Bottle-fed Infants at Risk from Atrazine in Tap Water

By Jane Houlihan and Richard Wiles, June 1999

In a little-noticed decision earlier this year, the EPA's top scientific committee on children's health declared that protections against the toxic weed killer atrazine in food and water should not be considered safe for infants and children. According to the Office of Children's Health Protection Advisory Committee:

"When EPA established the tolerances and 1991 drinking water standards for atrazine, children's differential exposure was not considered and children's differential susceptibility was not fully evaluated" (Federal Register, Feb. 3 1999).

This conclusion directly contradicts EPA's public position that pesticide levels in food and tap water are safe for infants and children. Precisely because the current standards do not protect children, and because millions of children are exposed, atrazine standards were chosen as one of five high priority regulations for review under President Clinton's Executive Order 13045. This order directs EPA to ensure that all regulations issued by the agency protect the health of infants and children.

Atrazine, the most heavily used herbicide in the United States, is a cancer-causing weed killer applied to 50 million acres of corn each year. After it is applied each spring, it runs off cornfields and through drinking water plants into the tap water of millions of Midwestern homes. While many larger water utilities suppress atrazine levels through special treatments, toxic traces remain in finished water.

To better understand the risks resulting from the EPA's failure to protect infants and children from atrazine, we analyzed more than 127,000 tap water test results for the years 1993 through 1998, obtained from state health and environmental officials in seven Midwestern states: Ohio, Indiana, Illinois, Iowa, Missouri, Nebraska, and Kansas.

We found that atrazine contaminates tap water delivered to 10.4 million people in 796 towns in these seven states. In some communities the lifetime cancer risk from average atrazine concentrations is more than 20 times the legal limit. Peak daily atrazine exposures in tap water have been measured as high as 42 parts per billion, 14 times the legally allowed annual average amount.

THE EPA MISSES STATUTORY DEADLINE TO PROTECT CHILDREN FROM PESTICIDES

In August 1996, Congress unanimously passed major revisions to the nation's pesticide law. These amendments, known as the Food Quality Protection Act (FQPA), require all pesticide exposures to be safe for infants and children. FQPA contains clear deadlines for revision of current standards, beginning with pesticides that the EPA identified in August 1997 as presenting the greatest risks to children's health, including the weed killer atrazine (Federal Register, August 4, 1997).

By law, health standards for atrazine and other high-risk pesticides must be revised to protect infants and children by August 3, 1999.
With the deadline less than one week away as this report goes to press, there is no chance that the EPA will meet it. EPA announced this year that new regulatory limits for atrazine in tap water will not even be proposed until 2001 (Federal Register, February 3 1999). The agency has set no date for implementing these new rules.

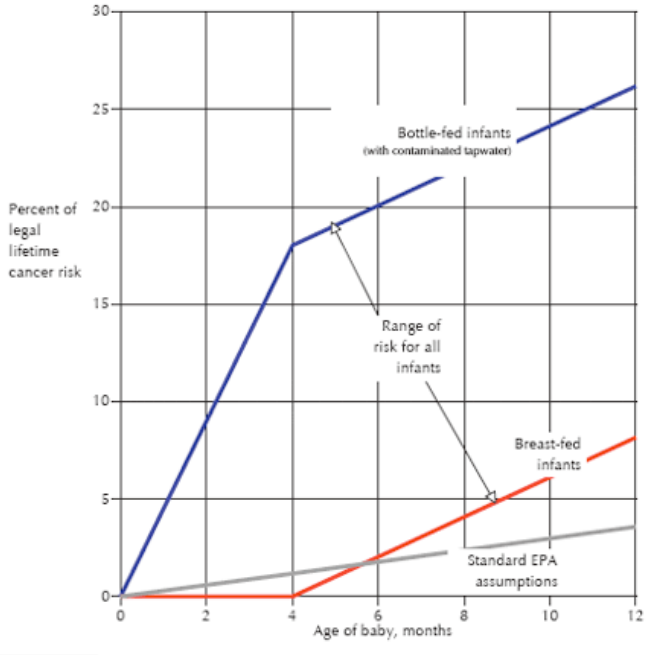
This government failure to enforce the law puts more than eighteen thousand bottle-feeding infants at serious risk each year. In a letter to the EPA Administrator in June of this year, the chairman of the Office of Children's Health Protection Advisory Committee expressed grave concerns that the agency was about to proceed with yet another assessment of the risk of atrazine to infants and children without proper consideration of the special risks that atrazine present to the very young (Reigart 1999). EPA disregarded the Committee's commendation that the atrazine assessment be delayed until these issues are resolved (EPA 1999a).

THE GOVERNMENT IGNORES INFANT RISK

EPA safety standards assume that a bottle-feeding newborn drinks the same amount of tap water relative to its weight as an adult. This assumption is wrong. In fact, for a mother to get the same dose of atrazine as her bottle-fed baby, she would have to drink three and a half gallons of tap water a day. It is this flaw in the EPA safety standard setting process that led the EPA's Children's Health Protection Advisory Committee to conclude that "children's differential exposure was not considered" in food and water safety standards for atrazine.

Prompted by the committee's decision, Environmental Working Group analyzed the method and the data used by EPA to determine how much the agency underestimates exposure and risk to infants.

EWG's analysis shows that the current EPA health standards understate bottlefed infant exposure to atrazine and other tap water contaminants by a factor of 15 in the first four months of life (Figure 1).



This 15-fold underestimate of risk at this critical period of development is a huge omission on the part of the Agency, an omission that leaves infants in these nearly 800 towns unprotected from the serious potential health effects of atrazine, other weed killers and a host of other contaminants in tap water.

Using the actual amount of atrazine a bottle-fed infant receives, we estimated cancer risk accumulation during the first years of life. In the nearly 800 towns with atrazine in their tap water, we found that:

In 138 communities, by age five children will exceed what federal law defines as their lifetime allowable dose of atrazine. In 40 towns bottle-fed infants exceed their legally allowable lifetime cancer risk from atrazine by their first birthday (Table 1). In Kansas City, Kansas, bottle-fed infants can get their legal lifetime dose by just over eight months of age (Figure 2) and in some other towns, babies get their lifetime dose by the time they are four months old (Table 1).

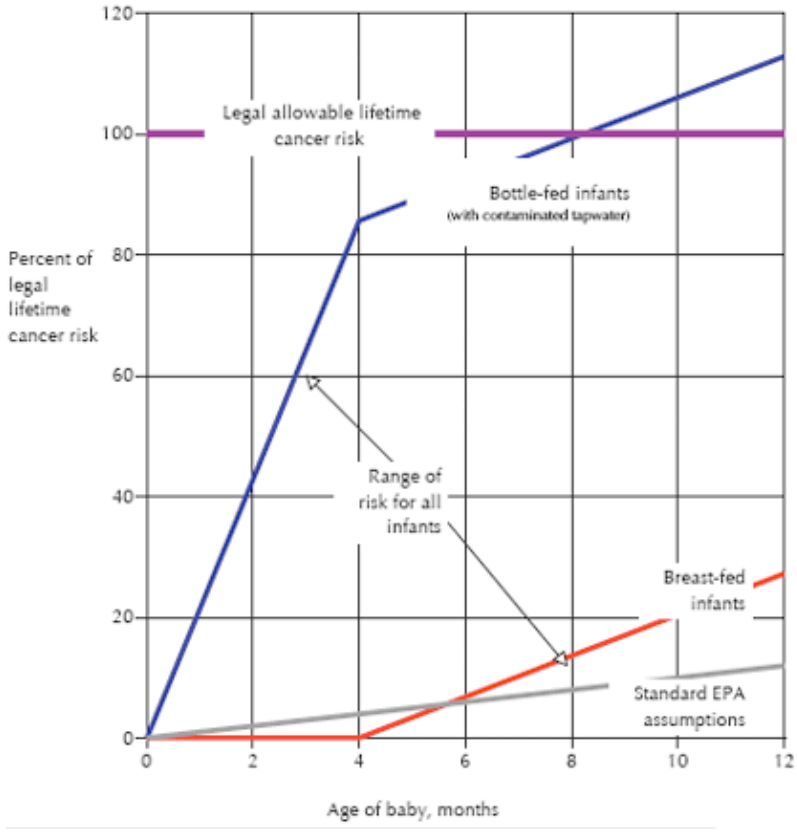
IN 40 TOWNS CHILDREN EXCEED THEIR LEGAL LIFETIME DOSE OF ATRAZINE BY THEIR FIRST BIRTHDAY.

Community	State	Population, total	Months of age at which child exceeds legal lifetime cancer risk	Lifetime cancer risk as a multiple of legal standard
Louisville	Illinois	1,194	2.5 months	19.0
Hettick	Illinois	220	2.6 months	31.5
Sardinia	Ohio	940	2.9 months	16.8
Defiance	Ohio	17,000	3.3 months	14.4
Shipman	Illinois	675	3.5 months	25.9
Atchison	Kansas	10,660	3.5 months	13.0
Lake of the Woods, Granville	Ohio	412	3.5 months	19.5
Napoleon	Ohio	8,884	3.6 months	13.1
Gillespie	Illinois	3,900	3.6 months	17.9
Mount Orab	Ohio	3,450	3.7 months	17.4
Monroeville	Ohio	1,500	3.8 months	13.1
Keyesport	Illinois	500	3.8 months	16.7

Montezuma	Kansas	877	4.0 months 21.6	
Williamsburg	Ohio	2,466	4.5 months	14.6
Osage City	Kansas	2,689	5.1 months	14.8
Delaware	Ohio	28,000	5.2 months	14.2
Clermont County Water, Batavia	Ohio	63,191	6.6 months	16.6
Blanchester	Ohio	4,450	7.2 months	13.6
West Salem	Illinois	1,058	7.3 months	15.3
Versailles	Indiana	2,000	7.4 months	10.8
SLM Water Commission, Mascoutah	Illinois	300	7.5 months	14.3
Ashley	Illinois	650	7.6 months	13.6
Sorento	Illinois	750	7.6 months	15.1
Farina	Illinois	600	7.8 months	18.3
Waterloo	Illinois	7,300	7.8 months	16.2
ADGPTV Water Commission, Girard	Illinois	1,257	7.8 months	13.7
Kansas City	Kansas	164,462	8.2 months	9.9
Palmyra	Illinois	70	8.5 months	14.5
Carlyle	Illinois	3,600	8.8 months	15.6
Alliance	Ohio	24,800	9.0 months	15.6
Upper Sandusky	Ohio	6,000	9.0 months	12.3
Greenfield	Illinois	1,200	9.4 months	14.1

Wilmington	Ohio	11,199	9.5 months	15.2
Smithville	Missouri	4,365	9.6 months	15.2
Illinois American Water Company, Camelot	Illinois	1,200	10.4 months	14.7
Olathe	Kansas	78,666	10.7 months	9.6
Evansville	Illinois	850	10.9 months	12.3
Logansport	Indiana	12,621	11.2 months	8.9
Milan	Indiana	1,750	11.7 months	10.2
Norwalk	Ohio	14,800	11.8 months	12.2

FIGURE 2:



The risks to children are surely greater than this because the toxicity studies used to estimate the cancer potency of atrazine have been performed on adult animals only, making them extremely suspect in predicting risk to the fetus, infant and child.

INDUSTRY REMOVES ATRAZINE FROM READY-TO-FEED FORMULA

The infant formula industry goes to great expense to remove atrazine and other pollutants from the water they use when they make ready-to-feed, and liquid condensed infant formula. We contacted two of the three largest infant formula makers in the United States (Ross Labs and Nestle/Carnation), and found that both use some combination of advanced filtration and separation processes to purify the water used to make their ready-to-feed or concentrated products. Consequently, those products are far safer for infants than formula reconstituted with tap water from these 796 communities. Almost none of the communities with weed killers in their water can afford the treatment processes that the infant formula industry employs to render tap water safe for use in their products.

This irony is nowhere better illustrated than in Columbus Ohio, home of Ross Labs, the manufacturer of Similac, where the tap water is ontaminated with atrazine and other weed killers. Before Ross uses Columbus city water in their infant formula products, they purify the water using advanced filtration and separation processes. This aggressive treatment scheme will remove most organic contaminants, including atrazine and other weed killers, from the water that Ross uses in its infant formula products.

Mothers and their babies in Columbus using tap water to reconstitute dehydrated Similac and other formulas are not so lucky. A bottle-fed child drinking Columbus city tap water from the Hap Cremean plant would reach his or her legal lifetime limit for cancer risk from atrazine in less than five years.

PROFITS AT THE EXPENSE OF INFANTS AND RATEPAYERS: THE REVOLVING DOOR

The EPA has not revised a single enforceable safeguard to protect infants and children from pesticides since the unanimous congressional passage of tough children's health protections in August of 1996. As the EPA stalls, the pesticide industry pockets huge profits putting atrazine and other weed killers into the tap water fed to hundreds of thousands of Corn Belt babies and children. Recognizing the dangers of drinking weed killers, Midwestern water utilities and their ratepayers spend millions each year to keep contamination within insufficiently protective legal limits.

The continued presence of atrazine in tap water is assured by the squadron of former top EPA pesticide regulators who now represent the pesticide industry in opposing the new children's health protections required under the FQPA. Our analysis of the current employment of former EPA staff shows that two-thirds of the top EPA pesticide regulators since 1977 (Assistant Administrators of Pesticide Program Directors) now represent the pesticide industry in opposing new regulations to protect children.

RECOMMENDATIONS

Atrazine is made by the Swiss company Novartis, and is subject to much tougher regulation in Switzerland than it is in the United States. The U.S. allows atrazine in tap water if the average amount found in four quarterly samples collected over the course of a year is less than 3 parts per billion (ppb). In Switzerland the standard is more than 30 times tougher, allowing not even a single detection above 0.1 ppb.

It will be impossible to remove atrazine from the tap water consumed by formula-fed infants unless water treatment systems in 796 towns in the Midwest are outfitted with filtration and separation systems such as granular activated carbon and reverse osmosis, preferably at the expense of Novartis. Use restrictions that have been in effect since 1994 are not effective.

Powdered activated carbon is insufficient. In spite of the efforts of Midwestern water suppliers, atrazine causes more public drinking water supplies to violate federal health standards each year than any other chemical pollutant in the country.

Unless Novartis moves to purchase and maintain these filtration and separation systems in all towns with atrazine contaminated water, EPA should follow the lead of many of our European neighbors and ban atrazine to protect children.