

**From:** Jocelyn Suero  
**To:** John H. Brown; Meehan, Laura  
**Date:** 9/28/2010 11:06 AM  
**Subject:** Fwd: CIPA comments

>>> Anne Katten <akatten@crlaf.org> 9/24/2010 3:59 PM >>>  
September 24, 2010

Jocelyn Suero  
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Via email

RE: Comments on: Cumulative Impacts: Building a Scientific Foundation

Dear Ms. Suero:

Thank you for providing the opportunity to comment on this important report. I appreciate all the hard work of the OEHHA staff on this report and the Cumulative Impacts and Precautionary Approaches project in general. I appreciate the very clear and accessible style of the report and realize that this is a challenge with complex subject matter. These comments are both late and rushed because I had mistakenly written down September 27th as the deadline for comments.

Here are a few specific comments to supplement oral comments at the CIPA meeting: They are specific to health disparities and exposures I am most familiar with.

#### Chapter 1 Health Disparities

I think the discussion in Chapter 1 on Health Disparities is somewhat incomplete and potentially misleading with regard to health disparities for Latinos or Hispanics and in particular farmworkers and other low income, linguistically isolated Hispanics and other recent immigrant populations, particularly those who lack legal documentation. It is impossible to accurately gauge the health status of the undocumented immigrant population and low income rural immigrant population of California because of their very limited access to health care. Limited access to health care of course affects the rate of health care utilization for asthma and other illnesses. Disparities can also vary by region. It is my understanding that in the central valley there is a very high rate of childhood asthma and also a large population of low income Latinos with very limited access to health care.

Access to health care of course also contributes to later stage diagnosis of cancer and other chronic diseases. Some fairly recent papers by Paul Mills

have documented the problem of later stage diagnosis of cancer in farmworkers in California.

The attached California Department of Public Health Services fact sheet points to some health disparities affecting Latinos in California. Latinos have a higher incidence of stomach, liver and cervical cancer than non Latino whites and Diabetes is 1,8 times more prevalent among Mexican Americans than non-Hispanic whites and Latinos in California have more limited access to health care than non-Hispanic whites or African Americans.

Also, nationally and I believe also in Calif., Latino workers have the highest rate of workplace fatalities though the gap is closing according to the attached recent NY Times article.

#### Exposure Disparities

I think the discussion of exposure disparities in Chapter 1, pg. 12 should also reference some of the studies conducted in California, North Carolina, Washington state and Oregon which show disproportionate exposure of farmworkers and their children to pesticides. Many of these studies are referenced in the attached letter to USEPA. The report should expand on discussion of the studies conducted by Whyatt in New York city which found a reduction in adverse health effects among children after household exposure to organophosphate insecticides was eliminated.

#### Chapter 3

In Chapter 3, Table 2, Potential indicators for different cumulative impact components, agricultural pesticide exposure, with indicator of level of reported agricultural pesticide use should be included. This could be refined to reported use of pesticides that are listed as toxic air contaminants or hazardous air pollutants, cholinesterase inhibiting pesticides (which are a particular concern for children and pregnant women), and Proposition 65 listed carcinogens and reproductive toxins. Failing this, a major source of chemical exposure in rural areas will be completely missing.

Known sources of soil and drinking water contamination should also be included as components.

Thank you for this opportunity to comment and to participate in the CIPA Workgroup

Sincerely

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<http://www.ncbi.nlm.nih.gov/pubmed/19052868>

related citations also

J Immigr Minor Health 2010 Aug;12(4):433-44.

## **Immigration, health care access, and recent cancer tests among Mexican-Americans in California.**

[Breen N.](#), [Rao SR.](#), [Meissner HI.](#)

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### **Abstract**

Immigrants' lower rates of cancer testing may be due to lack of fluency in English and other skills and knowledge about navigating US health care markets, lack of access to health services, or both. We analyzed 9,079 Mexican-American respondents to the 2001 California Health Interview Survey (CHIS) grouped as born in the US, living in the US 10 or more years, or living in the US less than 10 years. The CHIS provides the largest Mexican-American sample in a US survey. Access to care meant having health insurance coverage and a usual source of care. English proficiency meant the respondent took the interview in English. Multivariate logistic regression was used to predict outcomes. Respondents reporting more time in the US were more likely to report access to medical care and to report getting a cancer screening exam. Regardless of time in the US, respondents reporting access had similar test rates. Regression results indicate that time in the US and primary language were not significant relative to use of cancer screening tests, but access to care was. Cancer screening tests that are covered by Every Woman Counts, California's breast and cervical cancer early detection program, had smaller gaps among groups than colorectal cancer screening which is not covered by a program. California is the only state with a survey able to monitor changes in small population groups. Understanding barriers specific to subgroups is key to developing appropriate policy and interventions to increase use of cancer screening exams.



# Latino Health Statistics

Among California Latinos, heart disease, cancer, stroke and diabetes account for over 54 percent of all deaths.<sup>1</sup> The California Department of Public Health created the *Network for a Healthy California—Latino Campaign* to help put a stop to this health crisis.

## RISK FACTORS

### Diet

- Latino adults, on average, consume 5.7 servings of fruits and vegetables per day, when 7-11 are recommended for good health.<sup>2</sup>
- Half of Latino adults eat fewer than 5 servings of fruits and vegetables per day, the old recommendation.<sup>2</sup>
- Nearly 70 percent of Latinos say that fruits and vegetables are hard to buy in fast food restaurants, while 66 percent report that fruits and vegetables are difficult to get at work. Thirty-eight percent say that fruits and vegetables are too expensive.<sup>3</sup>
- Sixty-seven percent of low-income Latino adults ate fast food at least one time in the past week, and 20 percent ate fast food three or more times in the past week.<sup>4</sup>
- Over one-third (34%) of low-income Latino adolescents consumed two or more glasses of soda or other sugary drink on the previous day.<sup>5</sup>

### Physical Activity

- Only 47 percent of California Latino adults get the minimum 30 minutes of moderate physical activity five days a week or 20 minutes of vigorous physical activity at least three times a week.<sup>6</sup>
- Forty percent of California Latinos say they are too busy to be more physically active.<sup>7</sup>
- Thirty-two percent of California Latino adults did not engage in any physical activity or exercise in the previous month.<sup>6</sup>

### Overweight and Obesity

- Thirty-eight percent of low-income California Latino adults are already overweight, and 31 percent of low-income California Latino adults are obese according to self-reported heights and weights.<sup>8</sup>

- Excess weight is associated with an increased incidence of cardiovascular disease, type 2 diabetes, hypertension, stroke, dyslipidemia, osteoarthritis, and some cancers.<sup>9</sup>
- Overweight adolescents are at increased risk for becoming obese adults and for developing chronic, serious, and costly medical problems like cardiovascular disease, type 2 diabetes, and hypertension. More than 1 out of 3 (37%) Latino adolescents in California are overweight or at risk for overweight.<sup>10, 11</sup>

### Food Security

- In 2007, 11 percent of U.S. households were food insecure. Latinos experienced nearly twice the rate at 20 percent.<sup>12</sup>
- Thirty-nine percent of low-income Latino adults in California experience food insecurity, that is, they said they could not afford to put food on the table on a consistent basis in the previous year.<sup>13</sup>
- Nearly 1 out of every 5 Latinas ate less during the previous year to ensure their family members had enough to eat.<sup>14</sup>

### Cardiovascular Disease

- Cardiovascular disease is the leading cause of death among California Latinos, accounting for 22 percent of all deaths.<sup>1</sup>
- Nationally, 32 percent of Mexican-American men and 34 percent of women have cardiovascular disease (CVD).<sup>15</sup> CVD includes diseases of the heart, stroke, high blood pressure, congestive heart failure, congenital cardiovascular defects, hardening of the arteries, and other diseases of the circulatory system.
- Twenty-four percent of California Latinos have been diagnosed with hypertension. U.S.-born Latinos are more likely to have been diagnosed with hypertension than foreign-born Latinos.<sup>16</sup>

## Cancer

- Cancer incidence rates in California declined by 10 percent from 1988 to 2003. Despite this, one in four deaths in California is due to cancer.<sup>17</sup>
- Cancer ranks as the second leading cause of death among California Latinos, accounting for over 20 percent of all deaths.<sup>1</sup>
- Prostate, colorectal, and lung cancers are the most commonly diagnosed among Latino men. Breast, colorectal, and lung cancers are the most commonly diagnosed among Latina women.<sup>18</sup>
- Although incidence of cancer is generally lower among Latinos than non-Hispanic whites, the incidence of stomach, liver, and cervical cancer is significantly higher among Latinos.<sup>18</sup>

## Diabetes

- Nationally, 10.4 percent of all Mexican Americans aged 20 years or older have diabetes (type 1 and type 2). Compared to non-Hispanic whites, the prevalence of diabetes is 1.8 times higher among Mexican Americans.<sup>19</sup>
- Eleven percent of adult California Latinos have been diagnosed with diabetes. Sixty-seven percent of those with diabetes have type 2 diabetes.<sup>16</sup>

- In California, diabetes accounts for 5.6 percent of all deaths among Latinos.<sup>1</sup>

## OVERALL HEALTH STATUS

- Thirty-seven percent of low-income California Latinos rate their overall health status as fair or poor.<sup>20</sup>

## LIMITED ACCESS TO CARE

- Twenty-nine percent of low-income California Latinos were uninsured in 2007, as compared to 18 percent for non-Hispanic whites and 15 percent for African-Americans.<sup>21</sup>

## TOTAL COST OF DIET- AND INACTIVITY-RELATED DISEASES IN THE UNITED STATES

- Obesity \$117 billion<sup>22</sup>
- Cancer \$206.3 billion<sup>23</sup>
- Diabetes \$174 billion<sup>24</sup>
- Coronary heart disease \$142.5 billion<sup>25</sup>
- High blood pressure \$63.5 billion<sup>25</sup>
- Stroke \$57.9 billion<sup>25</sup>
- Total Cardiovascular Disease \$403.1 billion<sup>25</sup>

In California, physical inactivity, obesity, and overweight cost an estimated \$21.7 billion in 2000 as direct and indirect medical care, workers' compensation, and lost productivity.<sup>26</sup>

This information is brought to you by the *Network for a Healthy California—Latino Campaign*.  
Visit us at [www.networkforahealthycalifornia.net](http://www.networkforahealthycalifornia.net).

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This material was produced by the California Department of Public Health, *Network for a Healthy California*, with funding from the USDA Supplemental Nutrition Assistance Program (formerly the Food Stamp Program). These institutions are equal opportunity providers and employers. In California, food stamps provide assistance to low-income households, and can help buy nutritious foods for better health. For food stamp information, call 877-847-3663. For important nutrition information, visit [www.cachampionsforchange.net](http://www.cachampionsforchange.net).



July 2009

August 27, 2010, 12:57 pm

## **Are Working Conditions Really Getting Less Dangerous for Hispanic Laborers?**

By [STEVEN GREENHOUSE](#)

In recent years, one of the most discomfiting work force trends was that Hispanics suffered a considerably higher fatality rate from workplace injuries than did workers overall. In its [annual census of fatal workplace injuries](#) for 2006, the Bureau of Labor Statistics found that the fatality rate for Hispanics was 30 percent higher than for the overall work force.

“Those numbers were very embarrassing,” said Peg Seminario, the [A.F.L.-C.I.O.](#)’s director of safety and health. “They were surprisingly high. They were so bad nobody could ignore them.”

Those statistics alarmed Hispanic groups, prompting many to complain that Hispanic immigrants, especially undocumented ones, were often steered into dangerous jobs, like roofing and demolition. There were further complaints that Hispanic workers were too often given little safety training, which was all the more important considering that many did not speak or read English.

Last week there was some good news when the B.L.S. released its [annual census of workplace fatalities](#) — it reported a 17 percent drop in fatal workplace injuries in 2009 compared with the previous year. (Some of that was of course due to the decline in employment and the 6 percent drop in total hours worked.)

That report contained one largely overlooked piece of good news. The gap in the fatality rate between Hispanic workers and the overall work force had apparently narrowed. According to the B.L.S., the fatality rate for Hispanic workers was 3.7 per 100,000 full-time equivalent workers in 2009, down from 5.3 per 100,000 in 2006. That’s a happy and healthy 30 percent drop.

For the overall work force, the fatality rate from workplace injuries was 3.3 per 100,000 in 2009. That means the rate for Hispanics was 12 percent higher than for the total work force, down considerably from the 30 percent gap three years earlier.

According to the bureau, 668 Hispanics died from workplace injuries in 2009, compared with 990 in 2006. Moreover, for foreign-born workers, fatal occupational injuries fell to

383 last year, down an impressive 43 percent from 667 in 2006. For workers born in Mexico, the bureau said, fatal workplace injuries fell to 269 last year, down 43 percent from 465 three years earlier.

“These are encouraging numbers,” said [Dana Loomis](#), an expert on workplace fatalities and chairman of the department of epidemiology at the University of Nebraska Medical Center. “I hope these numbers are true. It’s consistent with the overall downtrend in fatalities that we’ve seen in recent years. But there are reasons to be somewhat skeptical about the statistics.”

Mr. Loomis said skepticism was warranted about the sharply declining fatality rate for Hispanic workers because the “denominator,” the total number of Hispanics employed, might be dropping rapidly and might not have been accurately estimated.

He asked, “How much of this decline is due to the decline in the Hispanic work force that is not well measured, especially among the undocumented work force?”

Mr. Loomis said it was hard to estimate how many undocumented workers from Mexico or Central America have returned home — or have perhaps moved from dangerous construction jobs to less dangerous jobs like picking fruits and vegetables.

Perhaps the trend of workers returning to Mexico and other countries south of the border, largely because of the bad economy and the immigration crackdown, helps explain why the fatality rate for foreign-born Hispanics fell sharply last year – remember, many of them held the most dangerous jobs. At the same time, the fatality rate for native-born Hispanics workers was largely unchanged.

The Bureau of Labor Statistics said that one major factor behind the sharp decline in fatal injuries reported last year was that some deficit-plagued state agencies have been far slower than usual in collecting and reporting information about fatal injuries.

Ms. Seminario of the A.F.L.-C.I.O. said the slow reporting of some states that have large Hispanic work forces, most notably California, might also help explain the surprisingly sharp drop in fatal workplace injuries among Hispanic workers. She, too, was skeptical of the sharp drop in reported fatalities for Hispanic workers.

According to the bureau, 70 foreign-born workers in California died from workplace injuries in 2009, down 30 percent from 100 in 2008 (and down from 178 in 2006). In Texas, the bureau reported, 102 foreign-born workers died from fatal injuries in 2009, up from 79 the previous year, while in New York, 25 foreign-born workers died in 2009, down from 30 the previous year.

Catherine Singley, an occupational safety expert with the [National Council of La Raza](#), a Hispanic advocacy group, says construction trends have played a major factor.

“A lot of the decline in fatal injuries resulted from the decline in construction, especially workers in residential construction, which typically has been a hot spot for fatalities,” she said. “Every year many workers die from falling off roofs, and not coincidentally you find a heavy presence of Latino and immigrant workers in those jobs.”

All this reminds me of a passage in my book, [“The Big Squeeze: Tough Times for the American Worker”](#):

Soon after leaving Mexico, Moises and Rigoberto Xaca landed jobs in Blythewood, South Carolina, digging trenches for electrical and telecommunications lines for a new high school. On their first day on the job, the two brothers were crushed to death when the trench’s sandy walls collapsed. Moises was seventeen, and Rigoberto, fifteen. OSHA fined the contractor \$42,075 for six violations, including failure to analyze the soil and failure to instruct the workers on how to prevent a trench collapse. Maria Smoak, director of the Hispanic ministry at St. Peter’s Catholic Church in Columbia, South Carolina, asked whether the contractor would “be as careless or as negligent if they had been non-Hispanic workers.”

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December 1, 2009

Steve Owens

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William R. Diamond

Director, Field and External Affairs Division  
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Dear Mr. Owens and Mr. Diamond:

We appreciate your willingness to discuss issues of concern regarding pesticide exposures to farmworkers and their families. This letter is in response to your and your staff's recent inquiries regarding demographics, exposure, and incident data for farmworker children. We provide an overview of known data, as well as published research about the special vulnerabilities of children to pesticide exposure. We conclude with recommendations for ways that the EPA can help to provide greater protection to this most vulnerable population.

In sum, EPA needs to engage in major reform of how it regulates pesticides. All registration discussions and analyses must fully factor in the presence of all children and the acute and chronic health effects that pesticides may cause in them. A full accounting of children's exposures and vulnerabilities must be accompanied by a shift to a precautionary approach. A commitment to precaution must lead to phase-outs for many pesticides that have shown cause for concern, such as organophosphates. During interim periods prior to phase-out deadlines, EPA needs to reduce exposures as much as possible by imposing measures such as additional margins of safety, buffer zones, full enforcement of existing laws, and improved training for farmworkers.

#### Data on Farmworker Children

The number of farmworkers in the United States, or the number of their children, is unknown. We can estimate roughly that farms and ranches in the United States employ approximately 2.0 million farmworkers,<sup>1</sup> and that of this group about one-half, or 1 million, are parents, and that these parents have about 2.0 million minor children.

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<sup>1</sup> A commonly-used figure for the number of farmworkers is 2.5 million, (Report of the Commission on Agricultural Workers, 1992), but one agricultural labor economist recently estimated 1.83 million hired farmworkers. (Martin 2009).

The Department of Labor's National Agricultural Workers Survey (NAWS) provides an ongoing portrait of what the average farmworker family looks like.<sup>2</sup> Fifty-eight percent of farmworkers are married and seventy-nine percent of farmworkers are male. About 50% of farmworkers are parents and these parents have an average of 2.4 children.<sup>3</sup> The average age of a farmworker is 35; the large majority of farmworker parents have children who are still minors (i.e. age 17 or younger). The parents have an average of 2.0 children who are minors.<sup>4</sup> More than 2/3 of the farmworker parents live with all of their children and about 30% of the parents are not accompanied by any of their children. The large majority of the latter children live in Mexico but some live elsewhere in the United States.<sup>5</sup>

### Children in Migrant Families

The Migrant Education Program (MEP) – which serves children of agricultural workers in the U.S. who have *migrated* for seasonal employment -- counted 656,874 children eligible for their school programs. Of these children, 13% were between the ages of 0 and 5 years old, 36% were elementary school age, and 20% were in high school.<sup>6</sup> These numbers only reflect the portion of eligible migrant students that the MEP could locate. In North Carolina, for example, the MEP counted 203 children in three counties between January and September of 2009 yet they believe this only represents 65-70% of all migrant children in those three counties.<sup>7</sup>

A series of studies that were conducted by Dr. Alice Larson, that were intended to calculate the number of farmworkers in major agricultural states, contains estimates of the number of children of both migrant<sup>8</sup> and seasonal farmworkers. These “enumeration profiles” include field and orchard workers as well as packers and processors of produce, but exclude farmworkers engaged in work regarding livestock and poultry. The following excerpts from the studies give an idea of how many migrant and seasonal youth there are.

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<sup>2</sup> U. S. Dept. of Labor, Employment and Training Administration, National Agricultural Workers Survey (NAWS), Report No. 9 (2005) is based on data from 2001-2002. This is the most recent published NAWS report. We have obtained unpublished reports from the NAWS issued in 2006 (based on data from 2003-4) and 2008 (based on data from 2005-2007). All three sources are used.

<sup>3</sup> NAWS (2006) (Data from 2003-2004), p. 50. The data from 2005-2007 show that 52% are parents and that they have an average of 2.24 children.

<sup>4</sup> The rough estimate of 2 million minor children assumes a farmworker population of 2 million and simply applies the NAWS findings about crop workers who are parents of minor children (50% and an average of 2 minor children). Among the problems with this estimate is the fact that the NAWS does not study livestock workers, who are among the 2 million farmworkers. In addition, some of the parents may be married to each other and therefore their children are counted twice. Also, a minority of these children did not live in the United States.

<sup>5</sup> NAWS p. 11

<sup>6</sup> Migrant Education Program. 2009. *Table 21: MEP Eligible Children by State and Grade Span (2005-06)*. <http://www.ed.gov/programs/mep/resources.html#data>. The MEP's definition of “migrant” includes people who have migrated for agricultural work at least once in the past 3 years, and thus can include some recently “settled out” farmworker families.

<sup>7</sup> Bailey, M. 2009. *Staff Observations*, Lenoir County Migrant Education Program. Presented at Children in the Fields Forum. Raleigh, NC, September 22, 2009.

<sup>8</sup> “Migrant” farmworkers and their family members are defined as those who establish “for the purposes of such employment a temporary abode.” We do not take a position on the accuracy of these or other studies cited, but use them as general indicators.

- The Michigan study found 45,800 migrant and seasonal farmworkers combined, and, within their households an additional 90,716 non-farmworkers. The average household included 5 people. On average, each household included 2.5 individuals under the age of 20 years, including 30,764 migrant children and youth and an additional 10,274 seasonal children and youth.<sup>9</sup> A separate Michigan study found that 70% to 75% of the migrant workers in the state came from Texas and Mexico, while another 25% arrived from Florida.
- The Oregon study found 14,558 migrant children and youth (88% of whom were age 18 or younger) and an additional 44,905 seasonal children and youth.<sup>10</sup>
- The California study, which found 732,000 migrant and seasonal farmworkers in that state, estimated that there were almost 91,000 migrant children and youth, and over 325,000 seasonal children and youth (about 97% of whom were age 18 or younger).<sup>11</sup>
- The Florida study counted 197,000 migrant and seasonal farmworkers, plus 55,511 migrant children and youth ages infant through 19, and 36,442 seasonal children and youth.
- The Washington State study found 185,000 farmworkers, and 17,082 migrant children under the age of 20, and 74,312 seasonal children.

### Children Working in the Fields

Some children of farmworkers are also farmworkers themselves, working either alongside their parents or on their own in the United States. The exact number of children currently laboring in U.S. fields and orchards is difficult to determine due to the mobile nature of these children's work, the reluctance of many children and their employers to report their employment or their correct age, limited resources to count them, and the fact that children may work in the fields for a few hours after school or on weekends to help supplement the family income. Some estimate that between 400,000 and 500,000 children work on U.S. farms and ranches.<sup>12</sup>

The Department of Labor's NAWS recently found that 10% of farmworkers are teenagers: 3% were aged 14-17 and 7% were aged 18-19.<sup>13</sup> The large majority (about 2/3) of these teenage farmworkers are undocumented immigrants.<sup>14</sup> If there are 2 million farmworkers, then about 200,000 are aged 14-19, according to this study. This figure, in addition to possibly undercounting that age group, does not count children who are ages 12-13 (some of whom may work legally), or those who are younger and work illegally.

A recent ABC News investigation reported child labor law violations on farms in North Carolina, Michigan and Arkansas, and subsequent fines levied by the U.S. Department of

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<sup>9</sup> Larson, A. 2006. *Migrant and Seasonal Farmworker Enumeration Profiles Study: Michigan*, Michigan Interagency Migrant Services Committee.

<sup>10</sup> Larson, A. 2002. *Migrant and Seasonal Farmworker Enumeration Profiles Study: Oregon*.

<sup>11</sup> Larson, A. 2000. *Migrant and Seasonal Farmworker Enumeration Profiles Study: California*, U.S. Dept. of Health and Human Services, HRSA, BPHC, Migrant Health Program, Washington, D.C. California is generally assumed to employ about 35% to 40% of the nation's farmworkers.

<sup>12</sup> Hess, B., *Children in the fields: An American problem*. Association of Farmworker Opportunities Programs, Washington, D.C., 2007.

<sup>13</sup> NAWS (2008)

<sup>14</sup> NAWS (2006), p. 9.

Labor.<sup>15</sup> It should also be noted that many children can and do work in the fields *legally*. Federal child labor law generally imposes various restrictions on the kinds of jobs that children under age 18 can do, as well as limitations on the number of hours that they can work. However, for children working in agriculture, the protections are considerably less, and in fact there are two categories of children working in agriculture who have no child labor protections at all: (1) a child who is at least 16 years old may perform any farm job, including agricultural occupations declared hazardous by the Secretary of Labor, at any time, including during school hours; and (2) a child working on a farm owned or operated by a parent (or person standing in place of the parent) has no child labor protections under federal law. Under various other provisions, children as young as 12 years old can work in agriculture, and even younger children can work on small farms with their parents' permission.<sup>16</sup> Thus, even full compliance with labor laws will not prevent the presence of children working in the fields.

### Young Children in the Fields

Farmworkers often bring young children into the fields with them, because of the lack of affordable daycare. The U.S. General Accounting Office has reported that seven percent of farmworkers with children five years or younger took their children with them, at least sometimes, when they worked.<sup>17</sup>

The federal government funds Head Start programs for pre-school children and has a special program aimed at migrant and seasonal farmworkers' children. If farmworkers are able to overcome the obstacles in the application process, and are able to overcome fears or apprehensions due to their immigration status, they often find long waiting lists to enter many of these programs. Consequently, many eligible farmworker children are losing out on educational opportunities and must spend time with their parents in or near the fields.<sup>18</sup>

The East Coast Migrant Head Start (ECMHS) program is available to infants, toddlers, and pre-school age children of farmworkers. ECMHS operates 92 centers for farmworker children in eleven states and is growing to meet the needs of farmworkers' children.<sup>19</sup> About 35,000 farmworker children are enrolled in the Migrant Head Start program. ECMHS estimates that this number represents 1/5<sup>th</sup> of all farmworker children eligible for the program.<sup>20</sup> Children who cannot get a space in the program are often left in the care of family friends, enrolled in a state-run pre-kindergarten program if it is available, or more often than not brought to the fields with their parents.<sup>21</sup> In one of the recent news articles about children working in the fields, an

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<sup>15</sup> ABC News Investigation: The Blueberry Children. October 30, 2009. <http://abcnews.go.com/Blotter/young-children-working-blueberry-fields-walmart-severs-ties/story?id=8951044>; U.S. Department of Labor News Release. August 10, 2009. U.S. Department of Labor uncovers child labor and migrant and seasonal farm labor violations on Bladen and Craven counties, N.C., blueberry farms. <http://www.dol.gov/opa/media/press/esa/ESA20090847.htm>

<sup>16</sup> U.S. Department of Labor, Child Labor Regulations, 29 CFR 570.2

<sup>17</sup> U.S. General Accounting Office, *Pesticides: Improvements Needed to Ensure the Safety of Farmworkers and their Children*, March 14, 2000.

<sup>18</sup> Armario, Christine (Associated Press), "Migrants' children face hazards: Farm fields are dangerous substitutes when suitable day care is lacking," October 4, 2009.

<sup>19</sup> East Coast Migrant Head Start Program (2009). *About Us-Our Mission Statement*. <http://www.ecmhsp.org/default/aboutus.html>

<sup>20</sup> Associated Press, "Out of Fields, Into Class for Migrant Kids," *The New York Times*, September 28, 2009.

<sup>21</sup> *Id.*

employer for whom child labor law violations were alleged was quoted as saying, “The school here for migrant farmworkers’ kids closed for a week because of the swine flu. And we had our funding cut a couple years ago for kids’ daycare. **Growers everywhere are saddled with trying to keep kids out of the fields.**” (Emphasis added.)<sup>22</sup>

Children of farmworkers are a particularly vulnerable population that may need to work to support their families, or simply come with their parents to the fields so they will not be home unsupervised. Farmworker parents understand that education is vital to their children’s success but are faced with economic and practical obstacles that make keeping their children in school very difficult. Financial strain often means children help their parents in the fields in order to afford food and clothing for the family.<sup>23</sup>

### Homes, Schools and Daycares near the Fields

Even if children do not enter fields to work, play or accompany their parents, many live, attend school, or go to daycares very close to them. For major pesticides in widespread use there is ample documentation that the pesticides drift to the areas where children play.

We would welcome the chance to show you what we mean. In Washington State, for example, farmworker community members have organized tours to show policymakers and others just how close children (and adults) are to orchard trees that are sprayed with pesticides. The tour bus passes by numerous homes and daycares that are within yards of orchard trees. One of the stops on the Washington State tour is a daycare in the middle of an orchard. At all of these sites, “Danger Pesticide - Do Not Enter” signs are posted on the fields, but entering homes and daycares is tantamount to entering an orchard.

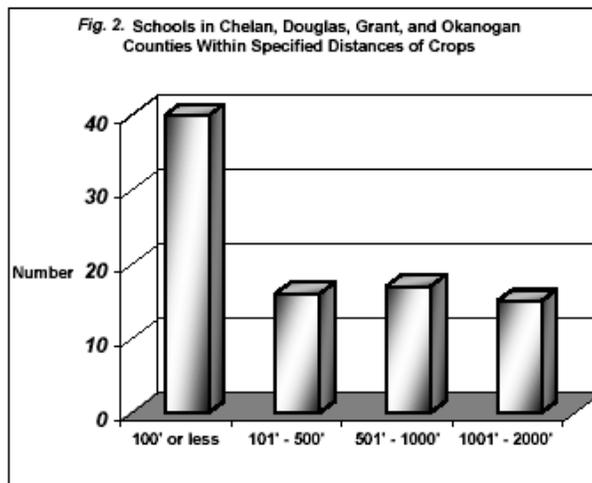
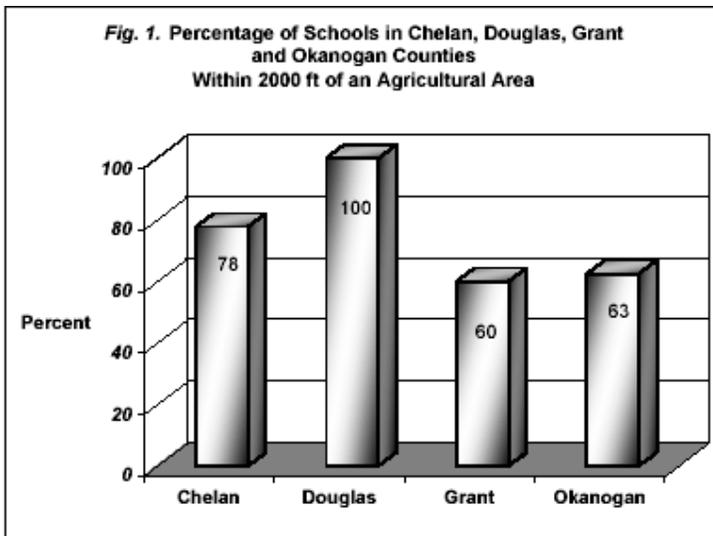
The Washington State Department of Agriculture (WSDA) compiled partial data in 2001 on the proximity of schools to fields where pesticides are used in select counties in Washington State. The WSDA charts below show that in four agricultural counties, a majority of schools are located within 2000 feet of agricultural fields. In Douglas County, *all* schools are located in close proximity.<sup>24</sup>

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<sup>22</sup> Bob Luder. November 2, 2009. *The Packer*. Growers’ labor violations seen as ‘wake-up call’, <http://thepacker.com/Department-of-Labor-levies-fines-for-child-labor-violations/Article.aspx?articleid=931342>

<sup>23</sup> Cranston-Gingras, A.. 2003. Reconnecting youth from migrant farworker families, *Reclaiming Children and Youth*, 11(4), 242-246.

<sup>24</sup> Washington State Department of Agriculture, Recent drift complaints around schools prompt WSDA Review, WSDA Pesticide Notes, July 2001, p. 6; <http://agr.wa.gov/PestFert/Publications/docs/2001PesticideNotes.pdf>



### Farmworker Pesticide Poisoning Incident Data

A recent study of acute pesticide poisoning between 1998 and 2005 among agricultural workers in the United States<sup>25</sup> found an average annual acute pesticide poisoning rate of 0.07% or 51 cases per 100,000 FTE farmworkers. Researchers cautioned that this should be considered a low estimate because of the many factors contributing to underreporting including failure of affected workers to get medical care, seeking medical care in Mexico outside the U.S. surveillance system, misdiagnosis and health provider failure to report in the 30 states where reporting is required. They also note that 76% of farmworker illnesses in Washington and 34% in California, the states with the most established surveillance systems, were identified through the workers' compensation system, and that Oregon (7%) and Texas (4%) were the only other states identifying pesticide illnesses through workers' compensation. These researchers observed that in the NAWS 1999 survey, 1.4% of farmworkers interviewed attributed health effects to pesticide exposure from drift, spills, or cleaning and repair of pesticide equipment and containers, suggesting a rate of illness 20-fold higher than found through surveillance. We note

<sup>25</sup> Calvert et al. 2008. Acute Pesticide Poisoning Among Agricultural Workers in the United States, 1998–2005. American Journal of Industrial Medicine. Volume 51:883-898.

that the NAWs survey did not ask about illness from contact with treated plants, inhalation of fumigant gases, or volatilization: significant sources of exposure, especially when field sanitation facilities are not present. In addition, NAWs only interviews a sample of workers of employers who agree to cooperate. This helps assure that only workers currently employed in agriculture are interviewed but it also excludes workers on farms most concerned about outside scrutiny where work conditions may be more hazardous. In contrast, 68% of Florida nursery and fernery workers reported one or more symptoms they attributed to work pesticide exposure in the survey conducted by the Together for Agricultural Safety (TAS) NIEHS-funded community based research and intervention project.<sup>26</sup>

Factors deterring farmworkers and their families from seeking medical care for pesticide illness include lack of health insurance, language barriers, immigration status, cultural factors, lack of transportation, lack of awareness of or exclusion from workers' compensation benefits, and fear of job loss.<sup>27</sup> Many farmworkers live in remote, rural areas at a significant distance from health clinics and even further away from a hospital or urgent care center. As farmworker advocates, we frequently hear of pesticide illness episodes where only a few of the more severely affected workers ask to be taken to the doctor, but follow-up interviews by advocates or enforcement officials reveal that a large proportion of the crew experienced symptoms. This pattern is documented to some extent in the California Pesticide Illness Surveillance Program Database.<sup>28</sup>

Furthermore, we have observed that it may be difficult for farmworkers and their children to obtain medical attention for suspected pesticide illness because of long waits at some rural health clinics. The study of a recent fumigant drift incident in Arvin, California documents that a majority of both adults and children who reported symptoms did not obtain medical care. Staff at the nearest community clinic reported an average wait time of two weeks for scheduled appointments.<sup>29</sup>

There is of course no national surveillance system for acute pesticide illness reporting and no surveillance system for tracking chronic illness related to pesticide exposure.

### Latent Health Effects

Acute pesticide poisoning symptoms are only part of the problem. Pesticide incident reports miss altogether health impacts that are delayed and/or less immediately apparent.

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<sup>26</sup> University of Florida, University of Southern Florida, Farmworker Association of Florida, Best Start Social Marketing 2001 Together for Agricultural Safety: Summary Report and Strategy Workbook

<sup>27</sup> See Das R, Steege A, Baron S, Beckman J, Harrison R. 2001. Pesticide related illness among migrant farm workers in the United States. *Int J Occup Environ Health* 7:303–312; Arcury TA, Quandt SA. 2007. Delivery of health services to migrant and seasonal farmworkers. *Annual Rev Public Health* 28:345–363; Washington State Department of Health. Learning from Listening, Results of Yakima Farmworker Focus Groups About Pesticides and Health Care. June 17, 2004, revised on June 21, 2004; WA DOH, Improving Data Quality in Pesticide Illness Surveillance. June 17, 2004, revised on June 21, 2004.

<sup>28</sup> CA Pesticide Illness Surveillance Program. <http://www.cdpr.ca.gov/docs/whs/pisp.htm>

<sup>29</sup> O'Malley, M, Barry, T, Ibarra, M, Verder-Carlos, M, Mehler, L. 2005. Illnesses Related to Shank Application of Metam-Sodium, Arvin, California, July 2002. *Journal of Agromedicine*, Vol. 10(4) 2005.

Research shows that children of workers who come into contact with pesticides are at higher risks of childhood cancer and leukemia, for example.<sup>30</sup> Although many cancers take years or decades to develop, there is also evidence that exposure of children and pregnant women to pesticides is related to childhood cancer.<sup>31</sup>

Neurological impacts in children are another less immediately obvious yet devastating injury linked to pesticides. Consider for example:

1) Studies of children exposed prenatally to chlorpyrifos from household products in New York City. Researchers measured chlorpyrifos in umbilical cord blood. At birth, chlorpyrifos was associated with decreased birth weight and birth length overall.<sup>32</sup> When the children were three years old, those with higher exposures were significantly more likely to experience psychomotor and mental development delays, attention problems, attention-deficit/hyperactivity disorder, and pervasive developmental disorders compared to the children with lower exposures.<sup>33</sup> The concentrations of chlorpyrifos in the air the mothers breathed that led to the prenatal exposures were in the same range as those measured in the outdoor and indoor air of farmworker mothers in Washington State and California in recent years.<sup>34</sup> Peak agricultural outdoor chlorpyrifos levels greatly exceeded the highest concentrations inhaled by the New York City mothers.

2) Studies tracking farmworker community children in California exposed to agricultural organophosphates. Increasing average organophosphate metabolite levels in the mothers' urine prenatally were associated with both an increase in the number of abnormal reflexes and in the proportion of infants with more than three abnormal reflexes in infants assessed after they were 3 days old. Among the infants older than 3 days, 17% had more than 3 abnormal reflexes, a fact that may be clinically relevant.<sup>35</sup> Researchers also reported adverse associations between

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<sup>30</sup> Lu C., R.A. Fenske, N.J. Simcox, and D. Kalman. 2006. Pesticide Exposure of Children in an Agricultural Community: Evidence of Household Proximity to Farmland and Take Home Exposure Pathways. *Environmental Research*, 84(3), 290-302.

<sup>31</sup> Infante-Rivard, C. & S. Weichenthal. 2007. Pesticides and Childhood Cancer: An Update of Zahm and Ward's 1998 Review. *Journal of Toxicology and Environmental Health, Part B* 10(81).

<sup>32</sup> Perera FP, Rauh V, Tsai WY, Kinney P, Camann D, Barr D, et al. 2003. Effects of Transplacental Exposure to Environmental Pollutants on Birth Outcomes in a Multiethnic Population. *Environ Health Perspect*, 111:201-205. See also Berkowitz et al. 2004. In Utero Pesticide exposure, Maternal Paraoxonase Activity, and Head Circumference, *Environ Health Perspect* 112:388-391. This study found that when the level of maternal PON1 activity was taken into account, maternal levels of chlorpyrifos above the limits of detection coupled with low maternal PON1 activity were associated with a significant but small reduction in head circumference.

<sup>33</sup> Rauh VA, Garkinkel R, Perera FP, Andrews HF, Hoepner L, Barr DB, et al. 2006. Impact of Prenatal Chlorpyrifos Exposure on Neurodevelopment in the First 3 Years of Life Among Inner-City Children. *Pediatrics*, 118:e1845-e1859.

<sup>34</sup> Fenske et al, Organophosphorus Pesticide Air Monitoring Project Final Report, posted September 2009, Washington State Department of Health website: <http://www.doh.wa.gov/ehp/Pest/driftrresults.htm>. Dansereau et al. Poisons on the Wind: Community Air Monitoring for Chlorpyrifos in the Yakima Valley, 2006, [www.fwpp.org](http://www.fwpp.org); Bradman et al. 2007. Pesticides and their Metabolites in the Homes and Urine of Farmworker Children in the Salinas Valley, CA, *Journal of Exposure Science and Environmental Epidemiology* 17:331-349.

<sup>35</sup> Young et al. 2005. Association Between In Utero Organophosphate Pesticide Exposure and Abnormal Reflexes in Neonates. *NeuroToxicology* 26 (2005) 199-209.

prenatal organophosphate metabolites and mental development and pervasive developmental problems at 24 months of age, though they said these should be interpreted with caution.<sup>36</sup>

3) Studies measuring neurobehavioral performance among workers and children exposed to organophosphates in agricultural areas. Agricultural children aged 2 to 6 performed more poorly on measures of response speed and latency as compared to similar non-agricultural children in research conducted in Oregon and North Carolina. Researchers noted that the modest differences they found “are consistent with functional effects seen in adults exposed to low concentrations of organophosphate pesticides.”<sup>37</sup> They also found that the neurobehavioral performance of the farmworkers was lower than that of the nonagricultural adults. Among farmworkers, there was a positive correlation between urinary organophosphate metabolite levels and poorer performance on some neurobehavioral tests. Deficits were seen for sustained attention, information processing and motor speed and coordination.<sup>38</sup>

4) Laboratory studies documenting neurological impacts of chlorpyrifos, particularly in animals exposed early in life.<sup>39</sup> These studies indicate that cholinesterase inhibition is likely only one mechanism by which chlorpyrifos does harm, and otherwise throw into doubt the adequacy of reference doses used to declare human exposures to chlorpyrifos safe. They make it clear that unique mechanisms operating during formation and organization of the nervous system in young creatures make it inappropriate and misleading to rely on extrapolations from effects in adults. As just one example, of a new addition to the body of evidence from animal studies, researchers at the University of Wisconsin have just published a study which demonstrates that “environmentally relevant levels of *in utero* chlorpyrifos exposure cause a marked learning latency in females but not in males.”<sup>40</sup>

### Cumulative Health Challenges for Farmworker Children

Children are exposed not to single pesticides, but to many, and they are more prone to adverse health effects as a result of pesticide exposure than others. Moreover, pesticide exposures are just one of many factors that affect the health and safety of farmworker children. Their health is

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<sup>36</sup> Eskenazi et al. 2007. Organophosphate Pesticide Exposure and Neurodevelopment in Young Mexican-American Children, *Environmental Health Perspectives*, Vol 115 Number 5: 792-798.

<sup>37</sup> Rohlman D, Arcury TA, Quandt SA, Lasarev M, Rothlein J, Travers R, Tamulinas A, Scherer J, Early J, Marin A, Phillips J., McCauley L. 2005. Neurobehavioral performance in preschool children from agricultural and non-agricultural communities in Oregon and North Carolina. *Neurotoxicology*, 26:589-598. See also Lizardi et al. 2008. The Effects of Organophosphate Pesticide Exposure on Hispanic Children’s Cognitive and Behavioral Functioning. *Journal of Pediatric Psychology* 33(1):91-101, regarding research in Arizona.

<sup>38</sup> Rothlein J, Rohlman D, Lasarev M, Phillips J, Muniz J, McCauley L. 2006. Organophosphate Pesticide Exposure and Neurobehavioral Performance in Agricultural and Nonagricultural Hispanic Workers. *Environ Health Perspect*, 114:691-696.

<sup>39</sup> For an overview see Slotkin. 2006. Developmental Neurotoxicity of Organophosphates: A Case Study of Chlorpyrifos, Chapter 21, *Toxicology of Organophosphates and Carbamate Compounds*. For two examples of studies published since that overview, see Tait et al. 2009. Long-Term Effects on Hypothalamic Neuropeptides after Developmental Exposure to Chlorpyrifos in Mice, *Environ Health Perspect* 117:112116, and Haviland et al, Long-term sex selective hormonal and behavior alterations in mice exposed to low doses of chlorpyrifos *in utero*, *Reproductive Toxicology*, available online October 29, 2009.

<sup>40</sup> Haviland et al. 2009. Long-term sex selective hormonal and behavior alterations in mice exposed to low doses of chlorpyrifos *in utero*, *Reprod Toxicol* (2009) doi: 10.1016/j.reprotox.2009.10.008.

also threatened by unsafe housing conditions, poor field sanitation and poor nutrition. Pesticide registration decisions must take this context into account.

### *Pesticide Exposure*

Farmworkers have the highest rates of toxic chemical injuries, as well as skin disorders, of any working group in the U.S.<sup>41</sup> Children are particularly susceptible to pesticide-related illness because they have higher skin-surface for their size which increases their metabolic rate and oxygen compared to adults, less mature immune systems, and different rates of absorption of toxic chemicals.<sup>42</sup>

Children of farmworkers come into contact with pesticides in a variety of ways, in addition to working in the fields. A child may play barefoot in fields that have been sprayed with chemicals while their parent works throughout the day; hence they receive immediate direct dermal exposure and continuous exposure by residues on their clothes. They may have left toys, bicycles, and other objects outside the house while adjacent fields were sprayed, and, then, play with those toys or objects without washing or decontaminating them first. They may wash their hands in run-off water outside of the house that contains pesticides from the surrounding fields. They may be in the fields with their parents shortly after chemicals were sprayed on the crops.<sup>43</sup> Pesticides can drift into their schools and daycare centers when located near fields or into their homes.<sup>44</sup> Parents can also bring pesticides into the home on their tools, clothes, shoes, and skin and can expose their children through something as simple as a hug before they shower.<sup>45</sup> Children's contact with pesticides may be greater at home through interaction with their parents and with residues in the home and proximity to contaminated areas than it is in the actual fields.<sup>46</sup> The lack of washing machines in most farmworker homes means that farmworkers' clothing may not be washed as often and will not come as clean as it would if washed in a machine.<sup>47</sup> In addition, workers may wash contaminated clothes with the general family laundry, rather than separating them first.

They also eat pesticide residues in conventionally grown foods, and are particularly unlikely to be served organic foods as compared to other children.

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<sup>41</sup> NIOSH 2009. *Pesticide Illness & Injury Surveillance*. Retrieved Sep. 28, 2009, from NIOSH. <http://www.cdc.gov/niosh/topics/pesticides>.

<sup>42</sup> See National Academy of Sciences. 1993. *Pesticides in the Diets of Infants and Children*, at 307; Natural Resources Defense Council. 1998. *Trouble on the Farm: Growing Up with Pesticides in Agricultural Communities*. New York: Natural Resources Defense Council.

<sup>43</sup> NIOSH 2009, *supra*;

<sup>44</sup> See Earthjustice and Farmworker Justice, *Pesticides in the Air – Kids at Risk: Petition to EPA to Protect Children From Pesticide Drift*, submitted October 14, 2009.

<sup>45</sup> Lu et al. 2006, *supra*.

<sup>46</sup> Thompson, C.D., & Wiggins, M. F. (eds.) (2002). *The human cost of food: Farmworkers' lives, labor, and advocacy*. Austin: University of Texas Press.

<sup>47</sup> *Id.*

It is also clear that many pesticides cross the placenta, exposing children prenatally during the most vulnerable stage of life.<sup>48</sup> The Columbia University chlorpyrifos study mentioned above is just one study documenting the risks posed by prenatal pesticide exposures.

Thus, farmworker children are hit from all sides by pesticides. There are multiple exposures to particular pesticides, and children come in contact with many different pesticides applied to crops over the course of a year. The cumulative and potentially synergistic impacts of these exposures must be considered.

Studies show that children are also particularly vulnerable to injury from pesticides because their bodies are less able to detoxify them. For example, detoxification of organophosphate pesticides depends on the enzyme paraoxonase-1 (PON1). A California study in a largely farmworker community showed that among newborns PON1 levels varied by 26-fold. On average, children's PON1 levels were four-fold lower than the mothers' PON1 levels. The predicted range of variability in sensitivity of mothers and children was 164-fold for chlorpyrifos.<sup>49</sup> Lower levels persist through at least age seven.<sup>50</sup>

### *Unsafe Housing*

Many children of farmworkers wake up every morning in old, dilapidated dwellings. A Housing Assistance Council (HAC) study found children living in 34% of farmworker dwellings in serious structural disrepair.<sup>51</sup> Broken stoves, toilets, refrigerators, or showers, leaking roofs, and sagging ceilings are common. Electric power and running water can be unreliable. Undocumented workers and their children are twice as likely to live in facilities without access to working sanitary facilities.<sup>52</sup> Often, farmworker housing does not have enough space for children to play inside but there are rarely safe play areas outside, forcing them to play around the house which may be at the edge of fields contaminated with pesticides.<sup>53</sup> The shortage of housing means that some farmworkers sleep in the fields without shelter, in tents, in cars, under highway overpasses and other makeshift arrangements.

Poor migrant housing conditions negatively impact the health of farmworkers and especially their children. Some health consequences associated with substandard and crowded farmworker housing include respiratory illnesses, ear infections, diarrhea, and higher occurrences of lead

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<sup>48</sup> Bradman et al 2003 Measurements of Pesticides and Other Toxicants in Amniotic Fluid as a Potential Biomarker of Prenatal Exposure: A Validation Study, *Environmental Health Perspectives* Volume 111, Number 14: 1779-1782.

<sup>49</sup> Furlong, CE, Holland N, Richtera RJ, Bradman A, Hob A and Eskenazi B. 2004. PON1 status of farmworker mothers and children as a predictor of organophosphate sensitivity. *Pharmacogenetics and Genomics* 2006, Vol 16 No 3: 183-190.

<sup>50</sup> Huen K, Harley K, Brooks, Hubbard A, Bradman A, Eskenazi B, Holland N. 2009. Developmental Changes in PON1 Enzyme Activity in Young Children and Effects of PON1 Polymorphisms. *Environ Health Perspect*, 117:1632-1638.

<sup>51</sup> Thompson & Wiggins (2002), *supra*, p.176.

<sup>52</sup> U.S. Department of Agriculture Economic Research Service (2008). *Rural Labor and Education: Farm Labor*. <http://www.ers.usda.gov/Briefing/LaborAndEducation/farmlabor.htm#Numbers>

<sup>53</sup> National Children's Center for Rural and Agricultural Health and Safety (2009). *National Fact Sheet*. <http://www.marshfieldclinic.org/proxy/MCRF-Centers-NFMC-NCCRAHS-FactSheetFINAL07-2009.1.pdf>

poisoning.<sup>54</sup> Inadequate sanitary and laundry facilities and shelter from the elements can allow pesticide residues to contaminate the home and clothing and make it impossible to follow the standard advice to shower and change to clean clothes daily after work in the fields.<sup>55</sup>

### *Poor Field Sanitation*

A study conducted by Human Rights Watch found that almost all of the children they spoke with worked on farms where sanitation requirements went unmet. They ran out of drinking water or only had access to non-hydrating sodas and beers for purchase as opposed to readily available water. Children said hand-washing facilities were frequently unavailable. Without a place to clean their hands, they washed them in pesticide-contaminated irrigation ditches before eating their lunches.<sup>56</sup>

### *Nutritional Deficiencies*

Farmworker children show a higher prevalence of many adverse health conditions than the general population. Some of these increased risks include bacterial and viral gastroenteritis, intestinal parasites, respiratory and skin infections, ear infections, pesticide exposure, poor nutrition, anemia, short stature, and tuberculosis.<sup>57</sup> Farmworker children often have iron deficiency anemia as well as other vitamin and trace mineral deficiencies.<sup>58</sup> Poor nutritional status has been shown to increase susceptibility to pesticide illness.<sup>59</sup>

### Environmental Justice Implications of Mitigation Measures

Many programs exist that attempt to teach farmworkers and their families steps they can take to reduce children's exposures to pesticides. "Intervention" measures include things like taking work shoes off outside, washing work clothes separately, wiping off outdoor toys frequently, washing floors daily, etc. A major study published in 2008 provides strong evidence that such intervention is of limited utility.<sup>60</sup> Researchers reviewed the effectiveness of four years of intervention activities. They found that the median organophosphate metabolite level in people's urine was actually higher in Year 4 than it was in Year 1. There were no significant differences between intervention and control homes in terms of contamination levels. The only pesticide that declined in terms of detections was azinphos methyl, the one pesticide slated for elimination

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<sup>54</sup> NC Farmworker Institute. (2007). *United States Farmworker Fact Sheet*. Retrieved from: <http://www.saf-unite.org/pdfs/SAF%20Fact%20Sheet%20US07.pdf>; Early, July, et al. 2006. Housing Characteristics of Farmworker Families in North Carolina, *Journal of Immigrant and Minority Health*, 8(2), 173, 174-180-181.

<sup>55</sup> Early (2006), *supra*.

<sup>56</sup> Human Rights Watch (2000). *Fingers to the Bone: United States Failure to Protect Child Farmworkers*. Washington, D.C.: Human Rights Watch.

<sup>57</sup> Hansen, D. & Donohoe M. 2003. Health Issues of Migrant and Seasonal Farmworkers. *Journal for Healthcare of the Poor and Underserved*, (14)2, pp.153-164.

<sup>58</sup> Berman, S. 2003. Health Care Research on Migrant Farm Worker Children: Why Has It Not Had a Higher Priority? *Pediatrics*, 111(1), 1106-1107.

<sup>59</sup> Zidenberg-Cherr, S, et al. 2000. Nutrition may influence toxicant susceptibility of children and elderly. *California Agriculture* 54(5):19-25.

<sup>60</sup> Thompson et al, Para Niños Saludables: A Community Intervention Trial to Reduce Organophosphate Pesticide Exposure in Children of Farmworkers, *Environ Health Perspect* 116: 687-694 (2008).

by EPA. This finding provides evidence of the effectiveness of bans as compared to the limited effectiveness of interventions.<sup>61</sup>

While reducing take-home exposure should remain a component of training, EPA and others should not rely solely, or even primarily, on training interventions to end farmworker children's pesticide exposures because their effectiveness is unproven and further limited by socio-economic challenges including substandard housing. Just as importantly, it violates basic principles of environmental justice to tell farmworker community members that they need to do extra housework to try to protect children. This sort of suggestion would not be made in wealthier communities that do not face the challenges faced by farmworkers related to race, language barriers, poverty, and immigration status. It should not be made in farmworker communities.

Similarly, it is sometimes suggested that people can leave homes, daycares and schools during applications, and presumably during the period after applications end when post-volatilization drift is occurring. At a minimum, some argue, people can stay inside and close their windows to reduce exposures. These suggestions are also contrary to basic principles of environmental justice, and EPA should speak out against them. People have a right to stay at their homes, daycares and schools, and to be safe from toxic exposures both indoors and out. People with limited resources are also generally not able to leave, and children, in particular, are powerless to do so.

Pesticides applied outdoors do make their way indoors, as is documented by numerous house dust studies. Some of this would come from take-home exposure particularly from dust on work shoes. New research indicates that pesticides inside homes can linger there for years, causing ongoing exposures for children who come in contact with dust and with resuspended pesticides in the air.<sup>62</sup>

### Recommendations

In summary, it is very clear that farmworker children are exposed to and threatened by agricultural pesticides. Many work in the fields legally, and others do so illegally, with poverty as a driving force behind this reality. Poverty and other factors also lead to children's exposures when they accompany parents in the field as non-workers, and by virtue of living in homes and attending schools and daycares very close to the fields. Not to be forgotten as well, are the prenatal exposures children experience when their mothers work in the fields or live nearby. The impact of all of these exposures is heightened by the fact that children are far more vulnerable than adults to injury from pesticides. Farmworker children also face multiple exposures and they

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<sup>61</sup> This is not the only time researchers sampling pesticide residues have found declines in pesticides that have been banned or slated for phase-outs. In a study published in 2002, Richard Fenske et al. noted that "Parathion concentrations in house dust decreased 10-fold from 1992 to 1995, consistent with the discontinued use of this product in the region in the early 1990s." Fenske et al., Children's Exposure to Chlorpyrifos and Parathion in an Agricultural Community in Central Washington, *Environ Health Perspects* 110:549-553 (2002).

<sup>62</sup> Stout D, Bradham K, Croghan C, Egeghy P, Jones P, Ashley P, Pinzer E, Friedman W, Brinkman MC, Nishioka MG, Cox D. 2008. American healthy homes survey: A national study of residential pesticides measured from floor wipes. *Environmental Science and Technology*, accepted March 5, 2009

do so in the context of poverty, substandard housing and other factors that threaten their health and well-being.

EPA must acknowledge all of the exposures that farmworker children face and their ultra-susceptibility to harm. All registration discussions and analyses must fully factor in the presence of all children, born and unborn, in and near the fields, and the immediate and less immediate health effects that pesticides may cause in them.

A full accounting of children's exposures and vulnerabilities must be accompanied by a major shift in EPA's regulatory framework for pesticides. To protect children (and adults), the agency must shift to a precautionary approach. When available evidence indicates cause for concern about a pesticide, releases and exposures must not be allowed unless and until registrants definitively prove them safe. "Alternatives assessment" needs to eclipse risk assessment, i.e. EPA must proactively examine alternatives, their safety, and how to work with other agencies to facilitate transitions to safe alternatives. A commitment to precaution translates into EPA setting phase-out deadlines for key agricultural pesticides for which the weight of the evidence clearly indicates cause for concern, such as organophosphates.

EPA must also act to reduce exposures and health effects during interim periods prior to phase-out deadlines. Examples of actions EPA should take include, but are not limited to the following:

- \* Use a 10-fold margin of safety for interim risk calculations to increase protections for children exposed as laborers or visitors in the fields and as nearby residents and users of nearby schools and daycares. The safety factor must be applied beyond just dietary exposures, encompassing the full range of exposures experienced through inhalation, dermal and other routes in conjunction with where people live and work.

- \* Add an additional 10-fold margin of safety to increase protections against neurological and other impacts for unborn children exposed when pregnant women are exposed.

- \* Impose buffer zones around areas where children may congregate such as homes, daycare centers, schools, parks, and playfields.

- \* Take action to protect farmworker children from take-home exposure to pesticides carried home on their parents' skin, clothes and shoes. All farmworkers should be guaranteed an area at their workplaces to store clean clothes and wash up before returning home from work.

- \* Improve enforcement of existing laws by EPA and by delegated state agencies. In states with delegation, EPA should use the Memorandums of Understanding and regular reviews to ensure that adequate numbers of inspections are occurring and that laws are being fully enforced. This is especially important in light of major budget cuts occurring in state regulatory programs as a result of the current recession.

- \* Increase pesticide safety training for all farmworkers, including farmworker children and their parents, especially pregnant farmworker women. Training should help parents

understand the unique risks to children from pesticide exposure and the ways to protect children from pesticide exposure. Despite EPA requirements, many farmworkers fail to receive pesticide safety training. Uneven enforcement and low monetary penalties have not persuaded employers to provide their workers with this vital service. The EPA should complement increased enforcement with expanded outreach efforts. Because children often play in or near fields that have been sprayed with pesticides, they and their parents should also be educated about the potential dangers of coming into contact with these toxins.

\* Demand extensive research on the effects of pesticide exposure on farmworker children. Without greater research that specifically studies the children of farmworkers and the long-term health impacts of their exposure to the risks associated with living and working in agricultural settings, it is difficult to develop appropriate policy to address their needs. EPA should work closely with other agencies, including the National Cancer Institute, NIOSH, NIEHS and the USDA to conduct more longitudinal and other studies of farmworker children. Studies must not be a substitute for swift action to prevent exposures through implementation of the precautionary principle, including through phase-outs, however.

Thank you again for meeting with us. We hope that the information provided in this letter is helpful and look forward to further communications.

Sincerely,

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