



## Pesticide Handler Health Risks, Practical Solutions and a Safety Climate – Lessons from Washington State

Marcy Harrington, MPA

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**T**he Portuguese proverb, “Give a hint to the man of sense, and consider the thing done” offers motivating words for safety and health educators. Whether to a friend, employee or patient, communicating pesticide risks and solutions is complex, especially with the rapidly growing body of knowledge around pesticides. Yet, it is worth doing. Research is yielding results on pesti-

cides’ long-term health impacts; identifying linkages to cancers, reproductive impairment, neurological deficits and disease.<sup>1,2,3,5,8</sup>

In Washington State, handlers of pesticides want to receive information on their exposures, even when the health risks are uncertain. In addition, farmers and pesticide handlers are developing their own solutions to reduce their exposures. These are some of the simple, but compelling lessons learned from a series of pesticide projects at Pacific Northwest Agricultural Safety and Health (PNASH) Center.

Washington is a model for how multiple players contribute to improving pesticide safety. There is a strong network of farm-worker and community clinics and excep-

tional pesticide education programs, including hands-on training for pesticide handlers and supervisors.<sup>12</sup> Additionally, an unpublished 2010 study by Fenske and Galvin showed that Washington workers and employers view a workplace safety climate as part of a solution to reducing applicators’ overexposure to pesticides.<sup>13</sup> This fits well with PNASH’s guiding principle to reduce exposures at the source and develop workplace-based solutions.

Data from the state-wide cholinesterase monitoring program shows a marked decline in pesticide applicator exposures since the program began in 2004.<sup>7,4</sup> The program’s early cases mobilized multiple agencies, nonprofits and the industry to

address exposures. Now the low rate of cases is likely evidence for the success of education efforts, a reduction in the use of azinphosmethyl (due to EPA phase out of this pesticide), and employers' limiting handler exposures (e.g., through employee rotation).

### Work Practices Influencing Exposures

Building on the state's monitoring program, in 2010 Keifer and Hofmann conducted a study of pesticide applicator work practices and their exposure levels. Results show statistically significant higher exposures during the mixing and loading of pesticides as well as when cleaning spray equipment.<sup>6</sup> Most importantly, the risk of pesticide exposure significantly decreased with the applicator's use of full-faced respirators and chemical resistant boots.

These practices may not only be important safety considerations in themselves, but may also be indicative of workplaces with a general high standard of safety.

As this investigation continues, new trends and results are emerging, such as a decline over the period of 2006-2010 in the use of full-faced respirators. This is a trend that will hopefully reverse with release of study results the winter of 2011.

### Farm-based Practical Solutions

The Washington-based study by Fenske and Galvin identified practical solutions to reduce applicator exposure. The study found a number of inventive and practical safety measures developed on the farm by pesticide managers and applicators. These included:

- *Thermo-wind meter*: To prevent pesticide drift, and improve coverage, pesticide handlers can monitor temperature and wind direction and speed.
- *Mixing Bucket with Gallon Markings*: To limit risky measurement and pouring, handlers use one 5-gallon bucket with gallon markings.
- *Portable Toilet, Sink and Emergency Shower & Eyewash Station*: Provides required facilities on a trailer that can be moved to where pesticide handlers are working.
- *Eyewash stored in Ammo Box*: Keep emergency eyewash clean, within reach and easy to open with an ammunition box attached to the tractor.

### Creating a Safety Climate

An unexpected outcome of Fenske and Galvin's study was the importance of a positive safety climate to study participants. Thirty-five of the managers, educators, and

pesticide applicators interviewed as a part of the study said that they think safety practices needed to be "consistent," and "careful." The following illustrate some of the more common issues raised about the overall safety climate.

- Managers need to "constantly remind" workers of necessary measures to prevent exposure.
- Both handlers and managers stressed the need for each worker to "be responsible,"



- "be aware," or "be careful."
- A concern was described as, "(when) something is in place a lot, so you no longer pay attention to it." On the same vein, "you get busy in the work it just seems to kind of slide, slide, slide until.... Maybe something more drastic happens."
- Many participants spoke of the need to be careful and protect the safety of others inside the workplace and also in the surrounding community.
- One participant indicated that workplace safety is the "work of changing minds. And it is not overnight."

### The Healthcare Provider's Role

We know from previous research that the health care provider is a trusted information source regarding pesticides, for both employers and workers, and the front line in national surveillance. In addition, the health care provider can play a role in reinforcing the need for safe practices including minimizing exposures to pesticides and fostering a safety climate of respect and support.

In the coming year, PNASH looks forward to sharing more on our pesticide study results, including risk factors for exposure, genetic contributors to individual susceptibility, and practical pesticide safety solutions for the farm. Refer to our pesticides and health webpage for further information: <http://depts.washington.edu/pnash/pesticides.php>. ■

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