Environmental Health Indicators

Health and human well-being depend heavily on the quality of the local environment such as the housing in which we live and the services in our community, as well as the absence of pollution in the air, water, and land. Environmental hazards can pose unique threats to the health of individuals and communities by producing disorders such as lung disease or cancers and increasing the risk of transmission of infectious diseases. Environmental health data is needed to assess health risks to the public from air pollution, pesticide and other chemical contamination of food, drinking water, and consumer products. Moreover, these data are essential in order to promote health and quality of life by preventing and controlling disease, birth defects, disability, and death resulting from interactions between people and their environment.

Air Quality

Air pollution is a risk factor for a variety of illnesses varying from watery eyes and fatigue to respiratory diseases and some cancers. Pollutants measured include the concentration of particulate matter (PM10), ozone (O3), carbon monoxide (CO) and nitrogen oxide (NO2). Exposure to these pollutants at high concentrations and for extended periods can cause deleterious health effects and contribute to lung disease, asthma, and other illnesses, particularly in children. Sources of air pollution include emissions from motor vehicles, planes, ships, trains, and industrial facilities.

In greater Los Angeles County, the concentrations of most harmful pollutants increase during the day, level off in the evening, and decrease at night because the presence of sunlight and heat causes specific chemical reactions to occur. In addition, certain areas in Southern California tend to concentrate pollutants more because of the geography of the area, e.g., mountains, valleys. Thus, some monitoring stations will show that standards have been exceeded a greater percentage of days annually than other stations. Air quality is usually measured as the number of days that a certain pollutant exceeded the federal or state safety standard.

Air samples are monitored by the South Coast Air Quality Management District (SCAQMD) in 13 different locations throughout Los Angeles County. Data from the SCAQMD show the following:

- ➜ Overall, the air quality of the Los Angeles County region has improved considerably due to more strict regulations of pollution caused by automobile exhaust. The worst offenders of clean air in this region are ozone, total suspended particulate, and carbon monoxide. No areas exceed standards for nitrogen dioxide, sulfur dioxide, lead or sulfate.
- ➜ Ozone is perhaps the most harmful pollutant. Nearly all monitoring areas exceeded the state ozone standards on at least one day in 1997 for both eight hour and one hour peak concentration measurements. Areas exceeding the ozone standard were the East and West San Gabriel Valleys, East and West San Fernando Valleys, Pomona and Walnut Valleys, and Santa Clarita Valley.
- ➜ Three areas exceeded the state regulations for carbon monoxide in 1997. In South Central Los Angeles County, the state standard was exceeded on 18 days, in South West Coastal Los Angeles County on one day, and in West San Fernando Valley on one day.
- ➜ The areas with the most number of days exceeding the standard for total suspended particulate were East and West San Gabriel Valleys, East and West San Fernando Valleys, Pomona and Walnut Valleys, and Santa Clarita Valley.

Lead

Lead poisoning is an important health problem throughout communities in the United States. Due to the high rate of childhood lead poisoning, the federal government views it as the primary environmental health hazard facing American children (CDC, 1991). Children between ages zero and six are at a greater risk for exposure to lead. Normal hand-to-mouth activities in the infant and toddler years facilitate the ingestion of lead. Exposure to deteriorating lead-based paint and lead contaminated dust found in the home are the primary sources of lead poisoning for children. There is no safe blood lead level for children. A level of 10 ug/dL or above is considered an "elevated blood lead level." If a child's blood lead level is 20 ug/dL or remains at 15 ug/dL after two tests, CDC requires case management by local health professionals.

Lead poisoning in children can result in growth inhibition, reduced cognitive function, delayed mental development, and neurological disabilities. Although elevated blood levels in adults also have adverse health effects such as anemia, hypertension, decreased fertility, and nervous system dysfunction, children most often suffer more permanent health damage. In addition, children up to age six do not store lead in their bones as efficiently as adults, causing lead to circulate more freely. Thus adequate nutrition for children is important in the prevention of the harmful effects of lead.

The focus of lead poisoning prevention has primarily been concentrated on children. Fortunately, lead poisoning in children is a preventable public health problem. Childhood lead poisoning prevention programs such as periodic screening, environmental interventions, as well as educational and nutritional campaigns have had a tremendous impact on reducing the occurrence of lead poisoning.

A variety of work and hobby environments expose people to lead and may result in lead exposures for their families. Occupational lead exposure accounts for approximately 90% of adult lead poisoning cases. Occupations in which a worker is potentially exposed include smelting and refining industries, battery manufacturing plants, gasoline stations, construction and residential painting. Hobbies and activities such as furniture remodeling and refinishing, home renovations, making stained glass and pottery, and using indoor firing ranges are also highly associated with lead exposure.

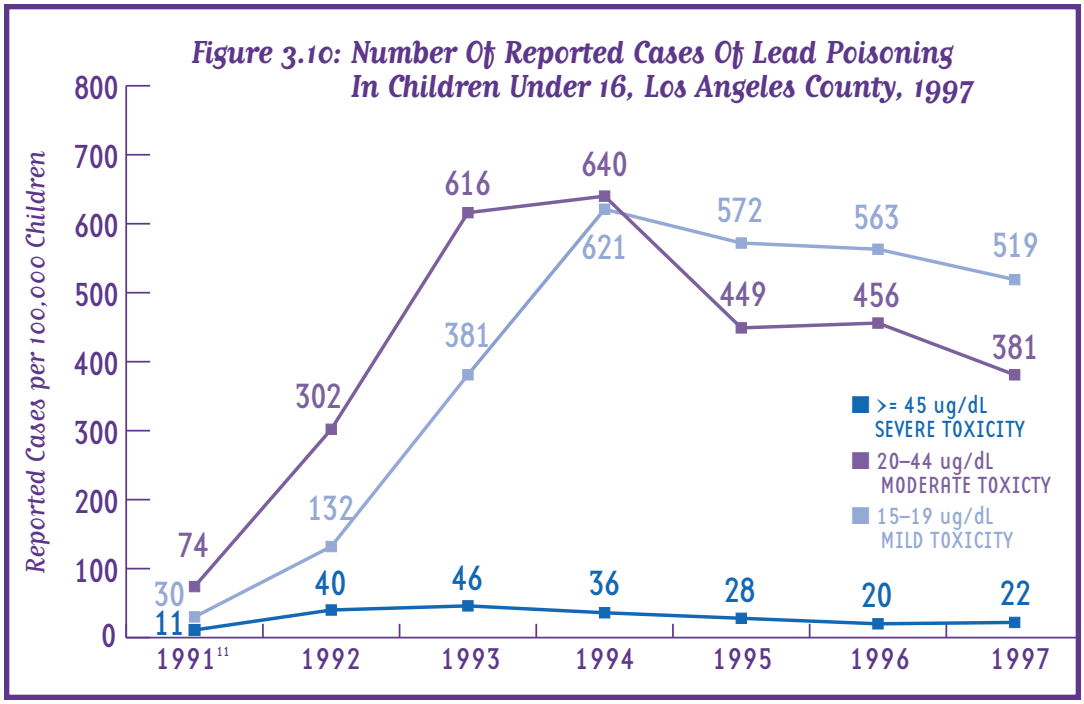
- ➜ There has been a steady decline in the number of severe toxic lead poisoning cases in children under 16. However, there has not been a significant change in the number of mild lead toxicity cases (see Figure 3.10).

Under California state law, laboratories are required to report blood lead levels of 25 ug/dL and above.

- ➜ From 1991 to 1996 there was a significant increase in the number of blood lead screenings. However, between 1996 to 1997 there was nearly a 50% decrease in the number of blood lead screenings (see Figure 3.11).
- ➜ Incidence of blood lead poisoning is highest among infants aged zero to two.
- ➜ Latino children had the highest number of reported lead poisoning cases in Los Angeles County, followed by African-Americans, whites, and Asians.

Food Safety

Food safety is an important factor affecting health. Annually, 9,000 Americans die and millions more become ill as the result of contaminated food. As a result, the



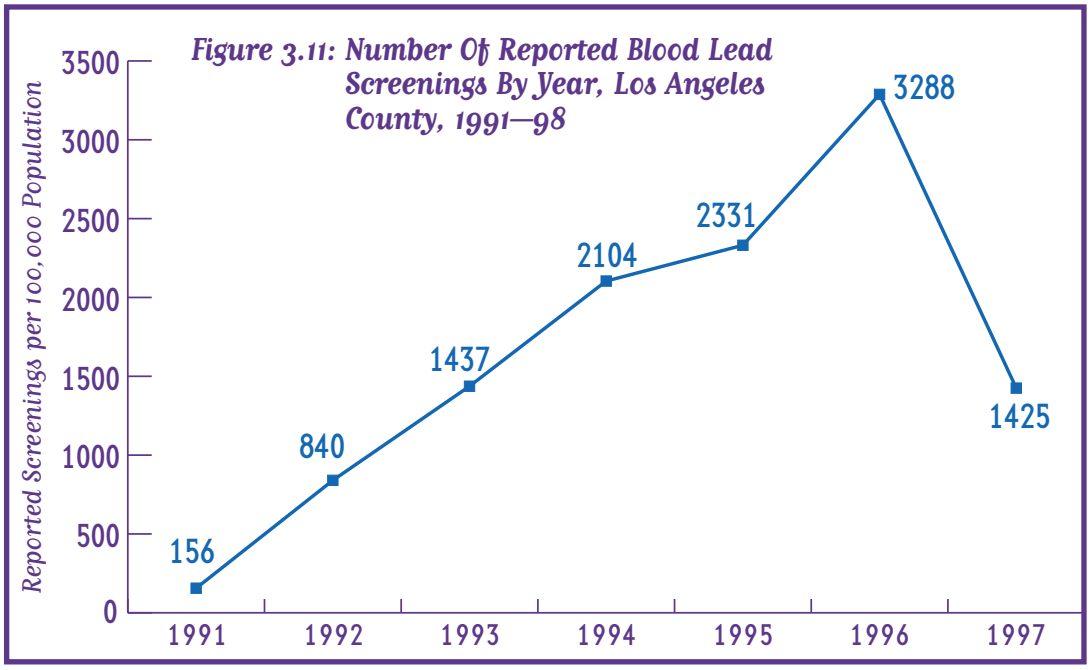
Source: Los Angeles County Department of Health Services, Childhood Lead Poisoning Prevention Program, Epidemiology Unit.

Department of Health Services has taken a lead role in promoting appropriate food handling practices in preventing food-borne illness.

Los Angeles County Department of Health Services recently established prevention programs, surveillance activities, and set standards to protect and improve the public's health. It has recently established a classification system that grades restaurants and other retail food handling facilities through periodic inspections. The purpose of the grading system is to create public awareness about food handling, hygiene, and sanitation practices in restaurants. Points are taken off for everything from minor violations such as broken tiles and employees not wearing appropriate attire, to larger violations such as inappropriate food storage temperatures, unsafe food handling practices by employees, and poor sanitary conditions.

The following is a summary of the findings for the six-month period of January 1 through June 30, 1998:

➜ The average inspection score for food establishments has increased from 88 to 92 (from a B to an A). The average score was 90.3.



Source: Los Angeles County Department of Health Services, Childhood Lead Poisoning Prevention Program, Epidemiology Unit.

➜ The average number of violations found per inspection has decreased from 4.6 to 3.7.

➜ The percentage of restaurant closures as a result of inspections has decreased from 5% to 2%.

➜ The inspection frequency has increased slightly to a little over two inspections per year per facility.

The overall positive trends in food inspection results are most likely attributable to factors such as restaurant operators' increased attention to food sanitation principles, enhanced educational materials, and food sanitation training activities for employees. Increased public awareness of the system has played a critical role in prompting restaurant owners to improve the conditions of their restaurants.

Environmental Health Indicators Data Sources

1. South Coast Air Quality Management District (SCAQMD)

2. Los Angeles County Department of Health Services—Public Health
   Lead Programs, Epidemiology Information

3. United States Department of Health and Human Services
   Centers for Disease Control and Prevention
   Lead Poisoning Prevention Program
   Division of Environmental Hazards and Health Effects
   National Center for Environmental Health

4. Los Angeles County Department of Health Services—Public Health
   Environmental Health

See Appendix for complete references on these and other data resources.

Endnotes

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