



# Collaborative on Health and the Environment

## eNewsletter - June 2014

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### **"We think, therefore I am"? How the changing concept of individuality in biological sciences is influencing how we think about ourselves and our health**

*Elise Miller, MEd, CHE Director*

The experience of teenage girls in northern India, growing up in traditional upper caste Indian homes but being exposed increasingly to Westernization, was the focus of my graduate research 25 years ago. My particular area of interest was exploring their experience of "self" and how it impacted their choices and values. What I learned is that "I" for these girls meant something far more permeable, relational, and inclusive of other than the very individualistic concept of "I" which is so fundamental to Western thought and civilization.

As Western biological science has begun to grapple with the complex interplay of multifactorial contributors to health and disease, defining "I" or what an individual actually is has become increasingly challenging as well. Dr. Scott Gilbert, professor of biology and author of *Ecological Developmental Biology*, brings attention to this in his article, "[A Symbiotic View of Life: We Have Never Been Individuals](#)". He notes that Western scientific disciplines have used a certain concept of "individual" as a basis for research since the inception of modern science. Whether the entity being studied was a lichen or a human, it was considered until very recently a distinct organism.

As more research on the [microbiome](#) and other "omes" emerges, however, our perception of what comprises an individual becomes far blurrier, and the biological interplay of [symbionts](#) and [holobionts](#) takes center stage. Like the understanding of "I" among the teenage girls India in my own study, the biological concept of a single entity in Western science is becoming more boundary-less and relational. In fact, as Dr. Gilbert and other

biologists point out, it's increasingly clear that an organism can no longer be studied as a distinct individual. The previously assumed mono-genomic organism is conceptually wrong. Instead, we are all made of up a community of organisms, which are genomically interconnected and mutually interdependent in a variety of ways.

So what does this have to do with chemical contaminants and their impact on human health? Everything. For example, the human body (the holobiont) is made up of 90% microbes (the symbionts) each with their own metabolisms. This means that we can no longer be concerned just with how industrial compounds might disrupt gene expression in humans. Instead, if an exposure to a chemical undermines the hormonal signaling in a microbe, which we are dependent on for digestion, then our ability to digest properly is disrupted. To take this one step further, since many studies have shown how important the gut-brain axis is, our brain function may also be impaired. Along these lines, [one study published recently suggested that "germ-free" mice can have autism like symptoms](#), which disappear when the bacteria is put back in the mice.

If this isn't mind-boggling enough, microbes, because they have their own metabolisms, can also influence which genes are passed on. This means, as Dr. Gilbert has purported, that they may have an evolutionary impact by selecting for genetic variations that benefit certain symbionts.

And we thought animal research was already complex enough! But now, in essence, scientists are realizing you not only have to control for the feedstock and other environmental factors in a study, but for the particular microbes within the animal being studied.

OK. I didn't intend to offer a mini-science lecture, and I'm the last one who could speak on this with any real authority. But I personally found this so conceptually revolutionary because of its implications for our work in environmental health. This way of thinking, based on my reading of this emerging science, underscores why the impact of environmental exposures on human health may prove to be even more significant than we already thought. Not only are we concerned about the effect on an individual, but on all of the organisms within that so-called "individual" as well. In short, how we perceive "I", as I learned from these Indian girls many years ago, shapes how we see the world and the choices we make and the value we place on relationships. Maybe as other scientific disciplines begin to take into consideration this inherent interconnectedness--something ecologists have done for so long--we may start making smarter decisions about what we put in our environment, knowing that it not only effects our health and that of future generations, but the health of everything else that makes us "us."

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## CHE Partnership Calls



**CHE Partnership call:  
Using Cumulative Impacts Analysis to Protect Public Health  
with Dr. Peter Montague**

Thursday June, 2014 at 10:00 am Pacific/1:00 pm Eastern  
*Hosted by the Cumulative Impacts Working Group*

Dr. Montague will provide an overview of cumulative impacts analysis, current impediments for its implementation, and ways to encourage researchers and others to reframe "one cause, one effect" thinking to include multiple impacts on health over time.

[Read more and RSVP for this call](#)

**CHE Partnership call: Nutrition and Toxicants in Autoimmune Disease:  
Implications for Prevention and Treatment**

Tuesday June 17, 2014 at 3:00 pm Pacific/6:00 pm Eastern

On this call three experts will discuss the emerging evidence that nutrition and lifestyle factors may reduce incidence, enhance resilience, or assist in recovery from autoimmune diseases.

[Read more and RSVP for this call](#)



**CHE Partnership call: Prenatal Exposure to EDCs and Obesity: Combining Toxicology and Epidemiology with Dr. Juliette Legler**

Wednesday June 18, 2014 at 10:00 am Pacific/1:00 pm Eastern  
*Hosted by the EDC Strategy Working Group*

This call will discuss the main findings of the [European OBELIX](#) project, the largest project up to now to examine the obesogen hypothesis.

[Read more and RSVP for this call](#)

**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:

- May 28, 2014: [Breast Cancer Prevention: Beyond the Pink Ribbon](#)
- May 29, 2014: [Nanoparticles: Examining the Science, Determining the Risk, Considering Public Health](#)
- June 10, 2014: [Catch of the Day: Healthy Fish, Healthy People](#)

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

**Special announcement:** CHE will be reformatting its monthly e-newsletter over the coming months, aiming to make it more reader-friendly, particularly for mobile devices, and better connecting it to our website and social media. Please note that this month instead of multiple items listed for each working group, we have included the top news highlight and then provided a link to the working group page where you will find additional news items of interest.

### CHE Asthma

~ coordinated by Génon Jensen, [info@healthandenvironment.org](mailto:info@healthandenvironment.org)

#### ~ Joint Convention/WHO Task Force on health effects of long-range transboundary air pollution

For the first time, HEAL participated in the 17th meeting of the Joint Convention/WHO Task Force. With more than 50 participants representing the WHO European region member states, scientists, EU Commission, WHO and the UN, this meeting highlighted some useful WHO publications and developments in the field of air quality. [Read more on the WHO Europe website.](#)

See more [asthma and environmental health news highlights](#)

### CHE Breast Cancer

~ coordinated by Michael Lerner and Jeanne Rizzo, [info@healthandenvironment.org](mailto:info@healthandenvironment.org)

~ **The Breast Cancer Fund will wrap-up their 9-session study group on**

## **occupation and breast cancer**

This series has explored exposures to chemicals, radiation, and other physical factors in a multitude of occupational settings. The final session on Monday, July 14 at 11:00 am Pacific/2:00 pm Eastern will feature an overview of research and policy needs to better understand and protect worker health, as well as a panel discussion on future directions.

[Register for the final session of the study group series](#)

See more [breast cancer and environmental health news highlights](#)

## **CHE Climate Change**

~ coordinated by Génon Jensen, [info@healthandenvironment.org](mailto:info@healthandenvironment.org)

### **~ Communicating health evidence of climate change for decision-making**

HEAL participated in a strategic WHO Europe meeting with climate experts and representatives from a number of European countries to examine and communicate the health implications of the latest assessment report of the Intergovernmental Panel on Climate Change (IPCC) to environment and health officials. Read more here via the WHO Europe website [http://www.euro.who.int/en/health-topics/environment-and-health/Climate-change/news/news/2014/06/communicating-health-evidence-of-climate-change-for-decision-making/\\_recache](http://www.euro.who.int/en/health-topics/environment-and-health/Climate-change/news/news/2014/06/communicating-health-evidence-of-climate-change-for-decision-making/_recache)

See more [climate change and environmental health news highlights](#)

## **CHE Diabetes-Obesity**

~ coordinated by Sarah Howard, [sarhow@gmail.com](mailto:sarhow@gmail.com)

### **~ New resource available to view or download studies on environmental chemicals and diabetes/obesity/metabolic syndrome**

View our [new collections](#) in PubMed to see the most current research studies published on numerous chemicals and their links to diabetes/obesity. Collections focus on everything from individual chemicals (e.g., BPA, arsenic, air pollutants) to documentation of the increasing incidence of type 1 diabetes and more.

See more [diabetes, obesity, and environmental health news highlights](#)

## **CHE Working Group on Electromagnetic Fields**

~ coordinated by Antoinette Stein, [tweil@igc.org](mailto:tweil@igc.org)

### **~ UK launches largest study of mobile phone effects on children's brains**

[The Study of Cognition, Adolescents and Mobile Phones](#) (Scamp) will examine about 2,500 schoolchildren at the ages of 11 and 12, collect data about how they use the phones and how much time they spend on them, and assess them two years later on mental functions such as memory and attention, which continue to develop into the teenage years.

See more [EMF and environmental health news highlights](#)

## **CHE Fertility and Reproductive Health**

~ coordinated by Karin Russ, [karin@healthandenvironment.org](mailto:karin@healthandenvironment.org)

### **~ Study: Modifiable and non-modifiable risk factors for poor sperm morphology**

A [new article in Human Reproduction](#) examines common lifestyle factors associated with poor sperm morphology. The authors found that risk factors include sample production in summer, and use of cannabis in the 3 months prior to sample collection in men aged ≤30 years. The authors also state: "No significant association was found with body mass index, type of underwear, smoking or alcohol consumption. This suggests that an individual's lifestyle has very little impact on sperm morphology and that delaying assisted conception to make changes to lifestyle is unlikely to enhance conception."

See more [fertility, reproductive health, and environmental health news highlights](#)

## **CHE Healthy Aging and the Environment Initiative**

~ coordinated by Maria Valenti, [mvalenti@igc.org](mailto:mvalenti@igc.org)

### **~ Seniors and physical activity**

Seniors who increase the intensity of their physical activity, such as walking, can reduce their risk of heart attack and heart failure, according to the recent study [Physical Activity and Heart Rate Variability in Older Adults: The Cardiovascular Health Study](#) in the journal *Circulation*. Walking faster and longer led to better heart health in seniors age 65 and older.

See more [healthy aging and the environment news highlights](#)

## **CHE Regional Working Groups**

### **CHE Alaska**

~ coordinated by Pamela Miller, [pamela@akaction.org](mailto:pamela@akaction.org)

### **~ Working group call: Fukushima: A View from the Ocean with Ken Buesseler**

Wednesday June 18, 2014 at 9:00 am Alaska/10:00 am Pacific/1:00 pm Eastern

More than three years after the Fukushima Dai-ichi nuclear power plant accident in Japan, questions remain about how much radioactive material has been released and how widely and quickly it is dispersing across the Pacific Ocean. Join Ken Buesseler, marine chemist and director of the Center for Marine and Environmental Radioactivity at the Woods Hole Oceanographic Institution (WHOI) for an update on what is known about radioactivity levels in the Pacific Ocean. We will also discuss how Alaskans can get involved in monitoring radiation levels through a unique collaboration between citizens and scientists to collect and analyze seawater.

[Read more and RSVP for this call](#)

See more [news highlights from CHE Alaska](#)

### **CHE HEAL**

~ coordinated by Lisette van Vliet, [lisette@env-health.org](mailto:lisette@env-health.org)

### **~ Dr. Sandra Steingraber speaks in EU on fracking and environmental health**

Dr. Sandra Steingraber, environmental health scientist, acclaimed author, co-founder of Concerned Health Professionals of New York and science advisor for [Americans Against Fracking](#) came to Brussels this month to speak about the evidence from the US on damage to public health. Dr. Steingraber spoke at the EU's 'New Environmentalism Summit' followed by an event organized by HEAL to discuss the evidence from the US on the health aspects of shale gas mining to extending her call to stop fracking on health grounds in Europe.

[Read more here](#)

[See Dr. Steingraber's remarks](#)

See more [news highlights from CHE's European partners at HEAL](#)

## **Washington**

~ coordinated by Aimee Boulanger and Steve Gilbert, [info@healthandenvironment.org](mailto:info@healthandenvironment.org)

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

Thursday June 12, 2014, 9:30-11:30 am Pacific

Megan Dunn, Program Director, Healthy People and Communities, *Northwest Center for Alternatives to Pesticides (NCAP)* will discuss NCAP's increased presence in Washington and will share information about work to reduce pesticide use and to promote



integrated pest management (IPM) in schools, homes, and communities. Members from EPA's pesticide group will also be on hand to share the impressive amount of work happening in Washington and Region 10.

RSVP to Gail Gensler at [gail.gensler@kingcountry.gov](mailto:gail.gensler@kingcountry.gov)

The meeting will take place at the US EPA's Seattle office at 1200 Sixth Avenue, Seattle, WA 98101. If you cannot make the meeting in person, you can call in at: 1-866-299-3188 (access code: 206-533-2148). The PowerPoint presentation will also be available via web-conferencing at: <https://epa.connectsolutions.com/ceh/>.

See more [news highlights from CHE Washington](#)

## Announcements and News Highlights

### EPA proposes guidelines to cut carbon pollution

At the direction of President Obama and after an unprecedented outreach effort, the US Environmental Protection Agency released the [Clean Power Plan](#) proposal, which for the first time cuts carbon pollution from existing power plants, the single largest source of carbon pollution in the United States.

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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

[Visit the website](#)

[Visit the EHN archives page](#)

[Sign up for EHN's free weekly e-newsletters](#) focused on children's health and energy and health

Friend EHN on Facebook by searching for Environmental Health News

June 2014 issue of *Environmental Health Perspectives* available online

[Read more](#)

June 2014 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

### FDA Launches Program to Provide Easy Access to Agency Data

The Food and Drug Administration (FDA) has [launched](#) a new initiative, [openFDA](#), designed to ease the way for researchers and other interested parties to access large public health datasets collected by the agency.

### Eco-Health Relationship Browser

The EPA's [Eco-Health Relationship Browser](#) is an interactive tool that illustrates scientific evidence for linkages between human health and "ecosystem services," or the benefits supplied by nature and how those services, (or their degradation and loss), may affect people.

### **Healthy People 2020: A Report Card on the Health of the Nation**

For 4 decades, Healthy People has represented the United States' vision for a healthier future. Each decade, it serves as a public health road map and compass for the nation by establishing a broad set of overarching health goals while specifying actions to improve length and quality of life. For the current decade, this comprehensive national health promotion and disease prevention agenda encompasses more than a thousand specific objectives organized into 42 topic areas.

[Read more](#)

### **National Environmental Education Foundation's national survey**

NEEF's work includes a range of programs and initiatives worth exploring, including excellent resources for health care professionals. They recently conducted a [national survey](#) to measure the US population's environmental attitudes, environmentally-friendly behaviors, and environmental information consumption. It found that 65 million Americans care about and take actions for the environment, and more are receptive to learning and doing more.

### **Special issue of *Science*: The science of inequality**

The May 23rd issue of *Science* includes a special focus on the science of inequality.

[View the table of contents](#)

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](mailto: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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