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A water cooler for the public health crowd

PCBs in Schools

April 30, 2010 in [New Solutions: The Drawing Board](#)

Dear readers,

We're doing something different with this month's post.

Robert F. Herrick of the Harvard School of Public Health wrote an excellent article on polychlorinated biphenyls (PCB) exposure in schools, which was published in the most recent issue of *New Solutions*. This article has been made available for [free download](#) by the journal's publisher, Baywood Inc.



The piece has already sparked some dialogue on the testing and regulation of PCB exposure for school maintenance workers, who are pegged with the important task of removing potentially toxic material that may be damaging children's health. David M. Newman of the New York Committee for Occupational Safety & Health (NYCOSH) wrote a response to Dr. Herrick's piece, in which he addresses major gaps in policy and practice and the need for a strong labor presence to take the lead in demanding necessary worker protection.

Dr. Herrick responded by outlining some of the research done on PCB exposure among construction workers.

Below you can find the abstract of Dr. Herrick's piece, as well as the following responses.

We now ask you, readers, to add your two cents. What needs to be done to further address the issues of public PCB exposures, as well as occupational hazards for those pegged with the task of clean up?

Best,

Mara Kardas-Nelson

Editor, *New Solutions: The Drawing Board*

Abstract: Herrick, Robert F. "PCBs in school—persistent chemicals, persistent problems." *New Solutions*, Vol. 20(1) 115-126, 2010

The issue of [PCB] exposures resulting from occupancy of PCB-contaminated buildings is not new, but the

contribution of building materials to that contamination is largely unrecognized. A rapidly emerging base of evidence shows that PCBs can be widely found in caulking and paint in masonry buildings constructed or renovated from about 1950 to the late 1970s. These materials can cause extensive PCB contamination of the building interiors and surrounding soil, and people who teach, live, or attend school in these buildings can have elevated serum PCB levels. The potential risk associated with this source of PCB exposure is not known; however, it is worth noting that the specific PCB congeners found at high levels in the building environments, and in biological samples from the occupants, include some that are suspected of being potent neurotoxins. The U.S. Environmental Protection Agency (EPA) is moving to address this issue in schools; however, the costs of remediating contaminated buildings will pose a formidable obstacle to most school districts.

PCBs in Schools: What about School Maintenance Workers?

by David M. Newman

Many thanks to Bob Herrick for his article on PCBs. It is largely due to his work and that of other activists like George Weymouth and Dan Lefkowitz that potential environmental and public health risks are now being discussed, if not yet adequately addressed.

Still missing from the equation, though, is sufficient consideration of possible health risks faced by the population with potentially the highest exposures and risks: the school maintenance workers and contractors who maintain and replace PCB caulk and other PCB materials. These disturbance activities can release PCBs into the air where they are available for inhalation and dispersion. Anecdotal accounts indicate that employers of these worker populations do not conduct PCB-focused job hazard assessments and do not provide training on PCB hazards, safe work practices, and use of appropriate personal protective equipment.

The Occupational Health and Safety Administration (OSHA) acknowledges PCBs in caulk as an “emerging issue,” but whether or when guidance or intervention may occur is not known [1].

A protocol issued by the New York State Education Department (NYSED) suggests, but does not require, that PCB remediation adhere to the Department of Housing and Urban Development (HUD) lead-based paint guidelines [2, 3]. While HUD guidelines include directions for worker protection, and although utilization of these guidelines for safe work practices with lead-based paint would likely provide significant worker protection against PCB exposure, they do not, by definition, address exposure monitoring for PCBs or risk assessment for PCBs. Additionally, since NYSED protocol does not specifically mention worker protection, school administrators and contractors working for NYSED are less likely to consider it. The NYSED document also does not address ongoing maintenance work, as distinct from remediation operations.

EPA recently posted multiple guidance documents on its website regarding PCBs in caulk, including detailed worker safety guidelines for remediation contractors [4, 5]. While the guidelines are comprehensive and welcome, emphasizing dust control, skin and eye protection, and training, they fall short in several respects. They do not require air monitoring, which is necessary in order to assess worker exposure and to help determine appropriate protective measures such as engineering controls, safe work practices, and personal protective equipment. Rather they recommend “testing to determine if PCB levels in the air exceed EPA’s suggested

public health levels” *if* school administrators and building owners “are concerned.” EPA’s suggested public health levels are not delineated. The guidance document includes a photograph of a half-face air purifying respirator but the accompanying text does not mention respiratory protection, does not specify appropriate filters, and does not reference OSHA requirements for hazard assessment (29 CFR 1910.132) or respiratory protection (29 CFR 1910.134).

At the same time that EPA is providing increased, and welcome, guidance on PCBs in caulk, it appears to be moving toward a less protective stance on the issue. Use or presence of PCB-containing paint, caulk, or tar, *in any concentration*, is not permitted under 40 CFR 761.20 and 761.30 of the Toxic Substances Control Act (TSCA). EPA has been quite clear on this issue as recently as July 2007:

The federal PCB regulations at 40 CFR section 761.30 specifically list the authorized uses of PCBs for “non-totally enclosed” activities; i.e., activities that may expose human beings or the environment to PCBs. Any non-totally enclosed use not specifically authorized under 40 CFR section 761.30 is prohibited... The use of PCBs in caulk is not an authorized use and thus is a violation of section 6 (e) of the TSCA... Continued use of [in-place] PCB-containing caulk is prohibited by TSCA and the PCB regulations [6].

As of October 2009, however, the EPA apparently revised its position on PCBs in caulk:

Caulk that contains PCBs at greater than 50 ppm is not authorized for continued use and must be removed... [Y]ou are not required to remove caulk containing PCBs at levels below 50 ppm [7].

Until we have hazard assessments that rely on task-specific occupational exposure data, it will not be possible to know with confidence what the occupational risks are or whether or what kind of protective measures are needed. Perhaps a union or an employer with standing will step up to the plate and request that the National Institute for Occupational Safety and Health (NIOSH) conduct a Health Hazard Evaluation (HHE) of school workers or contractors engaged in maintenance or remediation activities involving PCB caulk.

Dave Newman is an industrial hygienist with the New York Committee for Occupational Safety and Health (NYCOSH). He can be reached at dave@nycosh.org.

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1. Personal conversations between OSHA personnel and author, 2008, 2009, 2010.
2. *Protocol for Addressing Polychlorinated Biphenyls (PCBs) in Caulking Materials in School Buildings* (Albany, New York: New York State Education Department, Facilities Planning, June, 2007) www.emsc.nysed.gov/facplan/HealthSafety/PCBinCaulkProtocol-070615.html , accessed April 9, 2010.
3. *HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* (Washington, DC:

U.S. Department of Housing and Urban Development, October 2007)

www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm, accessed April 9, 2010.

4. *PCBs in Caulk in Older Buildings* (Washington, DC: U.S. Environmental Protection Agency)

www.epa.gov/pcbsincaulk/index.htm, accessed April 9, 2010.

5. *Contractors Handling Caulk in PCBs During Renovation* (Washington, DC: U.S. Environmental Protection Agency, September, 2009) www.epa.gov/pcbsincaulk/caulkcontractors.pdf, accessed April 9, 2010.

6. U. S. Environmental Protection Agency, Region 2, "Letter from Regional Administrator Alan Steinberg to Senator Charles Schumer," July 26, 2007 www.pcbinschools.org/EPA%20SHUMER.pdf, accessed April 9, 2010.

7. *Current Best Practices for PCBs in Caulk Fact Sheet: Interim Measures for Assessing Risk and Taking Action to Reduce Exposures* (Washington, DC: U. S. Environmental Protection Agency, October, 2009) www.epa.gov/pcbsincaulk/caulkinterim.pdf, accessed April 9, 2010.

Dr. Herrick's response:

Mr. Newman has identified a very important gap in the emerging discussion of risks presented by PCBs in building materials: the risk to the workers who maintain and remove PCB caulk and other PCB materials. There is a very clear need for detailed, task-based hazard assessments of building maintenance and construction workers who handle PCB caulk, paint, and other building materials. These assessments should include environmental and biological monitoring components designed to evaluate the contribution of occupational exposures to the overall PCB body burdens.

The few investigations that have been conducted of workers removing old PCB caulk suggest that this is a significant source of PCB exposure. Kontas [1] demonstrated elevated PCB inhalation exposures and serum levels among Finnish renovation workers removing old PCB caulk. Wingfors [2] took blood samples from Swedish construction workers removing old PCB caulk and compared them to construction workers doing other tasks. He found that the PCB-removal workers had serum PCB levels approximately twice the levels of the non-PCB construction workers (mean of 575 vs. 267 ng PCB/g lipid). In the United States, serum PCB levels among the construction workers who removed PCB caulking exceeded the levels in comparison workers [3]. The contrast was most striking for the less-chlorinated, more volatile PCB congeners (including PCB 28, 60, and 66), which have been reported to be good markers of occupational exposures.

In all three of these studies, comparison of the PCB congener profiles suggests that there are substantial differences between the construction workers and the comparison workers who do not remove old PCB caulking. These differences, and the similarities of profiles among the construction workers, strongly suggest that occupational contact with caulking material can be a major source of PCB exposure for building maintenance and construction workers.

Robert F. Herrick is a Senior Lecturer on Industrial Hygiene at the Harvard School of Public Health.

References:

1. H. Kontsas, K. Pekari, R. Riala, B. Back, T. Rantio, and E. Priha, "Worker Exposure to Polychlorinated Biphenyls in Elastic Polymer Sealant Renovation," *Annals of Occupational Hygiene*.

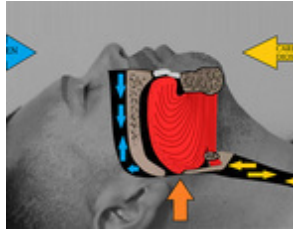
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3. Herrick RF, Meeker JD, Hauser R, Altshul L, Weymouth GA. Serum PCB levels and congener profiles among US construction workers. *Environ Health*. 2007 Aug 31;6(1):25.

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[May 19, 2010 at 7:39 pm](#)

Chuck Levenstein

As I understand it, there are health and safety advocates in some teachers' unions who are very worried about the PCB issue and are concerned that attention is being diverted from more substantial issues in the school environment. Basically, I think they are saying that PCB's are an environmental issue — that is, they are found in the caulking in



many public buildings constructed between 1950 and 1975 or so — and that therefore the problem is “environmental”, not particularly about schools. This is at least in part an economic issue — school budgets could be decimated by a PCB clean-up and education is already under-funded. I think this is a strong argument for special funding to be allocated at a Federal level for dealing with the PCB problem — but I think that educators and their unions should pay particular attention to this issue because PCB’s are endocrine disruptors and therefore could play havoc with children’s development. It is a mistake to miss the alliance between concerned parents, teachers and other school staff by denying the special importance for this problem for children’s exposures.

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[May 2, 2011 at 6:14 pm](#)

[flashuac](#)

Very interesting post! :)



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[September 15, 2011 at 7:12 pm](#)

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really interesting read, Rarely, do we look at toxic exposure as a way to



prevent poor health or illness. The only time

we really step in is when it to late and were trying to figure out why someone is sick. It’s our health and we should stand up for it. If enough people talk then we can make a change. Whether it be in school’s or just in our environment.

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