Pesticide Labels Are Inadequate

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Pesticide Labels Are Inadequate

Over 1.1 billion pounds of pesticides were used in the United States (U.S.) in 2012 (Atwood et al., 2017). The U.S. Environmental Protection Agency (EPA), which regulates pesticide production and use, requires extensive laboratory testing from manufacturers before a pesticide may be registered for use. Further, the EPA conducts ongoing registration review at least once every 15 years to make sure that a pesticide is not causing unreasonable harm to humans and the environment. Based on the results of toxicity tests, the pesticide label text (and sometimes images) instructs pesticide usage in a manner that is supposed to prevent harm to persons applying the pesticide, bystanders, and the environment. The label is a legal document and carries a warning that use of product in a manner inconsistent with labeling is a violation of Federal law. There is an assumption that the pesticide has been tested and is safe if label instructions are followed. But pesticides sicken and can even kill people. Prenatal exposure to pesticides can adversely affect the unborn fetus (Bouchard et al., 2011; Engel et al., 2011). Urban and agricultural pesticide use contaminates terrestrial life and runs off into waterways (Sargeant et al., 2013). Pesticide industry interests use the requirement to follow the label to promote pesticide safety (Understanding why pesticides are used, n.d.) yet pesticide labels are hard to read and understand. When data emerge that indicate new risks posed by pesticides, intervention efforts often consist of merely adding more language to the label. Also, pesticide labels may not adequately warn of the potential for harm, as evidenced with the herbicide glyphosate. When testing methods and research evolved, this seemingly innocuous pesticide was exposed as a probable carcinogen. Regulators and pesticide industry interests place too much emphasis on following the label instructions to prevent harm, even as contamination and the poisoning of people and the earth increases, an indication that reliance placed on compliance with the pesticide label does not prevent unreasonable harm.

Human Health

For the period 2008-2012, 90% of conventional pesticide usage was in the agricultural sector (Atwood et al., 2017). A 2008 study of agricultural workers found acute pesticide poisoning among 71% of farmworkers and 3% of farmers (Calvert et al., 2008). Agricultural workers may be exposed to pesticides not only when applying pesticides, but during mixing, loading and working with application equipment. Agricultural workers and their families are exposed to pesticides that follow workers home on their clothing, and in their vehicles (Thompson et al., 2014). Farmworkers conducting non-pesticide-related job tasks such as thinning, tying branches, etc., are often exposed to pesticides that drift from applications made by neighboring farms or even the same farm. Agricultural pesticide drift is the most common factor contributing to pesticide exposure among agricultural workers (Calvert et al., 2008).

The pesticide class pyrethroids accounts for the most reports of non-occupational, acute illness related to pesticides (excluding disinfectants) (CDC, 2016). Pyrethroids are neurotoxins, and as such impact the transmission of messages carried by nerves. Pyrethroid usage increased after EPA banned most uses of organophosphates (another insecticide class) for the majority of home and garden uses at the beginning of this century (EPA, 2000). Organophosphates are still registered for agricultural use. Pyrethroids consist of numerous active ingredients (which are the chemicals that act to control pests) found in consumer products such as lice shampoos, total release foggers, indoor-outdoor perimeter sprays and also in many commercial products for pest control professionals. Pyrethroid insecticides are frequently sprayed indoors for bedbug treatments. As with other pesticides, pyrethroid products often contain petroleum distillates, synergists, and other ingredients that can increase a pesticide's toxicity. Along with neurological and gastrointestinal acute health effects associated with pyrethroid exposure, a 2014 study looking at pyrethroid-related illnesses found symptoms associated with asthma significantly

more prevalent among exposure to pyrethroids and their non-synthetic counterpart pyrethrins than to other illnesses associated with other pesticide exposures (Hudson et al., 2014). The same study identified five fatalities associated with pyrethroid exposure, including two children under the age of two-years-old. Despite mounting data, EPA has not required label changes to pyrethroids alerting of the potential for asthma exacerbation (EPA, 2009).

The Pesticide Label

Pesticide labels are difficult to understand. A study, evaluating understanding and adherence to pesticide label instructions found that a visual acuity of 20/30 is required to read the average label, while 20/40 is required to read a Restricted Use Pesticide (RUP) label (Lockwood et al., 1994). Pesticide active ingredients are identified on the pesticide label. A signal word corresponding to EPA's evaluation of active ingredient toxicity risks also appears on the label, signal words in order from least toxic to most toxic are: CAUTION, WARNING, and DANGER/PELIGRO. The other ingredients in pesticide products can increase a pesticide's toxicity such as surfactants, petroleum distillates and adjuvants, but pesticide companies are allowed to withhold this information as trade secrets. Also, different pesticides may be mixed together by users unless specifically prohibited on the label. Multiple pesticides can have a synergistic effect and there are no standard tests for calculating toxicity of pesticide product mixtures. Labels sometimes contain multiple pages of information that must be understood and followed in order to comply with federal law. For example, agricultural product labels contain language to protect workers such as the minimum personal protective equipment required for specific tasks and the minimum amount of time required to wait before reentering a treated area. The label also states: "Do not apply this product in a way that will contact workers or other persons, either directly or through drift;" thereby making it illegal to allow spray to contact people directly or in a way such that the pesticide is carried off-target through the air. In their

2016 report to the legislature, the Washington State Department of Agriculture (WSDA) reported that “drift continues to be the most frequent type of investigation involving pesticide applications” (WSDA, 2017).

Pesticides known to be highly toxic to aquatic life or bees, such as pyrethroids, include language prohibiting application in a manner that will affect waterways or pollinators. Pesticides restricted to persons with training and specific licensure are labeled RUPs. However, with most RUPs, there are exceptions for untrained personnel to use the pesticide, essentially neutralizing requirements meant to decrease risk. Labels carry extensive instructions for calibrating equipment to apply exact amounts of pesticide according to size of area to be applied. Washington State law also exempts groundskeepers, forest or farm owners, and other business owners from having to obtain a license if pesticide application is not a primary part of work tasks (WAC, 2003). Exempting these occupations from the requirement to obtain a license may increase the possibility for pesticide misuse and risk to themselves and others.

Consumers have wide access to a range of relatively inexpensive pesticide products sold at hardware stores, grocery stores and even retail pharmacies. Household bleach is an EPA registered antimicrobial pesticide. After pyrethroids and pyrethrins, exposure to bleach is the most commonly reported pesticide exposure to the national poison data system (Roberts, 2013). Bleach is corrosive. To find out how to use bleach according to the directions, including never to use full strength to clean surfaces, it is necessary to read an extremely small font. In small print, the words “DANGER: CORROSIVE” are visible, as well as KEEP OUT OF REACH OF CHILDREN. But the precautionary statements regarding hazards to humans and animals: “Causes irreversible eye damage and skin burns. Harmful if swallowed” are in smaller print and barely legible (Clorox, 2017).

Glyphosate

In 2015, the International Agency for Research on Cancer (IARC) classified the herbicide glyphosate as a probable carcinogen. Monsanto, the company that created glyphosate-containing *Roundup* and the genetically modified seeds that tolerate glyphosate, has disputed IARC's carcinogen classification and actively promotes glyphosate's benefits and safety on their website (Glyphosate, 2017). Glyphosate is the most heavily applied pesticide in the U.S. (Atwood, 2017). By itself, glyphosate is considered less toxic than the adjuvants with which it is formulated (Mesnage R, 2012). That said, glyphosate containing herbicides are one of the leading pesticides associated with acute illness and injury (CDC, 2016; CDC, 2016). Glyphosate's initial EPA approval in the 1970's was based on limited data, which led regulators to conclude that glyphosate would pose minimal risks to mammals (Myers et al., 2016).

Society benefits from pesticides that serve to protect public health, such as repellents and insecticides for disease-carrying mosquitos and disinfectants that make water safe to drink. Pesticides are used to protect food supply and forests from decimation by pests. But pesticides are also a commodity, manufactured and marketed for sale and profit. EPA and state pesticide regulatory authorities are charged with enforcement of pesticide laws and regulations to protect against unreasonable harm. Over the past 20 years, the federal government has developed standards to address agricultural worker health and states have devoted resources to manage pesticide training programs. But despite these advances, a 2008 study found that agricultural workers continued to have a high risk for acute pesticide poisoning (Calvert et al., 2008). Current pesticide labeling policy does not appear to be adequately protecting the pesticide user, others, and the environment. In order to protect current and future generations from the harmful effects of pesticides, more resources are needed to improve the lengthy reregistration process to identify and withdraw registration of highly toxic pesticides.

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