

Research supported by NIEHS informs policy and regulatory discussion

By Eddy Ball

NIEHS-funded researchers found themselves, this winter, at center stage in the national discussion concerning policy and regulatory issues related to environmental public health.

In an [article](#)

(<http://www.njspotlight.com/stories/13/12/23/assessing-the-long-term-costs-of-ignoring-the-environment/>)

released Dec. 24, 2013, underscoring the long-term effects of environmental exposure on major public health problems, former New Jersey Governor Christine Todd Whitman (1994-2001) pointed to three large-scale studies, two of them led by NIEHS in-house scientists and grantees. Whitman's editorial, "Assessing the long-term costs of ignoring the environment," appeared in NJ Spotlight, an online news service that features insights and information on issues critical to New Jersey.

A Dec. 16, 2013, New York Times [feature story](#),

(http://www.nytimes.com/2013/12/17/health/fda-to-require-proof-that-antibacterial-soaps-are-safe.html?_r=0)

"F.D.A. questions safety of antibacterial soaps," looked behind the scenes of the new U.S. Food and Drug Administration (FDA) requirement that manufacturers demonstrate the safety of antimicrobial soaps, citing research by scientists supported by the NIEHS Superfund Research Program (SRP).

The story included an interview with SRP grantee [Rolf Halden, Ph.D.](#),

(<http://labs.biodesign.asu.edu/halden>)

director of the Center for Environmental Security at Arizona State University. Along with SRP

grantees [Bruce Hammock, Ph.D.](#),

(<http://biosci3.ucdavis.edu/FacultyAndResearch/FacultyProfile.aspx?FacultyID=14036>)

and [Isaac Pessah, Ph.D.](#),

(<http://biosci3.ucdavis.edu/FacultyAndResearch/FacultyProfile.aspx?FacultyID=13997>)

of the University of California, Davis, and [Robert Tukey, Ph.D.](#),

(http://www-chem.ucsd.edu/faculty/profiles/tukey_robert_h.html)

of the University of California, San Diego, Halden is one of several NIEHS-funded scientists who have conducted interdisciplinary studies on the extent of environmental pollution by the antimicrobials triclosan and tricloban, and their potential effects on human health.

Whitman highlights NIEHS research

As the first in the NJ Spotlight collection of year-end essays from those who have sat in the N.J. governor's chair, Whitman's editorial focused on the long-term effects of repeated environmental exposures.

"Recent studies linking various health and economic impacts of environmental contamination should cause policymakers to reevaluate their priorities when it comes to environmental legislation and regulation," Whitman wrote. "Three key areas of research in this area stand out: the connection between certain pesticides and Parkinson's, the correlation between elevated lead in gasoline with crime rates, and the link between air pollution and autism."

Two of the studies that inspired her commentary - one on pesticides and Parkinson's, the other on air pollution and autism - were led by NIEHS-funded researchers. The third study on lead and crime rates cited previous NIEHS-funded research, and acknowledged the editorial assistance of former NIEHS Scientific Director [John McLachlan, Ph.D.](#),

(<http://tulane.edu/som/cancer/research/people/john-a-mclachlan.cfm>)

of Tulane University.

"In our benevolent mission to grow the economy, we should not be in too great a rush to ignore environmental testing and results," argued Whitman. "The price we pay at the end is much greater than we can afford, both in terms of dollars and human lives."



Whitman also served as administrator of the U.S. Environmental Protection Agency 2001-2003. Like Halden, she takes into consideration both the human health and financial costs of preventable environmental exposures to harmful chemicals. (Photo courtesy of Christine Whitman)



Halden is a professor of environmental engineering. "Public health engineering saves lives and money," he said. "More than half of humanity's health problems are dependent, either directly or indirectly, on environmental factors." (Photo courtesy of Rolf Halden)

Halden applauds FDA decision

"It's a big deal that they are taking this on. These antimicrobials have taken on a life all of their own," said Halden, whose studies have found that triclosan and triclocarban [another antimicrobial] persist even after wastewater treatment. "Their use has really proliferated."

Studies by Hammock and others have demonstrated that the antimicrobials in liquid and bar soaps can disrupt development in animals, suggesting similar effects in humans. According to [FDA scientists](http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm378393.htm), (<http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm378393.htm>) there is no evidence of clearly demonstrated benefits to balance any potential risks from exposure to the chemicals.

The use of these soaps has become widespread, and the antimicrobial chemicals found in them are now also used in a range of consumer products. The [Centers for Disease Control and Prevention](http://www.cdc.gov/exposurereport/biomonitoring_articles_7.html) (http://www.cdc.gov/exposurereport/biomonitoring_articles_7.html) found the chemicals in the urine of three-quarters of Americans. Halden said the chemicals accumulate in biota living in surface water and soil, and he pointed to one study that found the chemicals in the breast milk of 97 percent of the women tested.

"These chemicals interfere with the regulation of the human body," Halden said. "The fascinating thing is that the public has not taken note of this issue."

Citations:

[Cherednichenko G, Zhang R, Bannister RA, Timofeyev V, Li N, Fritsch EB, Feng W, Barrientos GC, Schebb NH, Hammock BD, Beam KG, Chiamvimonvat N, Pessah IN.](http://www.ncbi.nlm.nih.gov/pubmed/22891308)

(<http://www.ncbi.nlm.nih.gov/pubmed/22891308>)

2012. Triclosan impairs excitation-contraction coupling and Ca²⁺ dynamics in striated muscle. *Proc Natl Acad Sci U S A* 109(35):14158-14163.

[Kamel F, Goldman SM, Umbach DM, Chen H, Richardson G, Barber MR, Meng C, Marras C, Korell M, Kasten M, Hoppin JA, Comyns K, Chade A, Blair A, Bhudhikanok GS, Webster Ross G, William Langston J, Sandler DP, Tanner CM.](http://www.ncbi.nlm.nih.gov/pubmed/24120951)

(<http://www.ncbi.nlm.nih.gov/pubmed/24120951>)

2013. Dietary fat intake, pesticide use, and Parkinson's disease. *Parkinsonism Relat Disord*; doi:10.1016/j.parkreldis.2013.09.023 [Online 1 October 2013].

[Mielke HW, Zahran S.](http://www.ncbi.nlm.nih.gov/pubmed/22484219)

(<http://www.ncbi.nlm.nih.gov/pubmed/22484219>)

2012. The urban rise and fall of air lead (Pb) and the latent surge and retreat of societal violence. *Environ Int* 43:48-55.

[Roberts AL, Lyall K, Hart JE, Laden F, Just AC, Bobb JF, Koenen KC, Ascherio A, Weisskopf MG.](http://www.ncbi.nlm.nih.gov/pubmed/23816781)

(<http://www.ncbi.nlm.nih.gov/pubmed/23816781>)

2013. Perinatal air pollutant exposures and autism spectrum disorder in the children of nurses' health study II participants. *Environ Health Perspect* 121(8):978-984.

[Schebb NH, Ahn KC, Dong H, Gee SJ, Hammock BD.](http://www.ncbi.nlm.nih.gov/pubmed/22273184)

(<http://www.ncbi.nlm.nih.gov/pubmed/22273184>)

2012. Whole blood is the sample matrix of choice for monitoring systemic triclocarban levels. *Chemosphere* 87(7):825-827.

[Venkatesan AK, Pycke BF, Barber LB, Lee KE, Halden RU.](http://www.ncbi.nlm.nih.gov/pubmed/22742731)

(<http://www.ncbi.nlm.nih.gov/pubmed/22742731>)

2012. Occurrence of triclosan, triclocarban, and its lesser chlorinated congeners in Minnesota freshwater sediments collected near wastewater treatment plants. *J Hazard Mater* 229-230:29-35.

[Walters E, McClellan K, Halden RU.](http://www.ncbi.nlm.nih.gov/pubmed/20728197)

(<http://www.ncbi.nlm.nih.gov/pubmed/20728197>)

2010. Occurrence and loss over three years of 72 pharmaceuticals and personal care products from biosolids-soil mixtures in outdoor mesocosms. *Water Res* 44(20):6011-6020.

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