



Letter to the Editor

Comment on “Persistent organic pollutants in 9/11 world trade center rescue workers: Reduction following detoxification” by James Dahlgren, Marie Cecchini, Harpreet Takhar, and Olaf Paepke [Chemosphere 00/00 (2007) 000–000]

Edmund A.C. Crouch, Laura C. Green *

Cambridge Environmental Inc., 58 Charles Street, Cambridge, MA 02141, USA

Received 22 February 2007; accepted 23 May 2007

Dear Sir,

A recent article in *Chemosphere* (Dahlgren et al., *in press*) contains serious errors and makes unsubstantiated claims regarding seven men (five of them members of the New York Fire Department) affected by the September 11, 2001 tragedy at the World Trade Center.

It is claimed that, “Following detoxification, calculated WHO-TEQs for mono-ortho PCB blood levels decreased by an average 65%...” In several respects, this statement is false.

First, the math is incorrect in Table 1. In particular, six of the seven “pre-detoxification” TEQ concentrations (all but those for study subject WTC013) for total non-ortho-PCBs and mono-ortho-PCBs are incorrect; the entries in those two rows are, respectively, total PCB TEQs and total PCB+PCDD/PCDF TEQs for those six cases. Since the same mistake is not made for the “post-detoxification” values, an erroneously large “reduction” is necessarily obtained. Simply correcting these entries invalidates practically all of the text discussions of TEQs and Figs. 1 and 2 of the paper. Here are corrected versions of Figs. 1 and 2, with the same scales as in the paper.

Second, the paper claims a “detoxification” of the study subjects, but presents no data in support of the claim. “Detoxification” would presumably entail enhanced elimination, yet no samples of feces, urine, or sweat were analyzed. In contrast, studies by others (Geusau et al., 1999; Moser and McLachlan, 1999, 2002) have demonstrated

enhanced elimination of lipophilic contaminants (PCDDs, PCDFs, PCBs, and hexachlorobenzene) *via* analyses of feces from subjects who had ingested the non-absorbable fat-substitute Olestra. The paper by Dahlgren et al. (*in press*) reports concentrations only in blood lipids, under unstated “pre” and “post” blood collection conditions, at unspecified time intervals. Moreover, blood-lipid-levels of these compounds are well-known to fluctuate: Sandanger et al. (2003) found similar percentage decreases in measured blood levels of PCBs in larger groups of subjects over just 5 days, without any claim or expectation of decreases in body burden. In another study, measurements over 3 years of blood concentrations of 2,3,7,8-TCDD in highly exposed individuals show substantial fluctuations about the expected exponential declines, also indicating fluctuations in the relationships between body burdens and measured blood concentrations over such time scales (Geusau et al., 2002).

No details are given by Dahlgren et al. on the “detoxification treatment regimen” used, in particular on the “vitamin and mineral supplements,” except for references to Schnare et al. (1982) and Tretjak et al. (1990). Schnare et al. (1982) describe a regimen that includes increasing doses of niacin (reaching 800–6800 mg/day) and administration of 2–8 tablespoons per day of “polyunsaturated (allblend) oil,” for periods ranging from 11 to 89 days. Tretjak et al. (1990) provide no further details. The treatment with niacin at therapeutic and potentially dangerous levels (Knopp, 2000; McKenney, 2003) has long been known to substantially alter blood lipid profiles (Altshul et al., 1995; Soudijn, 2007). The effect of any changes in blood lipid profiles on the relationship between blood levels and body burdens of PCBs has not been investigated, but was

DOI of original article: [10.1016/j.chemosphere.2006.05.127](https://doi.org/10.1016/j.chemosphere.2006.05.127)

* Corresponding author. Tel.: +1 617 225 0810.

E-mail addresses: Crouch@CambridgeEnvironmental.com (E.A.C. Crouch), Green@CambridgeEnvironmental.com (L.C. Green).

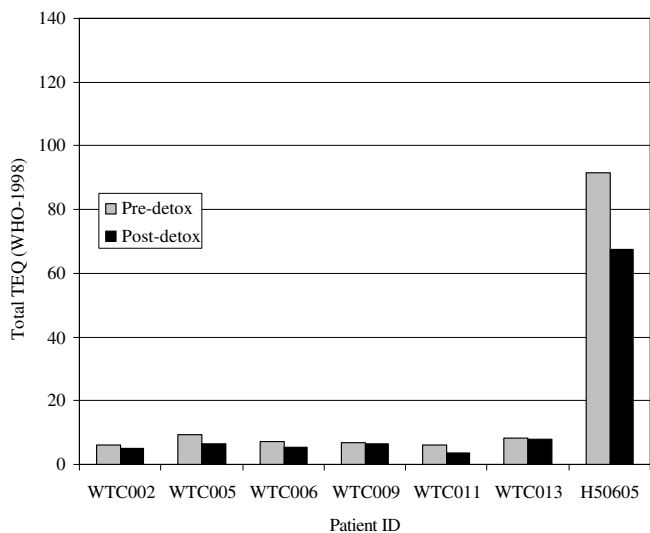


Fig. 1. Changes in blood total WHO-TEQ mono-ortho PCB levels with detoxification (corrected).

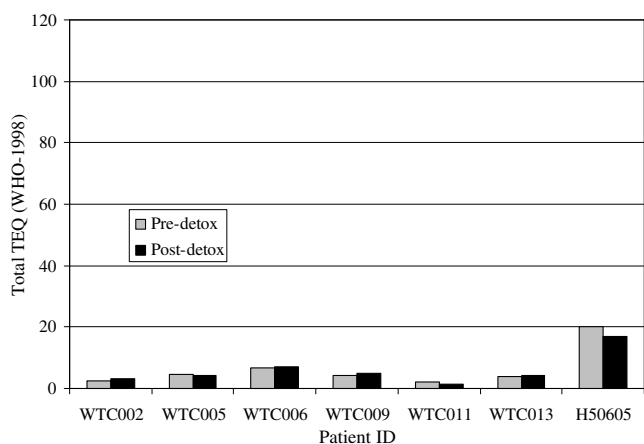


Fig. 2. Changes in total WHO-TEQ non-ortho PCB levels with detoxification (corrected).

certainly not taken into account by Dahlgren et al. Moreover, if the “ingested oil treatment” in fact enhanced fecal elimination of PCBs (however slightly), it might have been because increased amounts of fats in the intestinal lumen would facilitate transfer of PCBs from the blood to the gut, thus enhancing both fat and PCB concentrations in feces, as already demonstrated following ingestion of Oles- tra (Moser and McLachlan, 2002).

Third, there is no evidence presented, nor reason to suspect, that the subjects’ exposures to air and debris from 9/11 would in fact have elevated their body burdens of PCBs. To the contrary: as noted by one of the papers cited by Dahlgren et al. (in press), three studies “have noted unremarkable PCB and PCDD/F concentrations in WTC associated dust” (Litten et al., 2003). This is not surprising, since, as also reported by Litten et al. (2003), prior to 9/11, capacitor and transformer fluids at the WTC had been drained and replaced with non-PCB materials. More-

over, Edelman et al. (2003), also cited by Dahlgren et al. (in press), found no elevations in blood-borne PCBs in a study of hundreds of WTC-exposed New York City firefighters, and only moderate elevations in blood-borne heptachloro-dibenzodioxin and heptachlorodibenzofuran, about which Edelman and co-authors write, “None of the measured chemicals is presumed to be specific to the WTC and might be seen in firefighters exposed to any structural fire (and collapse) as well as from exposures in the general environment.”

In fact, excluding the subject labeled HB50605 in the text (but H50605 in the figures), the subjects’ blood concentrations of PCBs and PCDD/PCDFs, as reported by Dahlgren et al. (in press), are quite ordinary. Comparison with NHANES 2001–2002 measurements (NCEH, 2005) shows that the *highest* concentrations in the six subjects cited (excluding H50605) as having “elevated” levels of PCBs 118 and/or 156 to actually be between the 75th and 90th percentiles reported for all persons aged 20 and above (and because of the increase in concentration with age for such compounds, a correct comparison would require comparison within similar age ranges). More generally, with few exceptions, people’s body burdens of PCBs and other “dioxin-like compounds” are determined almost exclusively by the food we eat, not by the air we breathe. Firefighters may occasionally receive on-the-job exposures to PCBs and PCDFs, but these would be from having fought PCB-containing electrical transformer fires, not from 9/11 (see, for example, Kelly et al., 2002).

Dahlgren et al. (in press) claim that “successive improvements [in pulmonary, ENT, and/or mental health symptoms] with detoxification is consistent with medical records from the nearly 400 WTC-exposed men and women who completed detoxification treatment.” There is no citation for this statement, nor any other way for the reader to evaluate the accuracy of this claim. There is also no explanation for why the paper presents data on only seven of these “nearly 400,” nor on how those seven were selected.

The paper makes no mention of any IRB Review or approval. This is especially worrisome given the potentially dangerous aspects of the niacin “treatment,” and its basis in (or identity with) the “purification rundown” advocated by the non-physician, L. Ron Hubbard, the only basis given by Schnare et al. (1982).

Finally, *Chemosphere* has a Conflict of Interest/Full Disclosure policy that does not appear to have been followed in this case. At least the principal author appears to have a financial interest in promoting the “detoxification method” discussed, and indeed the erroneous claims of this paper are being used to promote his services (see, for example, <http://www.bwellclinic.com/news2.html>).

Overall, then, the paper by Dahlgren et al. (in press) is highly flawed: to the extent that the paper implies that the *bona fide* health problems faced by 9/11 firefighters and other rescue workers should be addressed in such a manner, it is unconscionable.

Conflict of interest/full disclosure

This work received no outside funding. We declare that we have no conflict of interest.

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