Environmental Health Issues

Broad ranges of different environmental exposures can cause health problems, including air and water pollution, lead and other heavy metals, chemicals and pesticides, and many more. The environmental exposure health status indicators included in this report are elevated child blood lead levels and pesticide exposures.

Childhood Lead Poisoning

Lead is a significant and widespread environmental hazard for all Texas children. Exposure to lead can lead to a number of medical conditions, including long-term neurological damage that is often associated with learning and behavioral problems. Blood lead levels ≥10µg/dL are considered to be elevated, although a child may often present asymptomatic, even at higher levels. Very elevated lead levels can result in death. Lead is a ubiquitous toxin with varied exposure sources, including dust or chips from lead-based paints, contaminated soil, crafts/hobbies, and home remedy/folk medicines.

With increased awareness and efforts to reduce exposure, childhood lead poisoning has decreased in recent years. In 1997, 130,512 U.S. children under age 6 tested with confirmed elevated blood lead levels, compared to 74,887 children in 2001, a decrease of more than 42% in five years.1 Children younger than age 6 are at greater risk of lead poisoning than older children due to increased absorption, predominant hand-to-mouth behavior, and developing neurological systems. Among U.S. children younger than age 6 who were tested in 2001, African-American children had the highest percentage of confirmed elevated blood lead levels (almost 9%), followed by Hispanic children (almost 6%), and then non-Hispanic white children (2%).1 Children who live or spend a significant amount of time in pre-1950s housing are at increased risk of childhood lead poisoning. Poverty and living in an area of existing high childhood lead prevalence are also considered surrogate markers for a child’s potential lead exposure risk.

Key Point: The percentage of South Texas children ages 0-14 with elevated blood lead levels of those tested was similar to percentages in the rest of Texas. South Texas Hispanic children whose blood lead levels were tested had a higher percentage of elevated levels than non-Hispanic whites.
Childhood Lead Poisoning in South Texas

In terms of sheer numbers, Bexar County, the Lower Rio Grande Valley region, and Webb County had the most children ages 0-14 with elevated blood lead levels (>10 μg/dL) in South Texas (Figure 9.1). Numbers are most likely greater in these areas because of relatively large population sizes or because of a large percentage of people with low socioeconomic status.

Figure 9.1. Texas children ages 0-14 with elevated blood lead levels (≥10 μg/dL) by location of residence, 2004.
Source: Texas Childhood Lead Poisoning Prevention Program

Overall, the percentage of children ages 0-14 with elevated blood lead levels among those tested in South Texas was 2.7%. This was the same percentage of elevated blood lead levels seen among those tested in the rest of Texas (Figure 9.2). However, for non-Hispanic white children, the percentage with elevated blood lead levels of those tested was lower in South Texas (1.8%) than in the rest of Texas (2.6%). In South Texas, among Hispanic children tested, 2.8% had elevated blood lead levels, whereas among non-Hispanic white children tested, only 1.8% had elevated blood lead levels (Figure 9.2).
Figure 9.2. Percent of South Texas children ages 0-14 with elevated blood lead levels (≥10 μg/dL) among children tested, 2000-2004.
Source: Texas Childhood Lead Poisoning Prevention Program

For both Hispanic and non-Hispanic children, the youngest age group (ages 0-2) had the highest percentage of elevated blood lead levels among those tested. A difference in percentages for the two youngest age groups (ages 0-5) was seen between Hispanics and non-Hispanic whites. For these ages, Hispanic children had higher percentages of elevated lead levels among those tested than non-Hispanic whites (Figure 9.3).
Figure 9.3. Percent of South Texas children ages 0-14 with elevated blood lead levels (≥10 μg/dL) among children tested, by age group and race/ethnicity, 2000-2004.
Source: Texas Childhood Lead Poisoning Prevention Program

In South Texas, the percentage of boys with elevated blood lead levels among those tested (3%) was slightly higher than the percentage of girls with elevated blood lead levels (2.5%). The percentage of children with elevated blood lead levels (of those tested) was slightly higher in non-metropolitan South Texas counties (3.1%) than in metropolitan counties (2.7%).

The percentage of elevated blood lead levels among children tested was slightly higher in Bexar County and Webb County (about 3.2%) than in South Texas as a whole (2.7%). However, the percentage of children with elevated blood lead levels was slightly lower in the Lower Rio Grande Valley region (2.4%) than in South Texas (Figure 9.4).
Figure 9.4. Percent of children ages 0-14 with elevated blood lead levels (≥10 μg/dL) among children tested in selected South Texas locations, 2000-2004.
Source: Texas Childhood Lead Poisoning Prevention Program

References


Pesticide Poisoning

A pesticide is any substance or combination of substances that is used for preventing, controlling, or destroying any type of pest. Types of pesticides include not only insecticides, but also herbicides, fungicides, rodenticides, and sanitizers.\(^1\) In the U.S., more than one billion pounds of pesticides are used each year, and more than 16,000 different pesticide products are currently sold nationwide. Although pesticides are useful to society, they also have the potential to cause great harm to humans because they are designed to kill or damage living organisms. Health effects vary depending on the type of pesticide...
involved and the level of exposure. Acute, high-level pesticide exposures can cause nausea and vomiting, skin or eye irritation, difficulty breathing, seizures, or even death. Long-term pesticide exposure effects have been associated with changes in neurobehavioral performance, neurological damage and diseases, and certain types of cancers. Children are particularly susceptible to pesticides.

Acute pesticide exposures are most commonly occupational exposures. Each year, about one pesticide-related illness occurs for every 100,000 U.S. workers. Agricultural workers are at especially high risk of pesticide poisoning. The annual incidence of pesticide-related illness among agricultural workers is approximately 18/100,000. This high incidence among persons employed in agriculture is of particular concern for Hispanics, since 88% of all farm workers in the U.S. are Hispanic. Because of pesticide drift, people who live in agricultural areas have a higher risk of pesticide exposure than people who live in non-agricultural areas. Among workers, those ages 20-24 had the highest incidence of pesticide-related illnesses in the U.S. in 1998-1999, and incidence decreased as age increased. For all occupations combined, males have a slightly higher risk of pesticide-related illness than do females; however, among agricultural workers, the incidence of pesticide-related illness in females is higher than the incidence in males.

### Pesticide-Related Illnesses in South Texas

Overall, the South Texas population had a slightly higher incidence of pesticide-related illness (1.2 cases per 100,000 persons) than the rest of Texas (1.0/100,000). Hispanics in South Texas had an incidence of pesticide-related illness that was nearly two times higher than the incidence for Hispanics in the rest of Texas (Figure 9.5). In South Texas, the incidence of pesticide-related illness was similar between Hispanics and non-Hispanic whites; however, in the rest of Texas, incidence was higher for non-Hispanic whites than for Hispanics (Figure 9.5).
Figure 9.5. Incidence of pesticide-related illness by location and race/ethnicity, 2001-2005.
Source: Pesticides Exposure Surveillance in Texas (PEST) program

In South Texas, the incidence of pesticide-related illness in the general population was higher in males (1.4/100,000) than in females (0.9/100,000). Residents of non-metropolitan counties in South Texas had a higher incidence of pesticide-related illnesses (1.8/100,000) than did those who resided in metropolitan counties (1.1/100,000). Children under age 10 and adults ages 20-59 had higher incidences of pesticide-related illness than other age groups (Figure 9.6).
Lower incidences of pesticide-related illness were observed in Bexar County (0.6/100,000) and Webb County (0.4/100,000) than in South Texas as a whole (1.2/100,000). The Lower Rio Grande Valley region, however, had a higher incidence of pesticide-related illness (1.8/100,000) than South Texas (Figure 9.7).
References


Summary – Environmental Health Issues

Table 9.1. Summary table of estimates in South Texas, the rest of Texas, and nationwide* for each of the environmental health indicators analyzed.

<table>
<thead>
<tr>
<th>Health Indicator</th>
<th>Incidence/Prevalence Estimates</th>
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<tbody>
<tr>
<td></td>
<td>South Texas</td>
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<tr>
<td>Childhood Lead Poisoning, 2000-2004</td>
<td>2.7% of those tested</td>
</tr>
<tr>
<td>Pesticide Poisoning, 2001-2005</td>
<td>1.2 per 100,000</td>
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*Nationwide estimates were not available for all health indicators in the table. "----" signifies that no nationwide estimate could be found for the health indicator.