *Epidemiology* 2003;14:206-12.
114. Hu H, Brown MJ. Effectiveness of environmental health policies: a new frontier for epidemiologists. (Commentary). *Epidemiology* 2003;14:257-258.
115. Janakiraman V, Hu H, Mercado-Garcia A, Hernandez-Avila M. A randomized crossover trial of nocturnal calcium supplements to suppress bone resorption during pregnancy. *Am J Prev Med* 2003;24:260-4.
116. Latorre FG, Hernandez-Avila M, Orozco JT, Medina AA, Aro A, Palazuelos E, Hu H. The relationship of blood and bone lead to menopause and bone mineral density among middle-aged women in Mexico City. *Environ Health Persp* 2003;111:631-6.
117. Wright RO, Tsaih SW, Schwartz J, Spiro A 3rd, McDonald K, Weiss ST, Hu H. Lead exposure biomarkers and mini-mental status exam scores in older men. *Epidemiology*. 2003 Nov;14(6):713-8. PubMed PMID: 14569188.
118. Kamel F, Umbach DM, Lehman TA, Park LP, Munsat TL, Shefner JM, Sandler DP, Hu H, Taylor JA. Amyotrophic lateral sclerosis, lead, and genetic susceptibility: polymorphisms in the delta-aminolevulinic acid dehydratase and vitamin D receptor genes. *Environ Health Perspect*. 2003;111:1335-9.
119. Rhodes D, Spiro A 3rd, Aro A, Hu H. Relationship of bone and blood lead levels to psychiatric symptoms: the normative aging study. *J Occup Environ Med*. 2003 Nov;45(11):1144-51. PubMed PMID: 14610395.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

42

120. Wright RO, Hu H, Silverman EK, Tsaih SW, Schwartz J, Bellinger D, Weiss ST, Palazuelos E, Hernandez-Avila M. Apolipoprotein E genotype predicts 24-month infant Bayley Scale score *Pediatric Research* 2003; 54(6):819-25.
121. Guerra-Tamayo JL, Hernandez-Cadena L, Tellez-Rojo MM, Mercado-Garcia Adel S, Solano-Gonzalez M, Hernandez-Avila M, Hu H. Time to pregnancy and lead exposure. *Salud Publica Mex.* 2003;45 Suppl 2:S189-95.
122. Guo H-R, Wang N-S, Hu H, Monson RR. Cell-type specificity of lung cancer associated with arsenic ingestion. *Cancer Epidemiology, Biomarkers, and Prevention* 2004 Apr;13(4):638-43.
123. Weisskopf MG, Hu H, Mulkern RV, White R, Aro A, Oliveira S, Wright RO. Cognitive deficits and magnetic resonance spectroscopy in adult monozygotic twins with lead poisoning. *Environ Health Perspect* 2004; 112:620-625.
124. Wright RO, Silverman EK, Schwartz J, Tsaih ST, Senter J, Sparrow D, Weiss ST, Aro A, Hu H. Association between hemochromatosis genotype and lead exposure among elderly men: the Normative Aging Study. *Environ Health Perspect* 2004;112:746-750.
125. Juarez-Perez CA, Aguilar-Madrid G, Smith DR, Lacasana-Navarro M, Tellez-Rojo MM, Piacittelle G, Hu H, Hernandez-Avila M. Predictors of plasma lead levels in printing press workers. *Am J Industr Med* 2004;46:245-52.
126. Ettinger AS, Tellez-Rojo MM, Amarasiriwardena C, Gonzalez-Cossio T, Peterson KE, Aro A, Hu H, Hernandez-Avila M. Levels of lead in breast milk and their relation to maternal blood and bone lead levels at one-month postpartum. *Environ Health Perspec* 2004;112:926-931.
127. Lin C, Tsaih S, Kim R, Sparrow D, Hu H. Bone and blood lead levels and their determinants amongst minority subjects living in the Boston area. *Environ Health Perspec* 2004;112:1147-1151.
128. Tellez-Rojo MM, Hernandez-Avila M, Lamadrid-Figueroa H, Smith D, Hernandez-Cadena L, Mercado A, Aro A, Schwartz J, Hu H. Impact of bone lead on plasma lead levels during pregnancy. *Am J Epidem* 2004;160:668-78.
129. Ettinger AS, Tellez-Rojo MM, Amarasiriwardena C, Gonzalez-Cossio T, Peterson KE, Aro A, Hu H, Hernandez-Avila M. Effect of breast milk lead on infant blood lead levels at 1 month of age. *Environ Health Perspec* 2004;112:1381-185.
130. Tsaih SW, Korrick S, Schwartz J, Amarasiriwardena C, Aro A, Sparrow D, Hu H. Lead, diabetes, hypertension, and renal function: the normative aging study. *Environ Health Perspect.*

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

43

2004 Aug;112(11):1178-82. PubMed PMID: 15289163; PubMed Central PMCID: PMC1247478.

131. Weisskopf MG, Wright RO, Schwartz J, Spiro III A, Sparrow D, Aro A, Hu H. Cumulative lead exposure and prospective change in cognition among elderly men: the VA Normative Aging Study. *Am J Epidemiol* 2004;160:1184-1193.
132. Schaumberg DA, Mendes F, Balaram M, Dana MR, Sparrow D, Hu H. Accumulated lead exposure and risk of age-related cataract extraction in men: the Normative Aging Study. *JAMA* 2004;292:2750-2754.
133. Terry P, Umbach DM, Munsat TL, Shefner JM, Hu H, Sandler DP, Kamel F. VEGF promoter haplotype and amyotrophic lateral sclerosis (ALS). *J Neurogenetics* 2004;18:1-6.
134. Thurston SW, Williams PL, Hauser R, Hu H, Spiegelman D. A comparison of regression calibration approaches for main study/internal validation study designs. *J Stat Plan Inference* 2005;131:175-190.
135. Farias P, Echavarria M, Hernandez-Avila M, Villanueva C, Amarasiriwardena C, Hernandez L, Aro A, Hu H. Bone, blood and semen lead in environmentally exposed Mexican men. *Int J Environ Health Res* 2005;15:21-31.
136. Bellinger D, Hu H, Kartigeyan V, Thomas N, Rajan P, Sankar S, Ramaswamy P, Balakrishnan K. A pilot study of blood lead levels and neurobehavioral function in children living in Chennai, India. *Int J Occ Environ Health* 2005;11:138-143.
137. Jarrell J, Chan S, Hauser R, Hu H. Longitudinal Assessment of PCBs and Pesticides in Pregnant Women from Western Canada. *Environ Health* 2005;4:10 (1-8).
138. Hu H, Balakrishnan K. The Environment and Health: an Emerging Area of Research in India. *Indian J Med Res.* 2005;121:711-715.
139. Sanchez BN, Budtz-Jorgensen E, Ryan LM, Hu H. Structural equation models. A review with applications to environmental epidemiology. *J Am Stat Assoc* 2005;100:1443-1455.
140. Green R, Hauser R, Calafat AM, Weuve J, Schettler T, Ringer S, Huttner K, Hu H. Use of di(2-ethylhexyl) phthalate-containing medical products and urinary levels of mono(2-ethylhexyl) phthalate in neonatal intensive care unit infants. *Environ Health Perspect.* 2005;113:1222-5.
141. Oken E, Wright RO, Kleinman KP, Bellinger D, Amarasiriwardena C, Hu H, Gillman MW. Fish as brain food: maternal fish consumption, hair mercury, and infant cognition in a US cohort. *Environ Health Perspec* 2005;113:1376-80.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

44

142. Kamel F, Umbach DM, Hu H, Munsat TL, Shefner JM, Taylor JA, Sandler DP. Lead exposure as a risk factor for Amyotrophic Lateral Sclerosis (ALS). *Neurodegen Dis* 2005;2:195-201.
143. Ettinger AS, Téllez-Rojo MM, Amarasiriwardena C, Schwartz J, Peterson KE, Aro A, Hu H, Hernández-Avila M. Influence of maternal bone lead burden, breastfeeding practices, and calcium intake on levels of lead in breast milk over the course of lactation. *Am J Epidemiol* 2005;163:48-56.
144. Schwartz BS, Rischitelli G, Hu H. The Future of Environmental Medicine in *Environmental Health Perspectives*: Where Should We Be Headed? *Environ Health Persp* 2005;113:A574-6.
145. Lamadrid-Figueroa H, Téllez-Rojo MM, Hernández-Cadena L, Mercado-García A, Smith D, Solano-González M, Hernández-Avila M, Hu H. Biological markers of fetal lead exposure at each stage of pregnancy. *J Toxicol Environ Health A*. 2006 Oct;69(19):1781-96. PubMed PMID: 16905508.
146. Jain NB, Hu H. Childhood correlates of blood lead levels in Mumbai and Delhi. *Environ Health Persp* 2006;114:466-70.
147. Jarrell J, Weisskopf M, Weuve J, Tellez-Rojo MM, Hu H, Hernandez-Avila M. Maternal lead exposure and the sex ratio of offspring. *Human Reproduction* 2006;21:1901-6.
148. Tellez-Rojo MM, Bellinger DC, Lamadrid-Figueroa H, Schaas-Arrieta L, Arroyo-Quiroz C, Mercado-Garcia A, Wright RO, Hernandez-Avila M, Hu H. Longitudinal associations between blood lead concentration <10 µg/dL and neurobehavioral development in environmentally-exposed children in Mexico City. *Pediatrics* 2006 Aug;118:e323-30. .
149. Elmarsafawy SF, Jain N, Schwartz J, Sparrow D, Aro A, Hu H. Dietary calcium as a potential modifier of the relationship of lead burden to blood pressure: the Normative Aging Study. *Epidemiology* 2006;17:531-537.
150. Weuve J, Sanchez BN, Calafat AM, Schettler T, Green R, Hu H, Hauser R. Exposure to phthalates in neonatal intensive care unit infants. *Environ Health Perspec* 2006; 114:1424–1431.
151. Weuve, J; Kelsey KT; Schwartz J, Bellinger D, Rajan P, Spiro A, Sparrow D, Aro A, Hu H. Delta-aminolevulinic acid dehydratase (ALAD) polymorphism and the relation between low-level lead exposure and cognitive function in older men: the Normative Aging Study. *Occup Environ Med* 2006;63:746-53.
152. Hu H, Téllez-Rojo MM, Bellinger D, Smith D, Ettinger AS, Lamadrid-Figueroa H, Schwartz J, Schnaas L, Mercado-García A, Hernández-Avila M. Fetal lead exposure at each stage of pregnancy as a

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

45

predictor of infant mental development. *Environ Health Perspec* 2006;114:1730-1735.

153. Park SK, Schwartz J, Weisskopf M, Wright RO, Coull B, Sparrow D, Vokonas P, Nie H, Hu H. Low-level lead exposure, metabolic syndrome and heart rate variability: the VA Normative Aging Study. *Environ Health Perspec* 2006;114:1718-1724

154. Schwartz BS, Parker C, Glass TA, Hu H. Global Environmental Change: What Should Clinicians and the Environmental Health Community Do? *Environ Health Perspec* 2006;114:1807-1812.

155. Park SK, O'Neill MS, Wright RO, Hu H, Vokonas PS, Sparrow D, Suh, H, Schwartz, J. HFE Genotype, Particulate Air Pollution, and Heart Rate Variability: A Gene-Environment Interaction. *Circulation* 2006;114:2798-2805.

156. Hu H, Wright RO, Shine J. The challenge posed to children's health by mixtures of toxic waste: the Tar Creek Superfund Site as a case-study. *Ped Clin North America* 2007;54:155-175. PMID: 17306689

157. Schwartz BS, Hu H. Adult Lead Exposure: Time for Change – Introduction to the Mini-monograph. *Environ Health Perspec* 2007;115:451-454.. PMID: 17431498

158. Hu H, Shih R, Rothenberg S, Schwartz BS. The Epidemiology of Lead Toxicity in Adults: Measuring Dose and Consideration of Other Methodological Issues. *Environ Health Perspec* 2007;115:455-462. PMID: 17431499

159. Shih R, Hu H, Weisskopf MG, Schwartz BS. Cumulative Lead Dose and Cognitive Function in Adults: a Review of Studies that Measured Both Blood Lead and Bone Lead. *Environ Health Perspec* 2007;115:483-492. PMID: 17431502

160. Kosnett MJ, Wedeen RP, Rothenberg SJ, Hipkins KL, Materna BL, Schwartz BS, Hu H, Woolf A. Recommendations for medical management of adult lead exposure. *Environ Health Perspec* 2007;115:463-471. PMID: 17431500

161. Weisskopf MG, Proctor SP, Wright RO, Schwartz J, Spiro A 3rd, Sparrow D, Nie H, Hu H. Cumulative lead exposure and cognitive performance among elderly men. *Epidemiology*. 2007;18:59-66. PMID: 17130688

162. Ettinger AS, Hu H, Hernandez-Avila M. Dietary calcium supplementation to lower blood lead levels in pregnancy and lactation. *J Nutr Biochem* 2007;18:172-178. PMID: 17296490

163. Zhou H, Chen J, Rissanen TH, Korrick SA, Hu H, Salonen JT, Longnecker MP. Outcome-dependent sampling: an efficient sampling and inference procedure for studies with a continuous

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

46

outcome. *Epidemiology*. 2007;18:461-468. PMID: 17568219

164. Weisskopf MG, Hu H, Sparrow D, Lenkinski R, Wright RO. ¹H magnetic resonance spectroscopic evidence of glial effects of cumulative lead exposure in the adult human hippocampus. *Environ Health Perspec* 2007;115(4):519-23. PMID: 17450218

165. Jain NB, Potula V, Schwartz J, Vokonas PS, Sparrow D, Wright RO, Nie H, Hu H. Lead levels and ischemic heart disease in a prospective study of middle-aged and elderly men: the Normative Aging Study. *Environ Health Perspec* 2007;115:871-875. PMID: 17589593

166. Grandjean P, Bellinger D, Bergman A, Cordier S, Davey-Smith G, Eskenazi B, Gee D, Gray K, Hanson M, van den Hazel P, Heindel JJ, Heinzow B, Hertz-Picciotto I, Hu H, Huang TT, Jensen TK, Landrigan PJ, McMillen IC, Murata K, Ritz B, Schoeters G, Skakkebaek NE, Skerfving S, Weihe P. The faroes statement: human health effects of developmental exposure to chemicals in our environment. *Basic Clin Pharmacol Toxicol*. 2008 Feb;102(2):73-5. PubMed PMID: 18226057.

167. Peters JL, Kubzansky L, McNeely E, Schwartz J, Wright RO, Spiro A, Sparrow D, Nie H, Hu H. Stress as a potential modifier of the impact of lead exposure on blood pressure: the Normative Aging Study. *Environ Health Perspec* 2007 Aug;115(8):1154-9. PMID: 17687441.

168. Wang FT, Hu H, Schwartz J, Weuve J, Spiro A, Sparrow D, Silverman EK, Weiss ST, Wright RO. Modifying effects of hemochromatosis polymorphisms on the association between lead burden and cognitive decline. *Environ Health Perspec* 2007 Aug;115(8):1210-5. PMID: 17687449.

169. Rajan P, Kelsey KT, Schwartz JD, Bellinger DC, Sparrow D, Spiro A, Smith RJ, Nie H, Hu H, Wright RO. Prospective Study of Lead and Psychiatric Symptoms and the Modifying Influence of the Delta-Aminolevulinic Acid Dehydratase (ALAD) Polymorphism: the Normative Aging Study. *Am J Epidemiol* 2007 Dec 15;166(12):1400-8. Epub 2007 Sep 6. PMID: 17823382

170. Perlstein T, Weuve J, Schwartz J, Sparrow D, Wright R, Litonjua A, Nie H, Hu H. Bone and blood lead levels in relation to pulse pressure in community-exposed men: the Normative Aging Study. *Environ Health Perspec* 2007 Dec;115(12):1696-700. PMID: 18087585.

171. Lamadrid-Figueroa H, Téllez-Rojo MM, Hernández-Ávila M, Solano-González M, Smith D, Hu H, Wright RO. Association between the plasma fraction of circulating lead and history of abortion in Mexican pregnant women *Biomed Central Pregnancy and Childbirth* 2007 Sep 27;7:22. PMID: 17900368

2008 and after (must comply with NIH Public Access Policy, applied to any paper accepted for publication in a journal on or after April 7, 2008; must supply PubMed Central ID number, PMCID for any article resulting from research sponsored by NIH; see: <http://publicaccess.nih.gov/index.htm>)

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* journal that automatically submits *All NIH-Funded Final Published Articles* to PubMed Central, as of 8/27/08 (http://publicaccess.nih.gov/submit_process_journals.htm)

172. Surkan PJ, Schnaas L, Wright RJ, Tellez-Rojo MM, LaMadrid H, Hu H, Hernandez-Avila M, Bellinger DC, Schwartz J, Perroni E, Wright RO. Coopersmith self-esteem, lead and neurodevelopment. *Neurotoxicology* 2008;Mar;29(2):278-85. PMID: 18261800; PMCID: PMC2495770

173. Arora M, Ettinger AS, Peterson KE, Schwartz J, Hu H, Hernandez-Avila M, Wright RO. Maternal dietary intake of saturated and polyunsaturated fatty acids modifies the relationship between lead levels in bone and breast milk. *J Nutrition* 2008 Jan;138(1):73-9. PMID: 18156407; PMCID: PMC2628754.

174. Park SK, O'Neill MS, Vokonas PS, Sparrow D, Wright RO, Coull B, Nie H, Hu H, Schwartz J. Air pollution and heart rate variability: effect modification by chronic lead exposure. *Epidemiology*. 2008 Jan;19(1):111-20. PMID: 18091001; PMCID: PMC2671065.

175. Navas-Acien A, Schwartz BS, Rothenberg SJ, Hu H, Silbergeld EK, Guallar E. Bone lead levels and blood pressure endpoints – a meta-analysis. *Epidemiology* 2008 May;19(3):496-504. PMID: 18414090; PMCID: pending

176. Nie H, Hu H, Chettle D. Application and Methodology of *in vivo* K X-ray Fluorescence of Pb in Bone. *X Ray Spectrometry* 2008;37:69-75. PMID: n/a; PMCID: pending

177. Oken E, Radesky JS, Wright RO, Bellinger DC, Amarasiriwardena CJ, Kleinman KP, Hu H, Gillman MW. Maternal fish intake during pregnancy, blood mercury, and child cognition at age 3 years in a US cohort. *Amer J Epid* 2008 May 15;167(10):1171-81. PMID: 18353804; PMCID: pending

178. Rajan P, Kelsey KT, Schwartz JD, Bellinger DC, Weuve J, Spiro A, Sparrow D, Smith TJ, Nie H, Hu H, Wright RO. Interaction of the delta-aminolevulinic acid dehydratase (ALAD) polymorphism and lead exposure on cognitive function: the Normative Aging Study. *J Occup Environ Med* 2008; 50(9):1053-61. PMID: 18784554; PMCID: pending

179. Park SK, O'Neill MS, Vokonas PS, Sparrow D, Spiro A, Tucker K, Suh H, Hu H, Schwartz J. Traffic-related particles are associated with elevated homocysteine: the VA Normative Aging Study. **Am J Resp Crit Care Med* 2008 Aug 1;178(3):283-9. PMID: 18467508; PMCID: PMC2542426.

180. Kamel F, Umbach DM, Stallone L, Richards M, Hu H, Sandler DP. Association of Lead Exposure with Survival in Amyotrophic Lateral Sclerosis (ALS). **Environ Health Perspec* 2008; 2008 Jul;116(7):943-7. PMID: 18629318; PMCID: PMC2453164.

181. Hopkins M, Ettinger AS, Hernandez-Avila M, Schwartz J, Tellez-Rojo MM, Bellinger D, Hu H, Wright RO. Variants in iron metabolism genes predict blood and bone lead levels among postpartum

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

48

women and their children. *Environ Health Perspec 2008 Sep;116(9):1261-6.PMID: 18795173. PMCID: PMC2535632.

182. Lampe BJ, Park SK, Robins T, Mukherjee B, Litonjua AA, Amarasiriwardena C, Weisskopf M, Sparrow D, Hu H. Association between 24-Hour Urinary Cadmium and Pulmonary Function Among Community-Exposed Men: The VA Normative Aging Study. *Environ Health Perspec 2008 Sep;116(9):1226-30.PMID: 18795167. PMCID: PMC2535626.
183. Rahman S, Hu H, McNeely E, Rahman SMM, Krieger N, Waterman P, Peters J, Harris C, Harris CH, Prothrow-Stith D, Gibbs B, Brown PC, Johnson G, Burgess A, Gragg RD. Social and environmental risk factors for hypertension in minorities. Fl Publ Health Rev 2008;5:64-72. PMID: 19966946; PMCID: PMC2788965
184. Zota AR, Ettinger AS, Bouchard M, Amarasiriwardena CJ, Schwartz J, Hu H, Wright RO. Association of maternal blood manganese levels with infant birth weight. Epidemiology 2009;20(3):367-73. PMID: 19289966. PMCID: pending.
185. Park SK, Hu H, Wright RO, Schwartz J, Cheng Y, Sparrow D, Vokonas PS, Weisskopf M. Iron Metabolism Genes, Low-Level Lead Exposure and QT Interval. *Environ Health Perspec 2009 Jan;117(1):80-5. PMID: 19165391; PMCID: PMC2627870.
185. Ettinger AS, Lamadrid-Figueroa H, Téllez-Rojo MM, Mercado-García A, Peterson K, Schwartz J, Hu H, Hernández-Avila M. Effect of Calcium Supplementation on Blood Lead Levels in Pregnancy: A Randomized Control Trial. *Environ Health Perspec 2009 Jan;117(1):26-31. Epub 2008 Sep 2.PMID: 19165383; PMCID: PMC2627861.
186. Eamranond PP, Hu H. Environmental and occupational exposures in immigrant health. Environ Health Insights (in press; available at <http://www.la-press.com>). PMIC: pending; PMCID: pending.
187. Park SK, Tucker KL, O'Neill MS, Sparrow D, Vokonas PS, Hu H, Schwartz J. Fruit, vegetable, and fish consumption and heart rate variability: the Veterans Administration Normative Aging Study. Am J Clin Nutr. 2009 Mar;89(3):778-86. PMID: 19158214; PMCID: PMC2714396.
188. Weuve J, Korrick SA, Weisskopf MA, Ryan L, Schwartz J, Nie H, Grodstein F, Hu H. Cumulative exposure to lead in relation to cognitive function in older women, *Environ Health Perspec 2009 Apr;117(4):574-80. Epub 2008 Dec 11. PMID: 19440496. PMCID: PMC2679601
189. Calafat AM, Weuve J, Ye X, Jia T, Hu H, Ringer S, Hauser R. Exposure to Bisphenol A and other Phenols in Neonatal Intensive Care Unit Infants. *Environ Health Perspec 2009 Apr;117(4):639-44. Epub 2008 Dec 10.PMID: 19440505. PMCID: PMC2679610.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

49

190. Avendano-Badillo D, Hernandez-vaila M, Koplan K, Hernandez-Cadena L, Rueda-Hernandez G, Solano-Gonzalez M, Ibarra LG, Hu H, Tellez-Rojo MM. High dietary calcium intake decreases bone mobilization during pregnancy in human. *Salud Publica* 2009;51 Suppl 1:S100-7. PMID: 19287883; PMCID: pending.
191. Kordas K, Ettinger S, Lamadrid-Figueroa H, Tellez-Rojo M, Hernandez-Avila M, Hu H, Wright RO. MTHFR C677T, A1298C, and G1793A genotypes, and the relationship between maternal folate intake, tibia lead and infant size at birth. *Br J Nutr*. 2009 Sep;102(6):907-14. Epub 2009 Apr 2. PMID: 19338708; PMCID: pending.
192. Pilsner JR, Hu H, Ettinger A, Sanchez BN, Wright RO, Cantonwine D, Lazarus A, Lamadrid-Figueroa H, Mercado-Garcia A, Tellez-Rojo MM, Hernandez-Avila M. Influence of Prenatal Lead Exposure on Genomic DNA Methylation of Umbilical Cord Blood. **Environ Health Perspect Environ Health Perspect*. 2009 Sep;117(9):1466-71. Epub 2009 Mar 25. PMID: 19750115. PMCID: PMC2737027.
193. Nie H, Sanchez BN, Wilker E, Weisskopf M, Schwartz J, Sparrow D, Hu H. Bone lead and endogenous exposure in an environmentally exposed elderly population: the Normative Aging Study. *J Occup Environ Med* 2009 Jul;51(7):848-57. PMID: 1952882. PMCID: pending.
194. Ettinger AE, Zota AR, Amarasiwardena CJ, Hopkins MR, Schwartz J, Hu H, Wright RO. Maternal Arsenic Exposure and Impaired Glucose Tolerance during Pregnancy. **Environ Health Perspect* 2009 Jul;117(7):1059-64. Epub 2009 Mar 11. PMID: 19654913. PMCID: PMC2717130.
195. Weisskopf MG, Jain N, Nie H, Sparrow D, Vokonas P, Schwartz J, Hu H. A prospective study of bone lead concentration and death from all causes, cardiovascular diseases, and cancer in the VA Normative Aging Study. *Circulation* 2009;120:1056-64. PMID: 19738141. PMCID: PMC2760410
196. Arora M, Weuve J, Weisskopf MG, Sparrow D, Nie H, Garcia RI, Hu H. Cumulative Lead Exposure and Tooth Loss in Men: The Normative Aging Study. **Environ Health Perspect* 2009 Oct;117(10):1531-4. Epub 2009 Jun 15. PMID: 20019902; PMCID: PMC2790506
197. Meeker JD, Hu H, Cantonwine DE, LaMadrid-Figueroa H, Calafat AM, Ettinger A, Hernandez-Avila M, Loch-Caruso R, Tellez-Rojo M. Pilot study of urinary phthalate metabolites in relation to preterm birth in Mexico City. **Environ Health Perspect* 2009 Oct;117(10):1587-92. Epub 2009 Jun 16. PMID: 20019910. PMCID: PMC2790514
198. Roy A, Bellinger D, Hu H, Schwartz J, Ettinger AS, Wright R, Bouchard M, Palaniappan K, Balakrishnan K. Lead exposure and behavior among young children in Chennai, India. **Environ Health Perspect* 2009 Oct;117(10):1607-11. Epub 2009 Jun 26. PMID: 20019913;

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

50

PMCID: PMC2790517

199. Roy A, Hu H, Bellinger DC, Wright RO, Schwartz J, Mukherjee B, Pallaniappan K, Balakrishnan K. Predictors of blood lead among 3-7 year old children in Chennai, India. *Internat J Occup and Environ Health* 2009 Oct-Dec;15(4):351-9. PMID: 19886345. PMCID: pending.
200. Park SK, Mukherjee B, Xia X, Sparrow D, Weisskopf MG, Nie H, Hu H. Bone Lead Level Prediction Models and Their Application to Examining the Relationship of Lead Exposure and Hypertension in the Third National Health and Nutrition Examination Survey (NHANES-III) *J Occup and Environ Medicine* 2009 Dec;51(12):1422-36. PMID: 19952788. PMCID: pending.
201. Meeker JD, Hu H, Cantonwine DE, Lamadrid-Figueroa H, Calafat AM, Ettinger AS, Hernandez-Avila M, Loch-Caruso R, Téllez-Rojo MM. Urinary phthalate metabolites in relation to preterm birth in Mexico city. *Environ Health Perspect.* 2009 Oct;117(10):1587-92. Epub 2009 Jun 16. PubMed PMID: 20019910; PubMed Central PMCID: PMC2790514.
202. Leiba A, Hu H, Zheng A, Kales SN. A safe strategy to decrease fetal lead exposure in a woman with chronic intoxication. *J Matern Fetal Neonatal Med.* 2010 Aug;23(8):932-4. PubMed PMID: 20459344.
203. Peters JL, Weisskopf MG, Spiro A 3rd, Schwartz J, Sparrow D, Nie H, Hu H, Wright RO, Wright RJ. Interaction of stress, lead burden, and age on cognition in older men: the VA Normative Aging Study. *Environ Health Perspect.* 2010 Apr;118(4):505-10. Epub 2009 Nov 6. PubMed PMID: 20064786; PubMed Central PMCID: PMC2854727.
204. Claus Henn B, Ettinger AS, Schwartz J, Téllez-Rojo MM, Lamadrid-Figueroa H, Hernández-Avila M, Schnaas L, Amarasiwardena C, Bellinger DC, Hu H, Wright RO. Early postnatal blood manganese levels and children's neurodevelopment. *Epidemiology.* 2010 Jul;21(4):433-9. PubMed PMID: 20549838.
205. Wright RO, Schwartz J, Wright RJ, Bollati V, Tarantini L, Park SK, Hu H, Sparrow D, Vokonas P, Baccarelli A. Biomarkers of lead exposure and DNA methylation within retrotransposons. *Environ Health Perspect.* 2010 Jun;118(6):790-5. Epub 2010 Jan 11. PubMed PMID: 20064768; PubMed Central PMCID: PMC2898855.
206. Zhang A, Park SK, Wright RO, Weisskopf MG, Mukherjee B, Nie H, Sparrow D, Hu H. HFE H63D polymorphism as a modifier of the effect of cumulative lead exposure on pulse pressure: the Normative Aging Study. *Environ Health Perspect.* 2010 Sep;118(9):1261-6. Epub 2010 May 14. PubMed PMID: 20478760; PubMed Central PMCID: PMC2944087.
207. Roy A, Hu H, Bellinger DC, Mukherjee B, Modali R, Nasaruddin K, Schwartz J, Wright RO,

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

51

- Ettinger AS, Palaniapan K, Balakrishnan K. Hemoglobin, Lead Exposure, and Intelligence Quotient: Effect Modification by the DRD2 Taq IA Polymorphism. *Environ Health Perspect.* 2011 Jan;119(1):144-9. PubMed PMID: 21205584.
208. Cantonwine D, Meeker JD, Hu H, Sanchez BN, Lamadrid-Figueroa H, Mercado-Garcia A, Fortenberry GZ, Calafat AM, Tellez-Rojo MM. Bisphenol A exposure in Mexico City and risk of prematurity: a pilot nested case control study. *Environ Health.* 2010 Oct 18;9(1):62. [Epub ahead of print] PubMed PMID: 20955576.
 209. Cantonwine D, Hu H, Téllez-Rojo MM, Sánchez BN, Lamadrid-Figueroa H, Ettinger AS, Mercado-García A, Hernández-Avila M, Wright RO. HFE gene variants modify the association between maternal lead burden and infant birthweight: a prospective birth cohort study in Mexico City, Mexico. *Environ Health.* 2010 Jul 26;9:43. PubMed PMID: 20659343; PubMed Central PMCID: PMC2916893.
 210. Pilsner JR, Hu H, Wright RO, Kordas K, Ettinger AS, Sánchez BN, Cantonwine D, Lazarus AL, Cantoral A, Schnaas L, Téllez-Rojo MM, Hernández-Avila M. Maternal MTHFR genotype and haplotype predict deficits in early cognitive development in a lead-exposed birth cohort in Mexico City. *Am J Clin Nutr.* 2010 Jul;92(1):226-34. Epub 2010 May 26. PubMed PMID: 20504979; PubMed Central PMCID: PMC2884326.
 211. Weisskopf MG, Weuve J, Nie H, Saint-Hilaire M-H, Sudarsky L, Simon DK, Hersh B, Schwartz J, Wright RO, Hu H. Association of Cumulative Lead Exposure with Parkinson's Disease. **Environ Health Perspec* 2010; 118:1609–1613, PMID: 20807691; PMCID: PMC2974701
 212. Basu N, Abare M, Buchanan S, Cryderman D, Nam D-H, Sirkin S, Schmitt S, Hu H. A combined ecological and epidemiologic investigation of metals exposure amongst indigenous peoples near the Marlin Mine in Western Guatemala. *Sci Total Environ* 2010 Dec 1;409(1):70-7. Epub 2010 Oct 16. PubMed PMID: 20952048.
 213. Lee MS, Park SK, Hu H, Lee S. Cadmium exposure and cardiovascular disease in the 2005 Korea National Health and Nutrition Examination Survey. *Environ Res.* 2011 Jan;111(1):171-6. Epub 2010 Nov 5. PubMed PMID: 21055738.
 214. Cantonwine D, Hu H, Sanchez BN, Lamadrid-Figueroa H, Smith D, Ettinger AS, Mercado-Garcia A, Hernandez-Avila M, Wright RO, Tellez-Rojo MM. Critical Windows of Fetal Lead Exposure: Adverse Impacts on Length of Gestation and Risk of Premature Delivery. *J Occup Environ Med.* 2010 Nov;52(11):1106-11. PubMed PMID: 21063188; PubMed Central PMCID: PMC3003442.
 215. Lamadrid-Figueroa H, Téllez-Rojo MM, Angeles G, Hernández-Ávila M, Hu H. Bias correction by use of errors-in-variables regression models in studies with K-X-ray fluorescence

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

52

- bone lead measurements. *Environ Res.* 2011 Jan;111(1):17-20. Epub 2010 Nov 18. PubMed PMID: 21092947; PubMed Central PMCID: PMC3026095.
216. Pan CH, Shih TS, Chen CJ, Hsu JH, Wang SC, Huang CP, Kuo CT, Wu KY, Hu H, Chan CC. Reduction of cooking oil fume exposure following an engineering intervention in Chinese restaurants. *Occup Environ Med.* 2011 Jan;68(1):10-5. Epub 2010 Sep 30. PubMed PMID: 20884797.
 217. Sánchez BN, Hu H, Litman HJ, Téllez-Rojo MM. Statistical Methods to Study Timing of Vulnerability with Sparsely Sampled Data on Environmental Toxicants. **Environ Health Perspec Environ Health Perspect.* 2011 Mar;119(3):409-15. PubMed PMID: 21362588.
 218. Park SK, Elmarsafawy S, Mukherjee B, Spiro A 3rd, Vokonas PS, Nie H, Weisskopf MG, Schwartz J, Hu H. Cumulative lead exposure and age-related hearing loss: the VA Normative Aging Study. *Hear Res.* 2010 Oct 1;269(1-2):48-55. Epub 2010 Jul 16. PubMed PMID: 20638461; PubMed Central PMCID: PMC2934752.
 219. Lee SD, Shin HT, Park HM, Ko SG, Kook YB, Ryu JY, Kim H, Hu H, Park SK. Metal concentrations of Chinese herbal medicine products in the United States. *Oriental Pharm Exp Med* 2010; 10(4):294-303.
 220. Weuve J, Glymour MM, Hu H, Sparrow D, Spiro A 3rd, Vokonas PS, Litonjua AA. Forced expiratory volume in 1 second and cognitive aging in men. *J Am Geriatr Soc.* 2011 Jul;59(7):1283-92. doi: 10.1111/j.1532-5415.2011.03487.x. Epub 2011 Jun 30. PubMed PMID: 21718272.
 221. Bush KF, Lubber G, Kotha SR, Dhaliwal RS, Kapil V, Pascual M, Brown DG, Frumkin H, Dhiman RC, Hess J, Wilson ML, Balakrishnan K, Eisenberg J, Kaur T, Rood R, Batterman S, Joseph A, Gronlund CJ, Agrawal A, Hu H. Impacts of climate change on public health in India: future research directions. **Environ Health Perspect.* 2011 Jun;119(6):765-70. Epub 2011 Jan 27. PubMed PMID: 21273162; PubMed Central PMCID: PMC3114809.
 222. Kordas K, Ettinger AS, Bellinger DC, Schnaas L, Téllez Rojo MM, Hernández-Avila M, Hu H, Wright RO. A Dopamine Receptor (DRD2) but Not Dopamine Transporter (DAT1) Gene Polymorphism is Associated with Neurocognitive Development of Mexican Preschool Children with Lead Exposure. *J Pediatr.* 2011 Oct;159(4):638-43. Epub 2011 May 17. PubMed PMID: 21592505; PubMed Central PMCID: PMC3158955.
 223. Eum KD, Nie LH, Schwartz J, Vokonas PS, Sparrow D, Hu H, Weisskopf MG. Prospective cohort study of lead exposure and electrocardiographic conduction disturbances in the Department of Veterans Affairs Normative Aging Study. **Environ Health Perspect.* 2011 Jul;119(7):940-4. Epub 2011 Mar 16. PubMed PMID: 21414889.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

53

224. Wilker E, Korrick S, Nie LH, Sparrow D, Vokonas P, Coull B, Wright RO, Schwartz J, Hu H. Longitudinal Changes in Bone Lead Levels: The VA Normative Aging Study. *J Occup Environ Med.* 2011 Aug;53(8):850-855. PubMed PMID: 21788910; PubMed Central PMCID: PMC3159960.
225. Palaniappan K, Roy A, Balakrishnan K, Gopalakrishnan L, Mukherjee B, Hu H, Bellinger DC. Lead exposure and visual-motor abilities in children from Chennai, India. *Neurotoxicology.* 2011 Aug;32(4):465-70. Epub 2011 Apr 8. PubMed PMID: 21510976; PubMed Central PMCID: PMC3115626.
226. Choi YH, Hu H, Tak S, Mukherjee B, Park SK. Occupational noise exposure assessment using O*NET and its application to a study of hearing loss in the US general population. *Occup Environ Med.* 2012 Mar;69(3):176-83. doi: 10.1136/oem.2011.064758. Epub 2011 Jul 1. PubMed PMID: 21725070; PubMed Central PMCID: PMC3277688..
227. Afeiche M, Peterson KE, Sánchez BN, Cantonwine D, Lamadrid-Figueroa H, Schnaas L, Ettinger AS, Hernández-Avila M, Hu H, Téllez-Rojo MM. Prenatal lead exposure and weight of 0- to 5-year-old children in Mexico city. *Environ Health Perspect.* 2011 Oct;119(10):1436-41. Epub 2011 Jun 29. PubMed PMID: 21715242; PubMed Central PMCID: PMC3230436.
228. Claus Henn B, Schnaas L, Ettinger AS, Schwartz J, Lamadrid-Figueroa H, Hernández-Avila M, Amarasiriwardena C, Hu H, Bellinger DC, Wright RO, Téllez-Rojo MM. Associations of Early Childhood Manganese and Lead Co-exposure with Neurodevelopment. *Environ Health Perspect.* 2012 Jan;120(1):126-31. doi: 10.1289/ehp.1003300. Epub 2011 Sep 1. PubMed PMID: 21885384; PubMed Central PMCID: PMC3261931.
229. Peters JL, Kubzansky LD, Ikeda A, Spiro A 3rd, Wright RO, Weisskopf MG, Kim D, Sparrow D, Nie LH, Hu H, Schwartz J. Childhood and adult socioeconomic position, cumulative lead levels, and pessimism in later life: the VA Normative Aging Study. *Am J Epidemiol.* 2011 Dec 15;174(12):1345-53. Epub 2011 Nov 9. PubMed PMID:22071587; PubMed Central PMCID: PMC3276297.
230. Hicken M, Gragg R, Hu H. How cumulative risks warrant a shift in our approach to racial health disparities: the case of lead, stress, and hypertension. *Health Aff (Millwood).* 2011 Oct;30(10):1895-901. PubMed PMID: 21976332.
231. Zhang A, Hu H, Sánchez BN, Ettinger AS, Park SK, Cantonwine D, Schnaas L, Wright RO, Lamadrid-Figueroa H, Tellez-Rojo MM. Association between Prenatal Lead Exposure and Blood Pressure in Female Offspring. *Environ Health Perspect.* 2012 Mar;120(3):445-50. doi: 10.1289/ehp.1103736. Epub 2011 Sep 21. PubMed PMID: 21947582; PubMed Central PMCID: PMC3295346.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

54

232. Bakulski KM, Rozek LS, Dolinoy DC, Paulson HL, Hu H. Alzheimer's disease and environmental exposure to lead: the epidemiologic evidence and potential role of epigenetics. *Curr Alzheimer Res.* 2012 Jun;9(5):563-73. PubMed PMID: 22272628.
233. Mordukhovich I, Wright RO, Hu H, Amarasiriwardena C, Baccarelli A, Litonjua A, Sparrow D, Vokonas P, Schwartz J. Associations of Toenail Arsenic, Cadmium, Mercury, Manganese and Lead with Blood Pressure in the Normative Aging Study. *Environ Health Perspect.* 2012 Jan;120(1):98-104. doi: 10.1289/ehp.1002805. Epub 2011 Aug 30. PubMed PMID: 21878420; PubMed Central PMCID: PMC3261928.
234. Afeiche M, Peterson KE, Sánchez BN, Schnaas L, Cantonwine D, Ettinger AS, Solano-González M, Hernández-Avila M, Hu H, Téllez-Rojo MM. Windows of lead exposure sensitivity, attained height, and body mass index at 48 months. *J Pediatr.* 2012 Jun;160(6):1044-9. Epub 2012 Jan 28. PubMed PMID: 22284921; PubMed Central PMCID: PMC3360798.
235. Peters JL, Kubzansky LD, Ikeda A, Fang SC, Sparrow D, Weisskopf MG, Wright RO, Vokonas P, Hu H, Schwartz J. Lead Concentrations in Relation to Multiple Biomarkers of Cardiovascular Disease: the Normative Aging Study. *Environ Health Perspect.* Mar;120(3):361-6. doi: 10.1289/ehp.1103467. Epub 2011 Dec 5. PubMed PMID: 22142875; PubMed Central PMCID: PMC3295335.
236. Bakulski KM, Dolinoy DC, Sartor MA, Paulson HL, Konen JR, Lieberman AP, Albin RL, Hu H, Rozek LS. Genome-wide DNA methylation differences between late-onset Alzheimer's disease and cognitively normal controls in human frontal cortex. *J Alzheimers Dis.* 2012;29(3):571-88. PubMed PMID: 22451312.
237. Claus Henn B, Kim J, Wessling-Resnick M, Tellez-Rojo MM, Jayawardene I, Ettinger AS, Hernandez-Avila M, Schwartz J, Christiani DC, Hu H, Wright RO. Associations of iron metabolism genes with blood manganese levels: a population-based study with validation data from animal models. *Environ Health.* 2011 Nov 10;10(1):97-107. [Epub ahead of print] PubMed PMID: 22074419.
238. Fortenberry GZ, Hu H, Turyk M, Barr DB, Meeker JD. Association between urinary 3, 5, 6-trichloro-2-pyridinol, a metabolite of chlorpyrifos and chlorpyrifos-methyl, and serum T4 and TSH in NHANES 1999–2002, *Science of The Total Environment*, 2012; 424:351-355. doi: 10.1016/j.scitotenv.2012.02.039. Epub 2012 Mar 17. PubMed PMID: 22425279; PubMed Central PMCID: PMC3327766.
239. Eum KD, Korrick SA, Weuve J, Okereke O, Kubzansky LD, Hu H, Weisskopf MG. Relation of cumulative low-level lead exposure to depressive and phobic anxiety symptom scores in middle-age and elderly women. *Environ Health Perspect.* 2012 Jun;120(6):817-23. doi:

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

55

- 10.1289/ehp.1104395. Epub 2012 Feb 29. PubMed PMID: 22538241; PubMed Central PMCID: PMC3385437.
240. Hicken MT, Gee GC, Morenoff J, Connell CM, Snow RC, Hu H. A novel look at racial health disparities: the interaction between social disadvantage and environmental health. *Am J Public Health*. 2012 Dec;102(12):2344-51. doi: 10.2105/AJPH.2012.300774. Epub 2012 Oct 18. PubMed PMID: 23078461.
 241. Choi YH, Hu H, Mukherjee B, Miller J, Park SK. Environmental cadmium and lead exposures and hearing loss in U.S. adults: the National Health and Nutrition Examination Survey, 1999 to 2004. *Environ Health Perspect*. 2012 Nov;120(11):1544-50. doi: 10.1289/ehp.1104863. Epub 2012 Jul 31. PubMed PMID: 22851306; PubMed Central PMCID: PMC3556613.
 242. Braun JM, Hoffman E, Schwartz J, Sanchez B, Schnaas L, Mercado-Garcia A, Solano-Gonzalez M, Bellinger DC, Lanphear BP, Hu H, Tellez-Rojo MM, Wright RO, Hernandez-Avila M. Assessing windows of susceptibility to lead-induced cognitive deficits in Mexican children. *Neurotoxicology*. 2012 Oct;33(5):1040-7. doi: 10.1016/j.neuro.2012.04.022. Epub 2012 May 10. PubMed PMID: 22579785.
 243. Weuve J, Press DZ, Grodstein F, Wright RO, Hu H, Weisskopf MG. Cumulative exposure to lead and cognition in persons with Parkinson's disease. *Mov Disord*. 2013 Feb;28(2):176-82. doi: 10.1002/mds.25247. Epub 2012 Nov 9. PubMed PMID: 23143985; PubMed Central PMCID: PMC3581753.
 245. Hicken MT, Gee GC, Connell C, Snow RC, Morenoff J, Hu H. Black-white blood pressure disparities: depressive symptoms and differential vulnerability to blood lead. *Environ Health Perspect*. 2013 Feb;121(2):205-9. doi: 10.1289/ehp.1104517. Epub 2012 Oct 25. PubMed PMID: 23127977; PubMed Central PMCID: PMC3569674.
 246. Xu J, Shen LX, Yan CH, Hu H, Yang F, Wang L, Kotha SR, Zhang LN, Liao XP, Zhang J, Ouyang FX, Zhang JS, Shen XM. Personal characteristics related to the risk of adolescent internet addiction: a survey in Shanghai, China. *BMC Public Health*. 2012 Dec 22;12:1106. doi: 10.1186/1471-2458-12-1106. PubMed PMID: 23259906; PubMed Central PMCID: PMC3563549.
 247. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, Amann M, Anderson HR, Andrews KG, Aryee M, Atkinson C, Bacchus LJ, Bahalim AN, Balakrishnan K, Balmes J, Barker-Collo S, Baxter A, Bell ML, Blore JD, Blyth F, Bonner C, Borges G, Bourne R, Boussinesq M, Brauer M, Brooks P, Bruce NG, Brunekreef B, Bryan-Hancock C, Bucello C, Buchbinder R, Bull F, Burnett RT, Byers TE, Calabria B, Carapetis J, Carnahan E, Chafe Z, Charlson F, Chen H, Chen JS, Cheng AT, Child JC, Cohen A, Colson KE, Cowie BC, Darby S, Darling S, Davis A, Degenhardt L, Dentener F, Des Jarlais DC, Devries K, Dherani M, Ding EL,

CV: Howard Hu, M.D., M.P.H., Sc.D.

Dorsey ER, Driscoll T, Edmond K, Ali SE, Engell RE, Erwin PJ, Fahimi S, Falder G, Farzadfar F, Ferrari A, Finucane MM, Flaxman S, Fowkes FG, Freedman G, Freeman MK, Gakidou E, Ghosh S, Giovannucci E, Gmel G, Graham K, Grainger R, Grant B, Gunnell D, Gutierrez HR, Hall W, Hoek HW, Hogan A, Hosgood HD 3rd, Hoy D, Hu H, Hubbell BJ, Hutchings SJ, Ibeanusi SE, Jacklyn GL, Jasrasaria R, Jonas JB, Kan H, Kanis JA, Kassebaum N, Kawakami N, Khang YH, Khatibzadeh S, Khoo JP, Kok C, Laden F, Lalloo R, Lan Q, Lathlean T, Leasher JL, Leigh J, Li Y, Lin JK, Lipshultz SE, London S, Lozano R, Lu Y, Mak J, Malekzadeh R, Mallinger L, Marcenes W, March L, Marks R, Martin R, McGale P, McGrath J, Mehta S, Mensah GA, Merriman TR, Micha R, Michaud C, Mishra V, Hanafiah KM, Mokdad AA, Morawska L, Mozaffarian D, Murphy T, Naghavi M, Neal B, Nelson PK, Nolla JM, Norman R, Olives C, Omer SB, Orchard J, Osborne R, Ostro B, Page A, Pandey KD, Parry CD, Passmore E, Patra J, Pearce N, Pelizzari PM, Petzold M, Phillips MR, Pope D, Pope CA 3rd, Powles J, Rao M, Razavi H, Rehfuess EA, Rehm JT, Ritz B, Rivara FP, Roberts T, Robinson C, Rodriguez-Portales JA, Romieu I, Room R, Rosenfeld LC, Roy A, Rushton L, Salomon JA, Sampson U, Sanchez-Riera L, Sanman E, Sapkota A, Seedat S, Shi P, Shield K, Shivakoti R, Singh GM, Sleet DA, Smith E, Smith KR, Stapelberg NJ, Steenland K, Stöckl H, Stovner LJ, Straif K, Straney L, Thurston GD, Tran JH, Van Dingenen R, van Donkelaar A, Veerman JL, Vijayakumar L, Weintraub R, Weissman MM, White RA, Whiteford H, Wiersma ST, Wilkinson JD, Williams HC, Williams W, Wilson N, Woolf AD, Yip P, Zielinski JM, Lopez AD, Murray CJ, Ezzati M. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*. 2012 Dec 15;380(9859):2224-60. doi: 10.1016/S0140-6736(12)61766-8. PubMed PMID: 23245609.

248. Grashow R, Spiro A, Taylor KM, Newton K, Shrairman R, Landau A, Sparrow D, Hu H, Weisskopf M. Cumulative lead exposure in community-dwelling adults and fine motor function: comparing standard and novel tasks in the VA normative aging study. *Neurotoxicology*. 2013 Mar;35:154-61. doi: 10.1016/j.neuro.2013.01.005. Epub 2013 Jan 28. PubMed PMID: 23370289; PubMed Central PMCID: PMC3602137.
249. Amarasiriwardena CJ, Jayawardene I, Lupoli N, Barnes RM, Hernandez-Avila M, Hu H, Ettinger AS. Comparison of digestion procedures and methods for quantification of trace lead in breast milk by isotope dilution inductively coupled plasma mass spectrometry. *Anal Methods*. 2013;5(7):1676-1681. PubMed PMID: 24808927; PubMed Central PMCID: PMC4010228.
250. Grashow R, Miller MW, McKinney A, Nie LH, Sparrow D, Hu H, Weisskopf MG. Lead exposure and fear-potentiated startle in the VA Normative Aging Study: a pilot study of a novel physiological approach to investigating neurotoxicant effects. *Neurotoxicol Teratol*. 2013 Jul-Aug;38:21-8. doi: 10.1016/j.ntt.2013.04.003. Epub 2013 Apr 17. PubMed PMID: 23603705; PubMed Central PMCID: PMC3774537.
251. Roy A, Ettinger AS, Hu H, Bellinger D, Schwartz J, Modali R, Wright RO, Palaniappan K,

CV: Howard Hu

57

- Balakrishnan K. Effect modification by transferrin C2 polymorphism on lead exposure, hemoglobin levels, and IQ. *Neurotoxicology*. 2013 Sep;38:17-22. doi: 10.1016/j.neuro.2013.05.005. Epub 2013 May 31. PubMed PMID: 23732512; PubMed Central PMCID: PMC3770761.
252. Bellinger DC, Burger J, Cade TJ, Cory-Slechta DA, Finkelstein M, Hu H, Kosnett M, Landrigan PJ, Lanphear B, Pokras MA, Redig PT, Rideout BA, Silbergeld E, Wright R, Smith DR. Health risks from lead-based ammunition in the environment. *Environ Health Perspect*. 2013 Jun;121(6):A178-9. doi: 10.1289/ehp.1306945. PubMed PMID: 23732085; PubMed Central PMCID: PMC3672933.
 253. Téllez-Rojo MM, Cantoral A, Cantonwine DE, Schnaas L, Peterson K, Hu H, Meeker JD. Prenatal urinary phthalate metabolites levels and neurodevelopment in children at two and three years of age. *Sci Total Environ*. 2013 Sep 1;461-462:386-90. doi: 10.1016/j.scitotenv.2013.05.021. Epub 2013 Jun 5. PubMed PMID: 23747553; PubMed Central PMCID: PMC3735862.
 254. Fortenberry GZ, Meeker JD, Sánchez BN, Barr DB, Panuwet P, Bellinger D, Schnaas L, Solano-González M, Ettinger AS, Hernandez-Avila M, Hu H, Tellez-Rojo MM. Urinary 3,5,6-trichloro-2-pyridinol (TCPY) in pregnant women from Mexico City: distribution, temporal variability, and relationship with child attention and hyperactivity. *Int J Hyg Environ Health*. 2014 Mar;217(2-3):405-12. doi: 10.1016/j.ijheh.2013.07.018. Epub 2013 Aug 13. PubMed PMID: 24001412; PubMed Central PMCID: PMC3946926.
 255. Eum KD, Wang FT, Schwartz J, Hersh CP, Kelsey K, Wright RO, Spiro A, Sparrow D, Hu H, Weisskopf MG. Modifying roles of glutathione S-transferase polymorphisms on the association between cumulative lead exposure and cognitive function. *Neurotoxicology*. 2013 Dec;39:65-71. doi: 10.1016/j.neuro.2013.08.002. Epub 2013 Aug 16. PubMed PMID: 23958642; PubMed Central PMCID: PMC3844089.
 256. Choi YH, Miller JM, Tucker KL, Hu H, Park SK. Antioxidant vitamins and magnesium and the risk of hearing loss in the US general population. *Am J Clin Nutr*. 2014 Jan;99(1):148-55. doi: 10.3945/ajcn.113.068437. Epub 2013 Nov 6. PubMed PMID: 24196403.
 257. Power MC, Korrick S, Tchetgen Tchetgen EJ, Nie LH, Grodstein F, Hu H, Weuve J, Schwartz J, Weisskopf MG. Lead exposure and rate of change in cognitive function in older women. *Environ Res*. 2014 Feb;129:69-75. doi: 10.1016/j.envres.2013.12.010. Epub 2014 Jan 29. PubMed PMID: 24529005; PubMed Central PMCID: PMC3951744.
 258. Ettinger AS, Roy A, Amarasiriwardena CJ, Smith D, Lupoli N, Mercado Garcia A, Lamadrid-Figueroa H, Tellez-Rojo MM, Hu H, Hernandez-Avila M. Maternal blood, plasma, and breast milk lead: Lactational transfer and contribution to infant exposure. *Environ Health Perspec* 2014

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

58

- Jan;122(1):87-92. doi: 10.1289/ehp.1307187. Epub 2013 Oct 30. PubMed PMID: 24184948; PubMed Central PMCID: PMC3888576.
259. Chatwood S, Bytautas J, Darychuk A, Bjerregaard P, Brown A, Cole D, Hu H, Jong M, King M, Kvernmo S, Veillard J. Approaching a collaborative research agenda for health systems performance in circumpolar regions. *Int J Circumpolar Health*. 2013 Aug 14;72. doi: 10.3402/ijch.v72i0.21474. eCollection 2013. PubMed PMID: 23961514; PubMed Central PMCID: PMC3745603.
 260. Bush KF, O'Neill MS, Li S, Mukherjee B, Hu H, Ghosh S, Balakrishnan K. Associations between extreme precipitation and gastrointestinal-related hospital admissions in Chennai, India. *Environ Health Perspect*. 2014 Mar;122(3):249-54. doi: 10.1289/ehp.1306807. Epub 2013 Dec 16. PubMed PMID: 24345350; PubMed Central PMCID: PMC3948034.
 261. Xu J, Shen LX, Yan CH, Hu H, Yang F, Wang L, Kotha SR, Ouyang F, Zhang LN, Liao XP, Zhang J, Zhang JS, Shen XM. Parent-adolescent interaction and risk of adolescent internet addiction: a population-based study in Shanghai. *BMC Psychiatry*. 2014 Apr 15;14:112. doi: 10.1186/1471-244X-14-112. PubMed PMID: 24731648; PubMed Central PMCID: PMC3999889.
 262. Fortenberry GZ, Meeker JD, Sánchez BN, Bellinger D, Peterson K, Schnaas L, Solano-González M, Ettinger AS, Hernandez-Avila M, Hu H, Maria Tellez-Rojo M. Paraoxonase I polymorphisms and attention/hyperactivity in school-age children from Mexico City, Mexico. *Environ Res*. 2014 Jul;132:342-9. doi: 10.1016/j.envres.2014.04.010. Epub 2014 May 14. PubMed PMID: 24834831.
 263. Arora M, Austin C, Sarrafpour B, Hernández-Ávila M, Hu H, Wright RO, Tellez-Rojo MM. Determining prenatal, early childhood and cumulative long-term lead exposure using micro-spatial deciduous dentine levels. *PLoS One*. 2014 May 19;9(5):e97805. doi: 10.1371/journal.pone.0097805. eCollection 2014. PubMed PMID: 24841926; PubMed Central PMCID: PMC4026445.
 264. Braun JM, Wright RJ, Just AC, Power MC, Tamayo Y Ortiz M, Schnaas L, Hu H, Wright RO, Tellez-Rojo MM. Relationships between lead biomarkers and diurnal salivary cortisol indices in pregnant women from Mexico City: a cross-sectional study. *Environ Health*. 2014 Jun 10;13(1):50. doi: 10.1186/1476-069X-13-50. PubMed PMID: 24916609; PubMed Central PMCID: PMC4068833.
 265. Bakulski KM, Park SK, Weisskopf MG, Tucker KL, Sparrow D, Spiro A, Vokonas PS, Nie LH, Hu H, Weuve J. Lead Exposure, B Vitamins, and Plasma Homocysteine in Men 55 Years of Age and Older: The VA Normative Aging Study. *Environ Health Perspect*. 2014 Oct;122(10):1066-74. doi: 10.1289/ehp.1306931. Epub 2014 Jun 4. PubMed PMID: 24905780; PubMed Central

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

59

PMCID: PMC4181916.

266. Ji JS, Schwartz J, Sparrow D, Hu H, Weisskopf MG. Occupational determinants of cumulative lead exposure: analysis of bone lead among men in the VA normative aging study. *J Occup Environ Med.* 2014 Apr;56(4):435-40. doi: 10.1097/JOM.000000000000127. PubMed PMID: 24709766; PubMed Central PMCID: PMC3982188.
267. Basu N, Tutino R, Zhang Z, Cantonwine DE, Goodrich JM, Somers EC, Rodriguez L, Schnaas L, Solano M, Mercado A, Peterson K, Sánchez BN, Hernández-Avila M, Hu H, Maria Téllez-Rojo M. Mercury levels in pregnant women, children, and seafood from Mexico City. *Environ Res.* 2014 Sep 25;135C:63-69. doi: 10.1016/j.envres.2014.08.029. [Epub ahead of print] PubMed PMID: 25262076.
268. Eum KD, Seals RM, Taylor KM, Grespin M, Umbach DM, Hu H, Sandler DP, Kamel F, Weisskopf MG. Modification of the association between lead exposure and amyotrophic lateral sclerosis by iron and oxidative stress related gene polymorphisms. *Amyotroph Lateral Scler Frontotemporal Degener.* 2014 Oct 8:1-8. [Epub ahead of print] PubMed PMID: 25293352.
269. Karwowski MP, Just AC, Bellinger DC, Jim R, Hatley EL, Ettinger AS, Hu H, Wright RO. Maternal iron metabolism gene variants modify umbilical cord blood lead levels by gene-environment interaction: a birth cohort study. *Environ Health.* 2014 Oct 6;13:77. doi: 10.1186/1476-069X-13-77. PubMed PMID: 25287020.
270. Eum K-D, Weisskopf MG, Nie LH, Hu H, Korrick SA. Cumulative Lead Exposure and Age at Menopause in the Nurses' Health Study Cohort. *Environmental Health Perspectives.* 2014;122(3):229-234. doi:10.1289/ehp.1206399.
271. Goodrich JM, Sánchez BN, Dolinoy DC, Zhang Z, Hernández-Ávila M, Hu H, Peterson KE, Téllez-Rojo MM. Quality control and statistical modeling for environmental epigenetics: A study on in utero lead exposure and DNA methylation at birth. *Epigenetics.* 2015 Jan 2;10(1):19-30. doi: 10.4161/15592294.2014.989077. Epub 2015 Jan 27. PubMed PMID: 25580720.
272. Ji JS, Power MC, Sparrow D, Spiro III A, Hu H, Louis ED, Weisskopf MG. Lead Exposure and Tremor among Older Men: The VANormative Aging Study. *Environ Health Perspectives* 2015 May;123(5):445-50. doi: 10.1289/ehp.1408535. Epub 2015 Jan 23. PubMed PMID: 25633720; PubMed Central PMCID: PMC4421770.
273. Ettinger AS, Lamadrid-Figueroa H, Mercado-Garcia A, Kordas K, Wood RJ, Peterson KE, Hu H, Hernandez-Avila M, Tellez-Rojo MM. Effect of Calcium Supplementation on Bone Resorption in Pregnancy and the Early Postpartum: A Randomized Controlled Trial in Mexican Women. *Nutrition Journal Nutr J.* 2014 Dec 16;13(1):116. doi: 10.1186/1475-2891-13-116. PubMed PMID: 25511814; PubMed Central PMCID: PMC4289552.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

60

274. Jhun MA, Hu H, Schwartz J, Weisskopf MG, Nie LH, Sparrow D, Vokonas PS, Park SK. Effect modification by Vitamin D receptor genetic polymorphisms in the association between cumulative lead exposure and pulse pressure: a longitudinal study. *Environ Health* 2015 Jan 13;14:5. doi: 10.1186/1476-069X-14-5. PubMed PMID: 25582168; PubMed Central PMCID: PMC4417283.
275. Cantoral A, Tellez-Rojo MM, Ettinger AS, Hu H, Hernandez-Avila M, Peterson K. Early introduction and cumulative consumption of sugar-sweetened beverages during the pre-school period and risk of obesity at 8–14 years of age. *Pediatr Obesity* 2015 Apr 17. doi: 10.1111/ijpo.12023. [Epub ahead of print] PubMed PMID: 25891908.
276. Orkin AM, Bingham K, Klaiman M, Leece P, Buick JE, et al. (2015) An Agenda for Naloxone Distribution Research and Practice: Meeting Report of the Surviving Opioid Overdose with Naloxone (SOON) International Working Group. *J Addict Res Ther* 6:212. doi:10.4172/2155-6105.1000212
277. Xu J, Hu H, Wright R, Sánchez BN, Schnaas L, Bellinger DC, Park SK, Martínez S, Hernández-Avila M, Téllez-Rojo MM, Wright RO. Prenatal Lead Exposure Modifies the Impact of Maternal Self-Esteem on Children's Inattention Behavior. *J Pediatr*. 2015 Aug;167(2):435-41. doi: 10.1016/j.jpeds.2015.04.057. Epub 2015 Jun 3. PubMed PMID: 26047683.
278. Kotha SR, Jadad AR, Hu H. Creating a Pandemic of Health: Opportunities and Lessons for a University Initiative at the Intersection of Health, Equity, and Innovation. *Harvard Publ Hlth Review* 2015;5:1-8. (available at <http://harvardpublichealthreview.org/wp-content/uploads/2015/04/HPHRv5-Kotha-Jadad-Hu-Creating-a-Pandemic.pdf>).
279. Weisskopf MG, Sparrow D, Hu H, Power MC. Biased Exposure-Health Effect Estimates from Selection in Cohort Studies: Are Environmental Studies at Particular Risk? *Environ Health Perspect*. 2015 Nov;123(11):1113-22. doi: 10.1289/ehp.1408888. Epub 2015 May 8. PubMed PMID: 25956004; PubMed Central PMCID: PMC4629739.
280. Grashow R, Kim J, Sparrow D, Hu H, Wessling-Resnick M, Weisskopf MG. Cumulative lead exposure is associated with reduced olfactory function in elderly men: the Normative Aging Study. *Neurotoxicology* 2015 Jul;49:158-64. doi: 10.1016/j.neuro.2015.06.006. Epub 2015 Jun 26. PubMed PMID: 26121922; PubMed Central PMCID: PMC4523435.
281. Kim WB, Sibbald RG, Hu H, Bashash M, Anooshirvani N, Coutts P, Alavi A. Clinical Features and Patient Outcomes of Hidradenitis Suppurativa: A Cross-Sectional Retrospective Study. *J Cutan Med Surg*. 2016 Jan;20(1):52-7. doi: 10.1177/1203475415602840. Epub 2015 Aug 28. PubMed PMID: 26318545.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

61

282. Global Burden of Disease Study 2013 Collaborators, Vos T, Barber RM, Bell B...Hu H...Zunt JR, Salomon JA, Murray CJ. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015 Aug 22;386(9995):743-800. doi: 10.1016/S0140-6736(15)60692-4. Epub 2015 Jun 7. Review. PubMed PMID: 26063472; PubMed Central PMCID: PMC4561509.
283. GBD 2013 Risk Factors Collaborators, Forouzanfar MH, Alexander L, Anderson HR...Hu H...Lopez AD, Vos T, Murray CJ. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015 Dec 5;386(10010):2287-323. doi: 10.1016/S0140-6736(15)00128-2. Epub 2015 Sep 11. PubMed PMID: 26364544; PubMed Central PMCID: PMC4685753.
284. Huang S, Hu H, Sánchez BN, Peterson KE, Ettinger AS, Lamadrid-Figueroa H, Schnaas L, Mercado-García A, Wright RO, Basu N, Cantonwine DE, Hernández-Avila M, Téllez-Rojo MM. Childhood Blood Lead Levels and Symptoms of Attention Deficit Hyperactivity Disorder (ADHD): A Cross-Sectional Study of Mexican Children. *Environ Health Perspect*. 2016 Jun;124(6):868-74. doi: 10.1289/ehp.1510067. PubMed PMID: 26645203; PubMed Central PMCID: PMC4892926.
285. Taylor KM, Saint-Hilaire MH, Sudarsky L, Simon DK, Hersh B, Sparrow D, Hu H, Weisskopf MG. Head injury at early ages is associated with risk of Parkinson's disease. *Parkinsonism Relat Disord*. 2016 Feb;23:57-61. doi: 10.1016/j.parkreldis.2015.12.005. PubMed PMID: 26725141; PubMed Central PMCID: PMC4787263.
286. Cantoral A, Téllez-Rojo MM, Levy TS, Hernández-Ávila M, Schnaas L, Hu H, Peterson KE, Ettinger AS. Differential association of lead on length by zinc status in two-year old Mexican children. *Environ Health*. 2015 Dec 30;14:95. doi: 10.1186/s12940-015-0086-8. PubMed PMID: 26715556; PubMed Central PMCID: PMC4696318.
287. Watkins DJ, Fortenberry GZ, Sánchez BN, Barr DB, Panuwet P, Schnaas L, Osorio-Valencia E, Solano-González M, Ettinger AS, Hernández-Ávila M, Hu H, Téllez-Rojo MM, Meeker JD. Urinary 3-phenoxybenzoic acid (3-PBA) levels among pregnant women in Mexico City: Distribution and relationships with child neurodevelopment. *Environ Res*. 2016 May;147:307-13. doi: 10.1016/j.envres.2016.02.025. PubMed PMID: 26922411; PubMed Central PMCID: PMC4821665.
288. Specht AJ, Lin Y, Weisskopf M, Yan C, Hu H, Xu J, Nie LH. XRF-measured bone lead (Pb) as a biomarker for Pb exposure and toxicity among children diagnosed with Pb poisoning. *Biomarkers*. 2016 Jun;21(4):347-52. doi: 10.3109/1354750X.2016.1139183. Epub 2016 Feb 9. PubMed PMID: 26856822.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

62

289. Tamayo Y Ortiz M, Téllez-Rojo MM, Hu H, Hernández-Ávila M, Wright R, Amarasiriwardena C, Lupoli N, Mercado-García A, Pantic I, Lamadrid-Figueroa H. Lead in candy consumed and blood lead levels of children living in Mexico City. *Environ Res.* 2016 May;147:497-502. doi: 10.1016/j.envres.2016.03.007. Epub 2016 Mar 11. PubMed PMID: 26974363.
290. Thomas DB, Basu N, Martinez-Mier EA, Sánchez BN, Zhang Z, Liu Y, Parajuli RP, Peterson K, Mercado-Garcia A, Bashash M, Hernández-Avila M, Hu H, Téllez-Rojo MM. Urinary and plasma fluoride levels in pregnant women from Mexico City. *Environ Res.* 2016 Oct;150:489-95. doi: 10.1016/j.envres.2016.06.046. PubMed PMID: 27423051.
291. Ding N, Wang X, Weisskopf MG, Sparrow D, Schwartz J, Hu H, Park SK. Lead-Related Genetic Loci, Cumulative Lead Exposure and Incident Coronary Heart Disease: The Normative Aging Study. *PLoS One.* 2016 Sep 1;11(9):e0161472. doi: 10.1371/journal.pone.0161472. PubMed PMID: 27584680; PubMed Central PMCID: PMC5008632.
292. Goodrich JM, Dolinoy DC, Sanchez BN, Zhang Z, Meeker JD, Mercado-Garcia A, Solano-Gonzalez M, Hu H, Tellez-Rojo MM, Peterson KE. Adolescent epigenetic profiles and environmental exposures from early life through peri-adolescence. *Environmental Epigenetics*, 2016; 2(3)1–11, doi: 10.1093/eep/dvw018
293. Xu J, Yan CH, Hu H, Wu MQ, Shen XM. Prenatal Maternal Occupational Exposure and Postnatal Child Exposure to Elemental Mercury. *Pediatr Emerg Care.* 2016 Mar;32(3):175-9. doi: 10.1097/PEC.0000000000000305. PubMed PMID: 25415760.
294. Prada D, Colicino E, Power MC, Weisskopf MG, Zhong J, Hou L, Spiro A 3rd, Vokonas P, Brenan K, Herrera LA, Schwartz J, Wright RO, Hu H, Baccarelli AA. APOE ε4 allele modifies the association of lead exposure with age-related cognitive decline in older individuals. *Environ Res.* 2016 Nov;151:101-105. doi: 10.1016/j.envres.2016.07.034. Epub 2016 Jul 27. Erratum in: *Environ Res.* 2017 Nov 25;:. PubMed PMID: 27474937; PubMed Central PMCID: PMC5071136.
295. Farooqui Z, Bakulski KM, Power MC, Weisskopf MG, Sparrow D, Spiro A 3rd, Vokonas PS, Nie LH, Hu H, Park SK. Associations of cumulative Pb exposure and longitudinal changes in Mini-Mental Status Exam scores, global cognition and domains of cognition: The VA Normative Aging Study. *Environ Res.* 2017 Jan;152:102-108. doi: 10.1016/j.envres.2016.10.007. PubMed PMID: 27770710; PubMed Central PMCID: PMC5135609.
296. Somers EC, Monrad SU, Warren JS, Solano M, Schnaas L, Hernandez-Avila M, Tellez-Rojo M, Hu H. Antinuclear antibody prevalence in a general pediatric cohort from Mexico City: discordance between immunofluorescence and multiplex assays. *Clin Epidemiol.* 2016 Dec 20;9:1-8. doi: 10.2147/CLEP.S121632. eCollection 2017. PubMed PMID: 28053555; PubMed

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

63

Central PMCID: PMC5192054.

297. Bashash M, Connors JM, Gascoyne RD, Meissner B, Schuetz JM, Leach S, Slack GW, Berry R, Hu H, Sehn LH, Brooks-Wilson AR, Spinelli JJ. Genetic polymorphism at BCL2 as a predictor for rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone efficacy in patients with diffuse large B-cell lymphoma. *Haematologica*. 2017 May;102(5):e199-e202. doi: 10.3324/haematol.2016.159087. Epub 2017 Feb 2. PubMed PMID: 28154089; PubMed Central PMCID: PMC5477624.
298. Hu H, Galea S, Rosella L, Henry D. Big Data and Population Health: Focusing on the Health Impacts of the Social, Physical, and Economic Environment. *Epidemiology*. 2017 Nov;28(6):759-762. doi: 10.1097/EDE.0000000000000711. PubMed PMID: 28682850.
299. Wang X, Ding N, Tucker KL, Weisskopf MG, Sparrow D, Hu H, Park SK. A Western Diet Pattern Is Associated with Higher Concentrations of Blood and Bone Lead among Middle-Aged and Elderly Men. *J Nutr*. 2017 Jul;147(7):1374-1383. doi: 10.3945/jn.117.249060. Epub 2017 Jun 7. PubMed PMID: 28592514; PubMed Central PMCID: PMC5483966.
300. Bashash M, Thomas D, Hu H, Martinez-Mier EA, Sanchez BN, Basu N, Peterson KE, Ettinger AS, Wright R, Zhang Z, Liu Y, Schnaas L, Mercado-Garcia A, Téllez-Rojo MM, Hernández-Avila M. Prenatal Fluoride Exposure and Cognitive Outcomes in Children at 4 and 6-12 Years of Age in Mexico. *Environ Health Perspect*. 2017 Sep 19;125(9). doi: 10.1289/EHP655. PubMed PMID: 28937959.
301. Ge E, Fan M, Qiu H, Hu H, Tian L, Wang X, Xu G, Wei X. Ambient sulfur dioxide levels associated with reduced risk of initial outpatient visits for tuberculosis: A population based time series analysis. *Environ Pollut*. 2017 Sep;228:408-415. doi: 10.1016/j.envpol.2017.05.051. Epub 2017 May 26. PubMed PMID: 28554030.
302. Tse LA, Lee PMY, Ho WM, Lam AT, Lee MK, Ng SSM, He Y, Leung KS, Hartle JC, Hu H, Kan H, Wang F, Ng CF. Bisphenol A and other environmental risk factors for prostate cancer in Hong Kong. *Environ Int*. 2017 Oct;107:1-7. doi: 10.1016/j.envint.2017.06.012. Epub 2017 Jun 20. PubMed PMID: 28644961.
303. Liu SH, Bobb JF, Lee KH, Gennings C, Claus Henn B, Bellinger D, Austin C, Schnaas L, Tellez-Rojo MM, Hu H, Wright RO, Arora M, Coull BA. Lagged kernel machine regression for identifying time windows of susceptibility to exposures of complex mixtures. *Biostatistics*. 2018 Jul 1;19(3):325-341. doi: 10.1093/biostatistics/kxx036. PubMed PMID: 28968676; PubMed Central PMCID: PMC5991212.
304. Mehdizadeh A, Alavi A, Alhusayen R, Bauer B, Bechara FG, Bourcier M, Brassard A, Djamei V, Dutz J, George R, Ghias M, Gooderham M, Hamzavi I, Hoffman LK, Hou A, Hu H, Kimball

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

64

- AB, Kirchhof M, Kryzskaya D, Liy Wong MDC, Lowes MA, Lynde CW, McLellen C, Prens E, Prens L, Rogalska T, Sibbald RG, Sisic M, Tan MG, Wong DD. Proceeding report of the Symposium on Hidradenitis Suppurativa Advances (SHSA). *Exp Dermatol*. 2018 Jan;27(1):104-112. doi: 10.1111/exd.13445. Epub 2017 Nov 15. PubMed PMID: 28898476.
305. Claus Henn B, Austin C, Coull BA, Schnaas L, Gennings C, Horton MK, Hernández-Ávila M, Hu H, Téllez-Rojo MM, Wright RO, Arora M. Uncovering neurodevelopmental windows of susceptibility to manganese exposure using dentine microspatial analyses. *Environ Res*. 2018 Feb;161:588-598. doi: 10.1016/j.envres.2017.12.003. PubMed PMID: 29247915; PubMed Central PMCID: PMC5965684.
 306. Mehdizadeh A, Rosella L, Alavi A, Sibbald G, Farzanfar D, Hazrati A, Vernich L, Laporte A, Hu H, Bashash M. A Canadian Population-Based Cohort to the Study Cost and Burden of Surgically Resected Hidradenitis Suppurativa. *J Cutan Med Surg*. 2018 May/Jun;22(3):312-317. doi: 10.1177/1203475418763536. Epub 2018 Mar 11. PubMed PMID: 29528753.
 307. Jansen EC, Zhou L, Song P, Sánchez BN, Mercado A, Hu H, Solano M, Peterson KE, Tellez-Rojo MM. Prenatal lead exposure in relation to age at menarche: results from a longitudinal study in Mexico City. *J Dev Orig Health Dis*. 2018 Apr 30;1-6. doi: 10.1017/S2040174418000223. [Epub ahead of print] PubMed PMID: 29706142. 308.
 308. Brook JR, Setton EM, Seed E, Shooshtari M, Doiron D; CANUE – The Canadian Urban Environmental Health Research Consortium. The Canadian Urban Environmental Health Research Consortium - a protocol for building a national environmental exposure data platform for integrated analyses of urban form and health. *BMC Public Health*. 2018 Jan 8;18(1):114. doi: 10.1186/s12889-017-5001-5. PubMed PMID: 29310629; PubMed Central PMCID: PMC5759244.
 309. Hu H, Baines C. Recent Insights and Opportunities for Three Under-recognized Conditions: Myalgic Encephalomyelitis/ Chronic Fatigue Syndrome, Fibromyalgia and Environmental Sensitivities/ Multiple Chemical Sensitivity. *Can Fam Physician*. 2018 Jun;64(6):413-415. PubMed PMID: 29898928; PubMed Central PMCID: PMC5999262.
 310. Landrigan PJ, Fuller R, Hu H, Caravanos J, Cropper ML, Hanrahan D, Sandilya K, Chiles TC, Kumar P, Suk WA. Pollution and Global Health – An Agenda for Prevention. *Environ Health Perspect*. 2018 Aug 6;126(8):084501. doi: 10.1289/EHP3141. eCollection 2018 Aug. PubMed PMID: 30118434; PubMed Central PMCID: PMC6108842.
 311. Hu H, Landrigan PJ, Fuller R, Lim SS, Murray CJL. New Initiative aims at expanding Global Burden of Disease estimates for pollution and climate. *Lancet Planet Health*. 2018 Oct;2(10):e415-e416. doi: 10.1016/S2542-5196(18)30189-X. PubMed PMID: 30318094.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

65

312. Wang W, Moroi S, Bakulski K, Mukherjee B, Weisskopf MG, Schaumberg D, Sparrow D, Vokonas PS, Hu H, Park SK. Bone Lead Levels and Risk of Incident Primary Open-Angle Glaucoma: The VA Normative Aging Study. *Environ Health Perspect.* 2018 Aug 8;126(8):087002. doi: 10.1289/EHP3442. eCollection 2018 Aug. PubMed PMID: 30102601; PubMed Central PMCID: PMC6108844.
313. Xu J, Hu H, Wright R, Schnaas L, Bellinger DC, Park SK, Wright RO, Téllez-Rojo MM. Prenatal lead exposure modifies the association of maternal self-esteem with child adaptive ability. *Int J Hyg Environ Health.* 2019 Jan;222(1):68-75. doi: 10.1016/j.ijheh.2018.08.005. Epub 2018 Aug 23. PubMed PMID: 30146178.
314. Horton MK, Hsu L, Claus Henn B, Margolis A, Austin C, Svensson K, Schnaas L, Gennings C, Hu H, Wright R, Rojo MMT, Arora M. Dentine biomarkers of prenatal and early childhood exposure to manganese, zinc and lead and childhood behavior. *Environ Int.* 2018 Dec;121(Pt 1):148-158. doi: 10.1016/j.envint.2018.08.045. Epub 2018 Sep 8. PubMed PMID: 30205321.
315. Zhang Z, Braun TM, Peterson KE, Hu H, Téllez-Rojo MM, Sánchez BN. Extending Tests of Random Effects to Assess for Measurement Invariance in Factor Models. *Stat Biosci.* 2018 Dec;10(3):634-650. doi: 10.1007/s12561-018-9222-7. Epub 2018 Sep 29. PubMed PMID: 30805035; PubMed Central PMCID: PMC6385881.
316. Bashash M, Marchand M, Hu H, Till C, Martinez-Mier EA, Sanchez BN, Basu N, Peterson KE, Green R, Schnaas L, Mercado-García A, Hernández-Avila M, Téllez-Rojo MM. Prenatal fluoride exposure and attention deficit hyperactivity disorder (ADHD) symptoms in children at 6-12 years of age in Mexico City. *Environ Int.* 2018 Dec;121(Pt 1):658-666. doi: 10.1016/j.envint.2018.09.017. Epub 2018 Oct 10. PubMed PMID: 30316181.
317. GBD 2017 Risk Factor Collaborators. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet.* 2018 Nov 10;392(10159):1923-1994. doi: 10.1016/S0140-6736(18)32225-6. Epub 2018 Nov 8. PubMed PMID: 30496105; PubMed Central PMCID: PMC6227755.
318. Zheutlin AR, Hu H, Weisskopf MG, Sparrow D, Vokonas PS, Park SK. Low-Level Cumulative Lead and Resistant Hypertension: A Prospective Study of Men Participating in the Veterans Affairs Normative Aging Study. *J Am Heart Assoc.* 2018 Nov 6;7(21):e010014. doi: 0.1161/JAHA.118.010014. PubMed PMID: 30608198.
319. Green R, Till C, Al-Hakeem H, Cribbie R, Téllez-Rojo MM, Osorio E, Hu H, Schnaas L. Assessment of neuropsychological performance in Mexico City youth using the Cambridge Neuropsychological Test Automated Battery (CANTAB). *J Clin Exp Neuropsychol.* 2018 Oct 18:1-11. doi: 10.1080/13803395.2018.1529229. [Epub ahead of print] PubMed PMID:

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

66

30336715.

320. Pantic I, Tamayo-Ortiz M, Rosa-Parra A, Bautista-Arredondo L, Wright RO, Peterson KE, Schnaas L, Rothenberg SJ, Hu H, Téllez-Rojo MM. Children's Blood Lead Concentrations from 1988 to 2015 in Mexico City: The Contribution of Lead in Air and Traditional Lead-Glazed Ceramics. *Int J Environ Res Public Health*. 2018 Sep 30;15(10). pii: E2153. doi: 10.3390/ijerph15102153. PubMed PMID: 30274368; PubMed Central PMCID: PMC6210390.
321. Ding N, Wang X, Tucker KL, Weisskopf MG, Sparrow D, Hu H, Park SK. Dietary patterns, bone lead and incident coronary heart disease among middle-aged to elderly men. *Environ Res*. 2018 Sep 27;168:222-229. doi: 10.1016/j.envres.2018.09.035. [Epub ahead of print] PubMed PMID: 30317107.
322. Prada D, Colicino E, Power MC, Weisskopf MG, Zhong J, Hou L, Spiro A 3rd, Vokonas P, Brennan K, Herrera LA, Schwartz J, Wright R, Hu H, Baccarelli AA. Corrigendum to "APOE ϵ 4 allele modifies the association of lead exposure with age-related cognitive decline in older individuals" [*Environ. Res.* 151 (2016) 101-105]. *Environ Res*. 2018 Aug;165:504. doi: 10.1016/j.envres.2017.11.022. Epub 2017 Nov 26. PubMed PMID: 29183624. (*correct citation [first in this CV] for earlier publication that was missing co-authors*).
323. Wu Y, Jansen EC, Peterson KE, Foxman B, Goodrich JM, Hu H, Solano-González M, Cantoral A, Téllez-Rojo MM, Martinez-Mier EA. The associations between lead exposure at multiple sensitive life periods and dental caries risks in permanent teeth. *Sci Total Environ*. 2019 Mar 1;654:1048-1055. doi:10.1016/j.scitotenv.2018.11.190. Epub 2018 Nov 14. PubMed PMID: 30841379; PubMed Central PMCID: PMC6407640.
324. Lin Y, Huang L, Xu J, Specht AJ, Yan C, Geng H, Shen X, Nie LH, Hu H. Blood lead, bone lead and child attention-deficit-hyperactivity-disorder-like behavior. *Sci Total Environ*. 2019 Apr 1;659:161-167. doi: 10.1016/j.scitotenv.2018.12.219. Epub 2018 Dec 15. PubMed PMID: 30597466.
325. Liu Y, Téllez-Rojo M, Hu H, Sánchez BN, Martínez-Mier EA, Basu N, Mercado-García A, Solano-González M, Peterson KE. Fluoride exposure and pubertal development in children living in Mexico City. *Environ Health*. 2019 Mar 29;18(1):26. doi: 10.1186/s12940-019-0465-7. PubMed PMID: 30922319; PubMed Central PMCID: PMC6439980.
326. Cantoral A, Luna-Villa L, Mantilla-Rodriguez AA, Mercado A, Lippert F, Liu Y, Peterson KE, Hu H, Téllez-Rojo MM, Martinez-Mier EA. Fluoride content in foods and beverages from Mexico City markets & supermarkets. *Food Nutr Bull* (in press).

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

67

Other Peer-reviewed Publication

1. Hu H . Investigating allegations using survey epidemiology. Proceedings of the International Conference on Combatting the Use of Chemical and Biological Weapons. Geneva May 24-27, 1989. International Commission of Health Professionals: Geneva.
2. Kim R, Hu H. New biomarkers of lead dose and toxicity. Proceedings of the Pacific Basin Conference on Hazardous Waste, Edmonton, Alberta, May 7-12, 1995. East-West Center: Honolulu.
3. Hu H, Kim R, Payton M, Korrick S, Sparrow D, Weiss ST. The relationship of bone and blood lead to hypertension: further analyses of the normative aging study data. Proceedings of the 1996 Pacific Basin Conference on Hazardous Waste, Nov 4-8, 1996. East-West Center: Honolulu.
4. Hu H, Kim R, Fleischaker G, Aro A. K-X-ray fluorescence: measuring bone lead as a biomarker of cumulative lead dose. Proceeding of "Biomarkers, the Genome, and the Individual: Workplace and Medical Implications of a Rapidly Evolving Technology". May, 1997, Charleston, SC.
5. Hu H, Johnson K, Heldman R, Jones K, Komaroff AL, Schacterle R, Barsky A, Becker A, Holman L. A comparison of single photon emission computed tomography in normal controls, in subjects with multiple chemical sensitivity syndrome and in subjects with chronic fatigue syndrome. Department of Labor and Industries, State of Washington. 1999 (peer-reviewed technical report).
6. Wright R, Mulkern R, White R, Aro A, Hu H. Magnetic resonance spectroscopy in the neurologic assessment of adult lead poisoning. Proceeding of the Silver Anniversary International Conference on Heavy Metals in the Environment. August, 2000, Ann Arbor, MI.
7. Tsaih S-W, Korrick S, Schwartz J, Amarasiriwardena C, Aro A, Sparrow D, Hu H. Influence of dietary ascorbic acid intake on lead mobilized from bone among middle-aged and elderly men: the Normative Aging Study. Proceeding of the Silver Anniversary International Conference on Heavy Metals in the Environment. August, 2000, Ann Arbor, MI.
8. Hu H, O'Neill M, Ebi K, Kotha R, Patz J, Keeler J, Erdmann C, Xi C, Ebi K. Coping with Climate Change: Public Health Sector Synthesis. Proceedings of the National Summit on Coping with Climate Change, University of Michigan, Ann Arbor, 8-10 May 2007

Non-peer reviewed publications

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

68

1. Hu H. Occupational health: on the job training for medical students. *The New Physician*, May 1979;24-25.
2. Hu H, Shaffer N. Trade unionism for doctors. (Letter to the Editor). *N Engl J Med* 1985;323:926.
3. Kern D, Christiani DC, Kelsey KT, Hu H, Frumkin H, Kreiss K, Rose C, Newman LS, Jarvis J, Garabrant D. Asbestos related diseases. (Letter to the Editor). *N Engl J Med* 1991;324:195-196.
3. Hu H. Physicians, IPPNW, and the Environment. *PSR Quarterly* 1993;3:141-142 (reply to letter).
4. Hoppin JA, Ryan PB, Hu H, Aro ACA. Bone lead levels and delinquent behavior (letter to the editor). *J Am Med Assoc* 1996;275:1727.
5. Hu H, Aro A, Payton M, Korrick S, Weiss S, Sparrow D. Lead and hypertension (reply to Letters to the Editor). *J Am Med Assoc* 1996;276:1038.
6. Hu H. Inorganic lead exposure: Metabolism and intoxication. (book review). *Am J Epi* 1997;145:382-383.
7. Hu H. The exportation of hazardous industries, products, and wastes: globally-distributed chemicals and associated toxins. *Our Planet. United Nations Environmental Program North America (Suppl)* 1997;8:3-4.
8. Sumner D, Hu H, Woodward A. Health risks of ionizing radiation. *Science for Democratic Action* 2000;8:1-4.
9. Schwartz BS, Stewart W, Hu H. Critique of Goodman et al.: Lead and neurobehavioral test scores in adults. *OEM Online - Occupational and Environmental Medicine*, May 8, 2002 (<http://oem.bmjournals.com/cgi/eletters/59/4/217>).
10. Mitchell CS, Moline J, Avery AN, Baker D, Blessman JE, Carson AI, Cosby O, Darcey D, Ducatman A, Emmett EA, Forst L, Gerr F, Gochfeld M, Guidotti TL, Harber P, Hu H, Hegmann KT, Kipen HM, Levin J, McGrail MP, Meyer JD, Mueller KL, Prince S, Rubin R, Schwerha JJ, Sprince NL, Taiwo O, Upfal M. In response to the 2002, vol. 22, no. 4 article entitled "The rise and fall of occupational medicine in the United States". *Am J Prev Med*. 2002;23:307-9.
11. Ettinger AS, Hu H. Lead and its impact on children—the Environmental Health dimension. *Contact* 2005;179:13-15.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

69

12. Hu H, Tellez-Rojas M, LaMadrid-Figueroa H, Mercado-Garcia A, Hernandez-Avila M, Bellinger D, Smith D, Ettinger AS, Schnaas L. Response to Letter to the Editor by Ronchetti. *Environ Health Perspect* 2007;115:A186-187.
13. Weisskopf MG, Weuve J, Jarrell J, Hu H, Tellez-Rojas MM, Hernandez-Avila M. Reply to Letter to the Editor by Jongbloet. *Hum Reprod*. 2007 Oct;22(10):2792-3. Epub 2007 Jun 28.
14. Aguilar Madrid G, Beaudry M, Bell W, Bowes D, Brophy J, Burdorf A, Carlsten C, Castleman B, Chaturvedi S, Conti ME, Corra L, Corrêa Filho HR, Cranor CF, Cullen E, Dalvie A, Dickson RC, Digon A, Egilman D, Eisner Falvo C, Fischer E, Frank AL, Frank E, Gee D, Giannasi F, Goldstein BD, Greenberg M, Guidotti TL, Harris WA, Hindry M, Houlson A, Hu H, Huff J, Infante PF, Thambyappa J, Juarez Perez CA, Jeebhay MF, Joshi TK, Keith M, Keyserlingk JR, Khatler K, King D, Kodeih N, Kristensen J, Kulsomboon V, Landrigan PJ, Lee CW, Leigh J, Lemen RA, Lippman A, London L, Matzopoulos R, McCulloch J, McDiarmid MA, Mehrdad R, Mirabelli D, Moshhammer H, Notebaert É, Nycz Z, Oberta AF, O'Connor J, O'Neill R, Orris P, Ozonoff D, Paek D, Rickard C, Rodriguez EJ, Sass J, Sentes KE, Simpson IM, Soffritti M, Soskolne CL, Sparling SP, Spiegel J, Takahashi K, Takaro TK, Terracini B, Thébaud-Mony A, Trosic I, Turcotte F, Vakil C, Van Der Walt A, Waterman YR, Watterson A, Wegman DH, Welch LS, Weiss SH, Winston R, Yassi A. Statement in response to asbestos industry efforts to prevent a ban on asbestos in Pakistan: chrysotile asbestos use is not safe and must be banned. *Arch Environ Occup Health*. 2013;68(4):243-9. doi: 10.1080/19338244.2013.780807. PubMed PMID: 23697697.
15. Prada D, Colicino E, Power MC, Weisskopf MG, Zhong J, Hou L, Spiro A 3rd, Vokonas P, Brennan K, Herrera LA, Schwartz J, Wright R, Hu H, Baccarelli AA. Corrigendum to "APOE ε4 allele modifies the association of lead exposure with age-related cognitive decline in older individuals" [*Environ. Res.* 151 (2016) 101-105]. *Environ Res*. 2017 Nov 25. pii: S0013-9351(17)31700-0. doi:10.1016/j.envres.2017.11.022. [Epub ahead of print] PubMed PMID: 29183624.

Book Chapters (peer-reviewed)

1. Hu H. Renal and urinary tract disorder. In: Levy B, Wegman D, eds., *Occupational Health: Recognizing and Preventing Work-Related Disease*, Boston: Little, Brown, 1983
2. Hu H. Other physical hazards. In: Levy B, Wegman D, eds., *Occupational Health: Recognizing and Preventing Work-Related Disease*, Boston: Little, Brown, 1983
3. Frumkin H, Hu H. Training and career opportunities, Appendix In: Levy B, Wegman D, eds., *Occupational Health: Recognizing and Preventing Work-Related Disease*, Boston: Little, Brown, 1983

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

70

4. Hu H. Other physical hazards. In: Levy B, Wegman D, eds. *Occupational Health: Recognizing and Preventing Work-Related Disease*. 2nd edition. Boston: Little, Brown, 1988:263-279.
5. Frumkin H, Hu H, Travers P. Training and career opportunities, Appendix In: Levy B, Wegman D, eds., *Occupational Health: Recognizing and Preventing Work-Related Disease*, Boston: Little, Brown, 1988.
6. Hu H. The effects of ultraviolet radiation. In: Upton R, Positano R, eds. *Med Clin N Amer: Environmental Medicine*. March 1990;74:509-514.
7. Hu H. Non-ionizing radiation. In: Levy B, Weeks J, eds., *Control of Occupational Diseases; Center for Disease Control*. Washington, D.C.: American Public Health Association:1991:508-515.
8. Hu H. Toxicodynamics of riot control agents (lacrimators). In: Somani SM, ed. *Chemical Warfare Agents*. New York: Academic Press, 1992:271-288.
9. Hu H, Besser M. Other physical hazards. In: Paul M, ed. *Occupational and Environmental Reproductive Hazards: A Guide for Clinicians*. Philadelphia: Williams & Wilkins, 1992:218-232.
10. Hu H. Ultraviolet radiation. *The Encyclopedia of the Environment*. Boston: Houghton Mifflin Co. 1993:750.
11. Hu H, Kim N. Drinking water pollution and human health. In: Chivian E, McCally M, Hu H, Haines H, eds. *Human Health and the Environment--A Doctor's Report*. Cambridge: The MIT Press, 1993:31-48.
12. Bowen E, Hu H. Food Contamination Due to Environmental Pollution. In: Chivian E, McCally M, Hu H, Haines H, eds. *Human Health and the Environment--A Doctor's Report*. Cambridge: The MIT Press 1993:49-69.
13. Kales S, Hu H. Other physical hazards. In: Levy B, Wegman D, eds. *Occupational Health: Recognizing and Preventing Work-Related Disease*. 3rd edition. Boston: Little, Brown, 1994:337-354.
14. Hu H, Speizer F. Physicians and Environmental/Occupational Hazards. In: Isselbacher KJ, Braunwald E, Wilson JD, Martin JB, Fauci AS, Kasper D, eds. *Harrison's Principles of Internal Medicine*, (13th edition). New York: McGraw-Hill, Inc., 1994:2439-2441.
15. Frumkin H, Hu H, Travers PH. Training and Career Opportunities. In: Levy B, Wegman D, eds. *Occupational Health: Recognizing and Preventing Work-Related Disease*. Boston: Little, Brown,

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

71

Co. 1994:16-24.

16. Hu H. Health Effects from Lead Exposure: A Review. In: Hernandez-Avila M, Palazuelos Rendon E, ed. *Lead Pollution in Mexico: Prevention and Control*. Cuernavaca: National Institute of Public Health. 1995.
17. Hu H, Kim R, Fleischaker G, Aro A. Measuring bone lead as a biomarker of cumulative lead dose using K X-ray fluorescence. In: *Biomarkers: Medical and Workplace Applications*. ML Mendelsohn, LC Mohr, JP Peeters, Ed. Washington DC: Joseph Henry Press. 1998. pp. 71-86.
18. Hu H, Speizer F. Influence of Environmental and Occupational Hazards on Disease. In: Fauci AS, Braunwald E, Isselbacher KJ, Wilson JD, Martin JB, Kasper D, Hauser SL, Longo DL, eds. *Harrison's Principles of Internal Medicine*, (14th edition). New York: McGraw-Hill 1998:18-21.
19. Hu H, Speizer F. Specific Environmental and Occupational Hazards. In: Fauci AS, Braunwald E, Isselbacher KJ, Wilson JD, Martin JB, Kasper D, Hauser SL, Longo DL, eds. *Harrison's Principles of Internal Medicine*, (14th edition). New York: McGraw-Hill 1998:2521-2523.
20. Hu H. Heavy Metals. In: Fauci AS, Braunwald E, Isselbacher KJ, Wilson JD, Martin JB, Kasper D, Hauser SL, Longo DL, eds. *Harrison's Principles of Internal Medicine*, (14th edition). New York: McGraw-Hill 1998:2564-2569.
21. Leffler C, Hu H. Other physical hazards. In: Levy B, Wegman D, eds. *Occupational Health: Recognizing and Preventing Work-Related Disease and Injury*. 4th edition. Philadelphia: Lippincott Williams & Wilkins. 2000.
22. Hu H. Exposure to Metals. In: LaDou J, ed. *Occupational Medicine. Primary Care: Clinics in Office Practice*. 2000 Dec;27(4):983-96.
23. Hu H, Speizer F. Influence of Environmental and Occupational Hazards on Disease. In: Braunwald E, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*, (15th edition). New York: McGraw-Hill 2001.
24. Hu H, Speizer F. Specific Environmental and Occupational Hazards. In: Braunwald E, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*, (15th edition). New York: McGraw-Hill 2001.
25. Hu H. Heavy Metals. In: Braunwald E, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*, (15th edition). New York: McGraw-Hill 2001.
26. Goldman RH, Hu H. Overview of Adult Lead Poisoning. *UpToDate in Medicine*. Primary Care

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

72

Section. (CD-ROM/Internet publication). Begun in 2000, updated annually.

27. Hu H. Human Health and Toxic Metals. Chapter in: *Life Support: the Environment and Human Health*. M McCally, Editor. MIT Press, 2002.
28. Chivian E, Epstein PR, Ford TE, Goodenough DA, Hu H. Bringing global issues to medical training. (Letter to Editor). *Lancet* 2002;359:714.
29. Hu H, Woolf A. Introduction: Environmental Medicine as an emerging discipline. In: *Grand Rounds in Environmental Medicine*. Hu, H (Editor). Research Triangle Park: National Institute for Environmental Health Sciences. 2003.
30. Hu H, Speizer F. Influence of Environmental and Occupational Hazards on Disease. In: Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*, (16th edition). New York: McGraw-Hill 2005.
31. Hu H. Heavy Metals. In: Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*, (16th edition). New York: McGraw-Hill 2005.
32. Perry M, Hu H. Workplace Safety and Health. In *Environmental Health: From Local to Global*. Frumkin H, Editor. Jossey-Bass. 2005.
33. Fischbein A, Hu H. Occupational and environmental exposure to lead. In *Environmental and Occupational Medicine, Fourth Edition*, edited by William N. Rom. Lippincott-Raven Publishers, Philadelphia 2006.
34. Weisskopf MG, Wright RO, Hu H. Early life environmental exposure and neurologic outcomes in adults. In: DB Bellinger, Ed. *Human Developmental Neurotoxicology*. The Taylor and Francis Publishing Group 2006.
35. Hu H. Heavy Metals. In: Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*, (17th edition). New York: McGraw-Hill 2008.
36. Perry M, Hu H. Workplace Safety and Health. In *Environmental Health: From Local to Global*. Frumkin H, Editor. Jossey-Bass. 2nd Edition, 2009
37. Hu H. Heavy Metals. In: Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*, (18th edition). New York: McGraw-Hill 2011.

CV: Howard Hu, M.D., M.P.H., Sc.D.

CV: Howard Hu

73

38. Hu H. Heavy Metals. In: Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL, eds. *Harrison's Principles of Internal Medicine*, (19th edition). New York: McGraw-Hill 2014.
39. Bush KF, Balakrishnan K, Hu H. Global Climate Change: Case Study of India. In *Climate Change and Health*. London: Oxford University Press. (in press)
40. (Hu H et al.). Epilogue: 'Global Health, Governance and Education'. In *Global Population Health and Well-Being in the 21st Century: Toward New Paradigms, Policy and Practice*. George Lueddeke, Editor. Springer, 2015.
41. Anderson G, Buckle R, Favrin G, Friend S, Geschwind D, Hu H, Oliver S, Peterson R, Rossor M, St. George-Hyslop P, Zhang B. Big Data Approaches to Dementia: Opportunities and Challenges. In *Dementia Research and Care: Can Big Data Help?* G Anderson, J Oderkirk, Ed. OECD Publishing, Paris. 2015. <http://dx.doi.org/10.1787/9789264228429-en>
42. Hu H. Heavy Metal Poisoning. In: Jameson JL, Fauci AS, Kasper DL, Hauser SL, Longo DL, Loscalzo J, eds. *Harrison's Principles of Internal Medicine*, (20th edition). New York: McGraw-Hill 2018.
43. Hu H. Childhood Lead Toxicity. In: Levy, B, ed. *Social Injustice and Public Health*, (3rd edition). Oxford University Press (in progress).
44. Bakulski K, Hu H, Park SK. Lead, Cadmium, and Alzheimer's Disease. In: *The Neuroscience of Dementia: Genetics, Neurology, Behavior and Diet*. VR Preedy, CR Martin, Ed. Elsevier (in progress).

Books, Monographs, Reports

1. Frumkin H, Hu H, eds. *Occupational and Environmental Health: A Resource Guide for Health Science Students* (National Institute of Occupational Safety and Health), March 1980; Publication # 90-118.
2. Physicians for Human Rights. *The Use of Tear Gas in the Republic of Korea: A Report by Health Professionals*. Somerville: Physicians for Human Rights. July 27, 1987. Available at: https://s3.amazonaws.com/PHR_Reports/korea-1987-use-of-tear-gas-in-republic-of-korea.pdf
3. Hu H, Cook-Deegan R, Shukri A. *Winds of Death: Iraq's Use of Poison Gas Against its Kurdish Population*. Somerville, Massachusetts: Physicians for Human Rights, February 1989. Available at: https://s3.amazonaws.com/PHR_Reports/winds-of-death-iraq-kurds-1989.pdf

CV: Howard Hu, M.D., M.P.H., Sc.D.

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4. Korman P, Hu H, Planatamura D. *Lead Abatement Manual: A Union Training Course for Workers and Supervisors*. Commonwealth of Massachusetts, Department of Industrial Accidents, 1991.
5. Hu H, Win UK, Arnison A. *Health and Human Rights in Burma (Myanmar): 1988 to the present*. Somerville, Massachusetts: Physicians for Human Rights, 1991.
6. Hu H, Makhijani A, Yih K. *Plutonium: Deadly Gold of the Nuclear Age*. The International Commission for the Investigation of the Health and Environmental Effects of Nuclear Weapons Production. Cambridge: the International Physicians for the Prevention of Nuclear Weapons, 1992.
7. Chivian E, McCally M, Hu H, Haines H, eds. *Critical Condition: Human Health and the Environment*. Cambridge: The MIT Press, 1993.
8. Makhijani A, Hu H, Yih K. *Nuclear Wastelands. A Global Guide to Nuclear Weapons Production and Its Health and Environmental Effects*. The International Commission for the Investigation of the Health and Environmental Effects of Nuclear Weapons Production. Cambridge: The MIT Press, 1995.
9. Hu, H. (Editor). *Grand Rounds in Environmental Medicine*. Research Triangle Park: National Institute for Environmental Health Sciences. 2003.
10. Basu N, Hu H. *Toxic Metals and Indigenous Peoples Near the Marlin Mine in Western Guatemala: Potential Exposures and Impacts on Health*. A report for Physicians for Human Rights. March, 2010 (<http://physiciansforhumanrights.org/library/report-2010-05-18.html>).
11. Centers for Disease Control and Prevention (CDC). Work Group on Lead and Pregnancy. Ettinger AS and Wengrowitz AG, Editors. *Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women*. Atlanta: Centers for Disease Control. November, 2010.
12. Taskforce on Environmental Health (Hu: Taskforce Chair). *Time for Leadership: Recognizing and Improving Care for those with ME/CFS, FM and ES/MCS*. Interim Report. Ministry of Health and Longterm Care, Province of Ontario. July, 2017

Abstracts of Work (Upon request)

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