



Collaborative on Health and the Environment

eNewsletter - November 2013

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The Primary Prevention of Asthma



by Ted Schettler, MD, MPH, CHE Science Director, and Science Director of the Science and Environmental Health Network; Coordinator of CHE's Science Working Group

Asthma is a complex disorder made up of different subtypes with differing causes, underlying pathology, treatment responses, and natural histories. According to the Centers for Disease Control, about 1 in 12 people in the US have asthma, and the numbers are growing every year. The disorder costs over \$56 billion in medical costs, lost school and work days, and early deaths annually.

In 2005, [CHE's Asthma and the Environment Working Group](#) convened a series of conversations to explore our interests in this complex disease and to see if we could identify some aspect of asthma around which we could focus our efforts. We began to wonder about the allocation of asthma research dollars. How much is invested in understanding the origins of asthma and opportunities for primary prevention versus how to reduce the frequency and severity of asthmatic episodes in people who already have the disease?

With that question in mind, we reviewed the research portfolio of the National Heart, Lung, and Blood Institute (NHLBI) at the National Institutes of Health and concluded that less than 10 percent of asthma-related research was devoted to understanding the causes and primary prevention of the disease. Even though this was a rough estimate, based on a review of project descriptions in the NIH database, it seemed to indicate that primary prevention of asthma was underfunded.

Following that review, the working group concluded that convening a workshop to address the causes and primary prevention of asthma would be worthwhile. Published proceedings

might attract more funding and help to raise awareness of the urgent need. However, we were initially unable to secure support for the proposed undertaking and the idea languished.

In 2009, CHE partner Polly Hoppin, Research Professor and Program Director of the environmental health program at the Lowell Center for Sustainable Production at the University of Massachusetts, Lowell, seized an opportunity to incorporate the primary prevention of asthma into the first Strategic Plan for Asthma in Massachusetts. (see www.mass.gov/eohhs/docs/dph/com-health/asthma/state-plan.pdf)

Polly worked with partner organizations in the Massachusetts Asthma Advocacy Partnership to draft a goal in the plan to "develop a Roadmap for better understanding the causes of asthma and the role of primary prevention in Massachusetts." Its objective was to "develop agreement - 'a roadmap' - among experts and other groups on the current evidence on primary prevention, research needed to increase our understanding of prevention of asthma, and evidenced-based strategies that can be currently implemented in Massachusetts." With the goal of primary prevention of asthma clearly spelled out in the state's strategic plan, Polly and her colleagues successfully undertook new efforts to find resources to convene a meeting addressing the state of the science, research needs, and capacity to reduce new onset asthma over time.

Polly and Molly Jacobs from UMass Lowell organized and led a planning committee that put considerable effort into preparing for the conference, "The Primary Prevention of Asthma: A Symposium on Current Evidence, Research Needs, and Opportunities for Action", held at the Massachusetts Medical Society in Waltham MA in April, 2013. See <http://www.sustainableproduction.org/proj.envh.AsthmaSymp.php> for a description, the agenda, and links to presentations. Participants included invited researchers, clinicians, labor and community representatives, public health professionals, and government leaders from a range of sectors, including housing, education, health, transportation and environment. The symposium was co-sponsored by the Massachusetts Department of Public Health, the National Institute for Environmental Health Sciences, the US Department of Health & Human Services, Region I (New England), the Boston Public Health Commission, the American Lung Association of the Northeast, and Neighborhood Health Plan, with in-kind support from a range of collaborating organizations.

Opening presentations helped to frame the multi-factorial, multi-level complexity of asthma, its public health impacts, and the structural and cultural underpinnings of asthma disparities. They were followed by experts who had been asked to review the state of the science linking specific risk factors to asthma onset, for example obesity, air pollution (in particular, traffic proximity), indoor allergens (i.e. dust mites and mold), dietary factors, chemicals, and stress, among others. These experts provided a summary of the literature, their analysis, and concluded with a recommended classification of each risk factor under discussion as known, probably, possibly, or known not to be associated with asthma onset. As necessary, risk factors were considered unclassifiable when data were inconsistent or sparse.

Following presentations of the evidence, conference attendees broke out into subgroups to discuss the various risk factors and decide which were "ready for action" based on the state of the science and considering additional factors such as: (a) the magnitude of the potential public health impact given the strength of the association and/or the scale of potential exposure, (b) additional benefits that could be reasonably expected to come with taking action, (c) the likelihood that taking action would result in serious unintended consequences. For those interested in more detail about the risk factors and conclusions reached at the conference see the conference link (above) and a link to a CHE partner call summarizing the symposium (http://www.healthandenvironment.org/partnership_calls/12286)

At the conclusion of the symposium attendees concurred that the primary prevention of asthma will require multiple, multi-level interventions. Attendees developed a shared understanding of the relevant science and created components of a 10-12 year roadmap

as called for in the state's Strategic Plan for Asthma. Polly is chairing a new primary prevention committee of the Massachusetts Asthma Advocacy Partnership, which is now working with the Department of Public Health to determine which of the symposium recommendations will be included in the next state strategic plan, currently in the planning stages.

Existing evidence supports the importance of avoiding exposure to tobacco smoke and chemicals that are respiratory tract sensitizers or irritants. Living in close proximity to traffic independently increases risk of developing asthma. Chronic stress is also an independent risk factor for asthma and nearly doubles the risk of asthma onset associated with proximity to traffic-related air pollution. Given the state of the evidence, asthma leaders in Massachusetts are committed to ongoing discussion about opportunities for primary prevention, developing policies to reduce exposure to risk factors, and implementing pilot programs with rigorous evaluation to develop effective interventions. Some actions are achievable within the five year timeframe of the next strategic plan; others will unfold over the longer term as research on effective interventions strengthens. Finding resources to support an implementation research agenda continues to be a pressing need.

Since the Massachusetts symposium, leaders in other states have expressed interest in pursuing a similar strategy to reduce the burden of asthma over time. Our hope is that the primary prevention of asthma will become a more widely shared goal and ultimate reality.

CHE Partnership Calls

CHE Partnership call: Presidents on Prevention

Thursday November 21, 2013 at 1:00 pm Pacific / 4:00 pm Eastern

[RSVP for this call](#)



Dr. Conry,
President, ACOG

This fall, three respected leaders of professional medical organizations came together in Washington D.C. to speak about the importance of reducing exposures to toxic chemicals in order to prevent cancer and other adverse health outcomes. The discussion was based on recent groundbreaking professional society position statements about toxic exposures and reproductive health.

In September, the American Congress of Obstetricians and Gynecologists ([ACOG](#)), along with the American Society for Reproductive Medicine ([ASRM](#)), issued the Committee Opinion: [Environmental Chemicals Harm Reproductive Health.](#)

The statement recognizes that "the evidence that links exposure to toxic environmental agents and adverse reproductive and developmental health outcomes is sufficiently robust" and calls for "timely action to identify and reduce exposure to toxic environmental agents."



Dr. Guidice,
President, ASRM

[The Endocrine Society](#) issued a [Scientific Statement on Endocrine Disrupting Chemicals](#) in 2009, acknowledging the "evidence for adverse reproductive outcomes from exposure to endocrine disrupting chemicals is strong" and urging clinicians and policy makers to apply "the Precautionary Principle...to inform decisions about exposure to, and risk from, potential endocrine disruptors."

This call will examine the rationale behind these professional society



Dr. Santen,
President-Elect, The
Endocrine Society

position statements, and explore the implications for clinical practice and health policy.

Special Announcements

Register Now: Northwest Children's Environmental Health

Forum

Healthy Environments for Healthy Babies: Preventing Harmful Environmental Exposures Before and During Pregnancy

December 4, 2013 8:00 AM - 4:00 PM
Tukwila Community Center, Tukwila, WA



Concerned about the effects of environmental exposures before and during pregnancy on babies' health? Join the CHE Washington Children's Environmental Health Working Group for this day-long forum featuring national environmental health experts.

Cost: \$35, and scholarships and CEUs will be available. Visit the [CHE-WA website](#) for more information.

Resources from recent CHE calls:

If you missed any of the following CHE calls, you may listen to MP3 recordings and find supporting materials at the following links:

- November 12, 2013: [Cumulative Impacts and the US Environmental Health Movement](#)
- November 8, 2013: [Endocrine Disruptors and Reproductive Health Across the Lifespan](#)
- October 24, 2013: [Environmental Justice and the Superfund Research Program: Community Collaborations Making a Difference](#)

You can subscribe via podcast to receive notifications of new call recordings added to the CHE archives. [View a list of past calls and subscribe to the podcast.](#)

CHE Working and Regional Group Updates

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Visit [CHE's blog](#) to read recent posts.

Visit CHE's [Facebook page](#).

Join CHE on [Twitter](#). CHE now tweets during most Partnership calls. Join the online conversation by following CHE on Twitter.

CHE Climate Change

~ coordinated by Genon Jensen, info@healthandenvironment.org

~ Climate change and health contest for nurses

Health Care Without Harm is sponsoring this contest to help nurses leverage their unique position as climate and health advocates. The winning proposal will be awarded a \$10,000 grant for the purpose of implementing the proposal. Proposals must be

submitted by December 16, 2013, 11:59PM EST. Winners will be announced in January 2014.

[Read more](#)

CHE/SEHN Cumulative Impacts ~ coordinated by Carolyn Raffensperger and Elise Miller, info@healthandenvironment.org

~ Save the date: Working group call featuring Ted Schettler and Michael Lerner on December 16, 2013

On this call Dr. Ted Schettler and Dr. Michael Lerner will discuss Dr. Schettler's new report: The Ecology of Breast Cancer: The promise of prevention and the hope for healing. Further details and RSVP information will be available on the CHE website soon.

CHE Diabetes-Obesity

~ coordinated by Sarah Howard, sarhow@gmail.com

~ Upcoming events

The Institute of Medicine's Roundtable on Obesity is holding a meeting, [The Current State of Obesity Solutions in the United States - A Workshop](#), on Jan. 7, 2014 at 12:30 EST. The workshop will be available as a live webcast.

~ Call for papers

To coincide with the American Diabetes Association Scientific Sessions in June 2014, *JAMA* will publish a theme issue on diabetes research. They invite manuscripts that address the identification and management of this complex chronic disease. They are especially interested in clinical trials of prevention, treatment, and delivery of care for people with diabetes.

[Read more](#)

~ New articles and research published in academic and scientific journals

Two recent studies now link type 1 diabetes to BPA exposure. One study, published this week, found that maternal BPA exposure, in utero and through lactation, accelerated diabetes development in a mouse model of type 1 diabetes. The acceleration was likely related to early life modulatory effects on the immune system, leading to adverse effects later in life. A prior study from the same laboratory found that BPA exposure accelerated diabetes development in these mice. Since the increasing incidence of type 1 diabetes worldwide remains unexplained, these studies point to the need for human studies on endocrine disrupting chemicals and type 1 diabetes.

Bodin et al. 2013. [Transmaternal bisphenol A exposure accelerates diabetes type 1 development in NOD mice](#). *Toxicol.Sci.* Epub.

Bodin et al. 2013. *Immunopharmacol Immunotoxicol.* [Long-term bisphenol A exposure accelerates insulinitis development in diabetes-prone NOD mice](#). June; 35(3): 349-58

CHE Working Group on Electromagnetic Fields

~ coordinated by Antoinette Stein, nettstein@gmail.com

~ Save the date: Working group call, December 10, 2013

The CHE EMF Working Group will host this teleconference on Tuesday December 10th at 1:00 pm Pacific / 4:00 pm Eastern featuring Cindy Sage of Sage Associates, Santa Barbara, CA and Martha Herbert of TRANSCEND Research Program, Department of Neurology, Massachusetts General Hospital, Harvard Medical School, Boston, MA. Cindy and Martha will discuss autism and EMF and their co-written paper, [Autism and EMF: Plausibility of a pathophysiological link](#). Part I of this paper will review the critical contributions pathophysiology may make to the etiology, pathogenesis and ongoing generation of core features of ASCs. Part II of this paper documents how behaviors in ASCs may emerge from alterations of electrophysiological oscillatory synchronization, how EMF/RFR could contribute to these by de-tuning the organism, and policy implications of these vulnerabilities. Further details and RSVP information will be

available on the CHE website soon.

~ **French health agency makes recommendations to reduce cell phone radiation exposure**

The French Agency for Food, Environmental and Occupational Health announced the results of a two-year review by an expert Working Group of the scientific research on the risks related to exposure to radiofrequency (RF) radiation. The Agency warned the public, especially children and vulnerable adults, to reduce their exposure to cell phone radiation.

[Read more](#)

~ **Belgium bans mobile phones for children**

Belgium's Public Health Minister, Laurette Onkelinx, has announced that sales of mobile phones to children under 7 years will be banned in shops and also on the internet. Adverts for mobile phones during children's programmes on TV radio and the internet will also be banned. Research shows that in Belgium two out of every three children under 10 years have a mobile phone. At 12 years they nearly all have one. The minister has highlighted the radiation risk from cell phones which is higher for young children than adults.

[Read more](#)

~ **Wi-fi and health: review of current status of research**

This review summarizes the current state of research on possible health effects of Wi-Fi (a commercial name for IEEE 802.11-compliant wireless networking).

[Read more](#)

CHE Fertility and Reproductive Health

~ coordinated by Karin Russ, karin@healthandenvironment.org

~ **Working group call: Presidents on Prevention**

Thurs. Nov. 21st, 1:00 pm Pacific / 4:00 pm Eastern

This fall, three respected leaders of professional medical organizations came together in Washington D.C. to speak about the importance of reducing exposures to toxic chemicals in order to prevent cancer and other adverse health outcomes. This call will continue the discussion of recent groundbreaking professional society position statements about toxic exposures and reproductive health.

[RSVP for the call](#)

~ **MP3 available: Endocrine Disruptors and Reproductive Health Across the Lifespan**

Endocrine disruptors present significant risks to reproductive health and fetal development. On this call, Dr. Jerry Heindel of the NIEHS reviewed the mechanisms by which endocrine disruptors interfere with reproductive processes, Dr. Ana Soto of Tufts University discussed breast tissue as a target sensitive to endocrine disruption, and Dr. Tom Zoeller of the University of Massachusetts examined regulatory efforts designed to limit exposure to EDCs.

[Listen to the MP3 recording](#)

~ **New resources**

[MACCHE Conference video: Environmental Health for Obstetricians and Gynecologists.](#)

On September 20th, 2013, the Mid-Atlantic Center for Children's Health and the Environment hosted a conference on Environmental Health for Obstetricians and Gynecologists. Videos of presentations are available on the conference website, under the speakers tab.

~ **New articles and research published in academic and scientific journals**

[Effect of ambient temperature and air pollutants on the risk of preterm birth, Rome 2001-2010.](#)

Results suggest a possible short-term effect of heat and a more delayed and prolonged effect of PM10 exposure on preterm-birth risk, as well as the existence of more susceptible subgroups of women. Environment International.

[Ambient air pollution and low birthweight: a European cohort study \(ESCAPE\).](#) Data from 14 population-based mother-child cohort studies in 12 European countries was examined. A 5 ug/m³ increase in concentration of PM_{2.5} during pregnancy was associated with an increased risk of low birthweight at term. The population attributable risk estimated for a reduction in PM_{2.5} concentration to 10 ug/m³ during pregnancy corresponded to a decrease of 22% in cases of low birthweight at term. Lancet.

[Male reproductive health under threat: Short term exposure to radiofrequency radiations emitted by common mobile jammers.](#) Fresh semen samples were collected from 30 healthy donors who referred to the Infertility Treatment Center at the Mother and Child Hospital. The motility of sperm samples exposed to jammer RF radiation for 2 or 4 h were significantly lower than those of sham-exposed samples. Journal of Human Reproductive Science.

[Semen abnormalities, sperm DNA damage and global hypermethylation in health workers occupationally exposed to ionizing radiation.](#) Cytogenetic studies have demonstrated that low levels of chronic radiation exposure can potentially increase the frequency of chromosomal aberrations and aneuploidy in somatic cells. The present data clearly suggests that occupational radiation exposure may have substantial detrimental effect on sperm functional, genetic and epigenetic integrity in health workers. PLoS ONE.

[Puberty in girls of the 21st century.](#) This paper will examine the decline in the age of breast development and potential genetic and environmental influences, the obesity epidemic in the US and other nations, and potential mechanisms to explain the relationship between greater body mass index with earlier puberty in girls. Journal of Pediatric & Adolescent Gynecology.

[Organochlorine pesticides and risk of endometriosis: Findings from a population-based case-control study.](#) In this case-control study of women enrolled in a large healthcare system in the US Pacific Northwest, serum concentrations of beta-HCH and mirex were positively associated with endometriosis. Environmental Health Perspectives.

[Increased time to pregnancy is associated with suboptimal neurological condition of 2-year-olds.](#) Increased TTP was associated with suboptimal neurological development in 2-year-old children. This suggests that subfertility and its determinants are involved in the genesis of neurodevelopmental problems. Archives of Disease in Childhood: Fetal and Neonatal Edition.

[Review: Infertility and its treatments in association with autism spectrum disorders.](#) No differences in infertility, infertility treatments, or hypothesized underlying pathways were found between cases and controls in crude or adjusted analyses. However, converging evidence from this and other studies suggests that assisted reproductive technology is not a strong independent risk factor for ASD. International Journal of Environmental Research and Public Health.

[Congenital hypothyroidism after assisted reproductive technology in Japan: comparison between multiples and singletons, 2005-2009.](#) Complete nationwide data of assisted reproductive technology (ART) in Japan from 2005 to 2009 was analyzed. Congenital hypothyroidism more frequent in multiples compared to singletons. A higher percentage of additional birth defects was also observed in multiples compared to singletons. International Journal of Pediatric Endocrinology.

[Cancer risk among children born after assisted conception.](#) The cohort consisted of 106,013 children born after assisted conception (700,705 person-years of observation). There was no increase in the overall risk of cancer among British children born after assisted conception during the 17-year study period. Increased risks of hepatoblastoma and rhabdomyosarcoma were detected, but the absolute risks were small. New England Journal of Medicine.

CHE Healthy Aging and the Environment Initiative

~ coordinated by Maria Valenti, mvalenti@igc.org

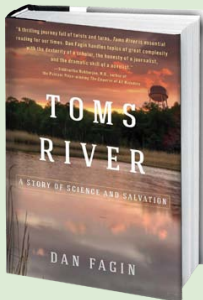
~ Environmental justice and the Superfund Research Program

Many people may think of the federal [Superfund](#) program as one that focuses only on cleanup of hazardous waste sites under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, or [CERCLA](#). This law was enacted in the wake of the discovery of toxic waste dumps such as [Love Canal](#) and [Times Beach](#) in the 1970s, and allows the EPA to clean up such sites and to compel responsible parties to perform cleanups or reimburse the government for EPA-led cleanups. The [Superfund Research Program \(SRP\)](#), however, is a related program under the aegis of NIEHS, which funds multidisciplinary research that addresses the broad, complex human and environmental health issues surrounding hazardous waste sites. CHE is a partner in the [Boston University SRP Research Translation Core \(RTC\)](#).

The recent CHE Partnership call [Environmental Justice and the Superfund Research Program: Community Collaborations Making a Difference](#) (MP3 recording available) featured three of the SRP Community Engagement Cores (CEC), and their innovative community engagement work in the Northeast, South, and on the US-Mexico border. Dr. Phil Brown, Brown University, addressed his program's environmental health and justice outreach and education across Rhode Island and working closely on environmental health and justice education with their community-based partner organizations; Dr. Margaret Reams, Louisiana State University, discussed working with the Louisiana Environmental Action Network (LEAN) on local issues of concern including responses to natural disasters; and University of Arizona's Denise Moreno explained how they are addressing the US-Mexico Border region plagued by a growing environmental health crisis resulting from uncontrolled disposal of hazardous waste and widespread exposures to toxicants. Staci Rubin, a community partner of the BU SRP, offered comments.

~ Recent and Upcoming Events

Dan Fagin at Boston Museum of Science



On Monday, November 18th, the BUSRP will host a symposium at the Boston Museum of Science featuring Dan Fagin, author of [Tom's River: A Story of Science and Salvation](#). This book has been called by the New York Times as an "edge of your seat account of industry and illness...a new classic of science reporting." The event is free; to register, [go here](#). CHE recently hosted a café call with Mr. Fagin, [listen to it here](#). The event is part of part of the BU SRP's outreach and training day.

CHE Regional Working Groups Updates

CHE Alaska

~ coordinated by Pamela Miller, pamela@akaction.org

~ Working group calls archive available

The CHE Alaska Working group hosts a monthly teleconference with leading environmental health scientists. The calls are open to anyone, and archives of past calls are available on the [CHE Alaska Working Group webpage](#).

CHE Washington

~ coordinated by Steve Gilbert and Aimee Boulanger, info@healthandenvironment.org

~ CHE-WA Children's Environmental Health Working Group meeting

The next CHE-WA Children's Environmental Health Working Group meeting will take place on Thursday November 14, 2013, 9:30 to 11:30 am. The meeting will focus on an overview of the Environmental Protection Agency's environmental justice legal tools.

RSVP to 206-263-3082 or gail.gensler@kingcounty.gov

Location: US Environmental Protection Agency, 1200 Sixth Avenue, Seattle, WA, 98101

Announcements and News Highlights

Air pollution classified as Group 1 human carcinogen

The International Agency for Research on Cancer (IARC) cited data indicating that in 2010, 223,000 deaths from lung cancer worldwide resulted from air pollution, and said there was also convincing evidence it increases the risk of bladder cancer.

[Read more](#)

No scientific consensus on GMO safety

There is no scientific consensus on the safety of genetically modified foods and crops, according to a statement released by an international group of more than 90 scientists, academics and physicians. The statement comes in response to recent claims from the GM industry and some scientists, journalists, and commentators that there is a "scientific consensus" that GM foods and crops were generally found safe for human and animal health and the environment. The statement calls these claims "misleading", adding, "This claimed consensus on GMO safety does not exist."

[Read the statement](#)

FDA ruling on trans fats

The Food and Drug Administration proposed measures that would all but eliminate artery-clogging, artificial trans fats from the food supply, the culmination of three decades of effort by public health advocates to get the government to take action against them.

[Read more](#)

The American Public Health Association adopts new policy on nature, health and wellness

In order to aid in promoting healthy and active lifestyles, the new policy statement encourages land use decisions that prioritize access to natural areas and green spaces for residents of all ages, abilities and income levels; calls on public health, medical and other health professionals to raise awareness among patients and the public at-large about the health benefits of spending time in nature and of nature-based play and recreation; urges such professionals to form partnerships with relevant stakeholders, such as parks departments, school districts and nature centers; and calls for promoting natural landscaping.

The full policy statement will be available at www.apha.org/advocacy/policy in early 2014.

Environmental Health News (EHN) and its sister site, The Daily Climate, offer a wealth of valuable information each day at no cost to subscribers. The daily email subscriptions and the 350,000-item news archive have recently been supplemented by a Facebook page and Twitter feed.

Environmental Health News: email, Facebook, Twitter and a website archive

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November 2013 issue of *Environmental Health Perspectives* available online

[Read more](#)

November 2013 issue of *Environmental Factor* available online

[Read more](#)

CHE maintains a [news feed](#) of environmental health related news announcements and events collected from a multitude of sources on CHE's website.

Reports, Resources and Other Updates

Chem Fatale: new report from Women's Voice for the Earth

Chem Fatale, a new report by Women's Voices for the Earth (WVE), details how the feminine care industry sells products containing unregulated and potentially harmful chemicals, including preservatives, pesticides, fragrances and dyes.

[Read more](#)



New brochure: Endocrine Disruptors in the Healthcare Sector: Are there reasons for concern?

This brochure on EDCs from Health Care Without Harm is for health care providers summarizes the concerns about EDCs and the status of evidence around them.

[Read more](#)

Dirty dozen list of endocrine disruptors

The Environmental Working Group has published this list of 12 hormone disrupters.

[Read more](#)

UNEP: Minamata Convention for Mercury

The Minamata Convention for Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury. It was agreed at the fifth and final session of the Intergovernmental Negotiating Committee in Geneva, Switzerland at 7 a.m. on the morning of 19 January 2013, and signed by 92 members on 10 October 2013.

[Read more](#)

CHE lists hundreds of reports, books, videos, databases and other resources in a searchable [Portal to Science](#) on CHE's website.

Thank you for taking the time to read the latest about CHE. As always, we welcome your questions and suggestions. Please direct comments to Elise Miller, Director of CHE, at elise@healthandenvironment.org

Best wishes,

Elise Miller, MEd, Director

Steve Heilig, Director of Public Health and Education at San Francisco Medical Society and CHE

Erika Sanders, Administrative Coordinator

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