



A Double Dose of Dini

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Nosophobia and Fear of Invisible Toxins

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From time to time, we run additional installments of his well-received writings, as "A Double Dose of Dini." - Ed.

"If it smells bad, it's bad; if it smells good, it's bad," says Aileen Gagney, asthma and environmental health manager with the American Lung Association in Seattle.¹ Obviously then, the key to a healthy life is to have no smells around you. How unfortunate, since we are excellent smellers!

The tongue can detect sweetness at a dilution of one part in 200, saltiness at one in 400, sourness at one in 130,000, and bitterness at one in 2 million.² All of this pales when compared with our ability to detect extremely low levels of smells (*i.e.*, in the range of 50 parts per trillion to 800 parts per billion.³

If you are inclined to agree with Ms. Gagney, perhaps you have nosophobia, the irrational fear of contracting a disease by smelling. Let's talk about fragrances and smoking to provide some present-day examples.

Elizabeth Whelan reports, "Fragrances now join a growing list of allegedly harmful products - plastic bottles, rubber duckies, shower curtains, Astroturf, traditional produce raised with agricultural chemicals, aspartame, acrylamide, etc. The list seems to be growing like - well, 'toxic mold.' Nosophobia is causing us to abandon safe, useful products of modern technology to avoid phantom risks while obscuring the real risks around us. While parents are fretting over BPA traces in baby bottles or phthalates in plastic toys, they may well be giving short shrift to the real threats to their children's health, including failure to use seatbelts, bike helmets, smoke detectors, vaccinations, proper nutrition and exercise."⁴

When University of Washington professor Anne Steinemann analyzed a variety of fragranced consumer products such as air



Photo Courtesy of Wikipedia.

fresheners, laundry supplies, personal care products and cleaners, she found 100 different volatile organic compounds (VOCs) measuring 300 micrograms/m³, or more.⁵

Wow, you say! Sounds scary! But, let's look at concentrations. VOCs were identified from Gas Chromatography Mass Spectrometry (GC/MS) headspace analysis. Only those with a headspace concentration of greater than 300 µg/m³ were reported. Average headspace concentrations of VOCs for the six products tested ranged from 1,000 µg/m³ to 74,000 µg/m³. In Steinemann's work, ten of the 100 volatile organic compounds identified qualified under federal rules as toxic or hazardous, and two of those - 1,4-dioxane and acetaldehyde are classified as Hazardous Air Pollutants (HAPs).⁵

What are OSHA permissible exposure limits for 1,4-dioxane and acetaldehyde? The current OSHA permissible exposure limit for dioxane is 100 ppm (350 mg/m³) as an eight-hour time-weighted average. Note - THIS IS 1000 TIMES THE LEVEL reported in Steinemann's paper. A similar case can be made for acetaldehyde. The OSHA eight-hour time-weighted average

for acetaldehyde is 200 ppm (360 mg/m³). So, for the fragrance scare, we're talking about the amounts are considerably below allowable regulations. Yet, the comment is made; "Consumers are breathing these chemicals. No one is doing anything about it."¹ Great scare tactics!

These days scientists can find anything in any thing and as this example shows, it can lead to a problem. The minute that something is found in food, in someone's blood, in the air, etc., some folks get very concerned and start creating a lot of fuss. The very act of being able to measure something can give the impression that if it's quantifiable, it's dangerous. How unfortunate, since scientists are getting more clever all the time. Folks forget the old adage that "the dose makes the poison," and act on the principle that just the fact that anything is found is cause for alarm.

Here's another one for nosophobiasts. There is now such a thing as "third hand smoke." Dr. Jonathan Winickoff, lead author of a recent paper in *Pediatrics*, says the following, "If the smell of the cigarettes lingers, so does the danger. Your nose isn't lying. If your body detects it, then it's there," he says. Sounds like the opening comments in this article from Aileen Gagney.

What was the scientific study, which incidentally was given great TV coverage by Dr. Nancy Snyderman of the *Today Show*? Dr. Winickoff and his colleagues surveyed 1,500 households across the US and asked folks if they agreed with the statements:

- Breathing air in a car today where people smoked yesterday can harm the health of babies and children.
- Breathing air in a room where people smoked yesterday can harm the health of babies and children.

Those surveyed who stated they agreed or agreed strongly were categorized as

believing third hand smoke harmed the health of babies and children.

THIS IS THE "EVIDENCE" THAT THIRD HAND SMOKE HAD BEEN "IDENTIFIED" AS A HEALTH DANGER.⁶

Think about this for a moment. You could have been called as part of this survey and had your chance to play "scientist" and provide data for this analysis. You may not like third hand smoke, but is a telephone solicitation of non-scientists really scientific evidence that it is bad?

There turned out to be much more to this story. What consumers didn't hear from reporters was that it was conducted by the National Social Climate Survey of Tobacco Control, a special interest group working to legislate bans on tobacco. The Tobacco Consortium, which sets the group's agenda, is chaired by Dr. Winickoff of Harvard and the lead author of this paper. Makes one wonder about the review process for papers that appear in the journal *Pediatrics*.

For that matter, a fair number of scientists debate whether second hand smoke exposure during childhood is harmful to long-term health. Sandy Szwarc reports, "The world's largest study ever done to examine the association between exposure to environmental tobacco smoke (ETS) and lung cancer was conducted by the International Agency for Research on Cancer in Lyon, France, and published in 1998 in the *Journal of the National Cancer Institute*.⁷ It included lung cancer patients up to 74 years of age, and a control group, in 12 centers from seven European countries, looking at cases of lung cancer and exposures to ETS. They found 'no association between childhood exposure and ETS and lung cancer risk.'"⁸

The authors of the *Pediatrics* article suggested dangers at exposure levels far below the levels of second hand smoke - third hand smoke exposures - even without regard to ventilation, the number of cigarettes parents smoked or length of exposure.

Szwarc adds, "Any exposure at all, and at levels barely detectable with modern instrumentation, is now being suggested as able to cause cancer and brain damage in children. This turns everything that science knows about toxicology on its head and denies the most fundamental law: that the dose makes the poison. In other words, there is no credible medical evidence to support the suggestion that trace exposures lingering in the air or on clothing are harming children."⁸

In an entertaining and insightful opinion piece for the *Daily Mail*, Tom Utley, a smoker described what scare tactics like these, that are such obvious hoaxes, actually undermine the effectiveness of efforts to reduce smoking and exposures to children. No one is arguing that smoking is a healthful habit or would encourage young people to take up smoking, but he "most vehemently challenged Dr. Winickoff's right to dress up this insulting, scaremongering, palpable drivel as science." Utley adds, "The very last thing I want is to encourage anybody to take up my disgusting and ruinously expensive habit, which I'm sure will be the death of me. But then I hear the latest hysterical rubbish from the anti-smoking lobby and my determination to remain silent goes the same way as my annual New Year's resolution to give up the vile weed. Why, when there are so many excellent reasons to quit, do these fanatics feel obliged to keep on inventing new and obviously bogus ones?"⁹

Szwarc concludes, "This is one of the most egregious examples of the increasingly common and unethical practice of politicizing science and using a 'study' to advance an agenda of a biased media failing to do its job. Neither is in the interest of the facts or truth. The healthiest thing for all of us might be a helpful dose of common sense and respect for other people's choices. Otherwise, we may next hear about the dangers of fourth hand smoke, a term coined by John Boston of the Santa Clarita Valley Signal: someone sitting next to someone who is thinking about someone else smoking. And someone will believe it and report it as news."⁸ **P&SF**

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