

Section 8: Environmental Health and Food Safety

According to the World Health Organization, “In its broadest sense, environmental health comprises those aspects of human health, disease, and injury that are determined or influenced by factors in the environment. Because the impact of the environment on human health is so great, protecting the environment has long been a mainstay of public health practice. National, State, and local efforts to ensure clean air and safe supplies of food and water, to manage sewage and municipal wastes, and to control or eliminate vector-borne illnesses have contributed a great deal to improvements in public health in the United States.

Issues

Environmental factors play a central role in human development, health, and disease. Broadly defined, the environment, including infectious agents, is one of three primary factors that affect human health. The other two are genetic factors and personal behavior. Human exposures to hazardous agents in the air, water, soil, and food and to physical hazards in the environment are major contributors to illness, disability, and death.

Outdoor Air Quality

Reduce the proportion of persons exposed to air that does not meet the U.S. Environmental Protection Agency’s health-based standards for harmful air pollutants.

HP 2010 Objective: 8-1

National Targets and baseline:

Objective	Reduction in Air Pollutants	1997 Baseline	2010 Target
		<i>Percent</i>	
8-1a.	Ozone*	43	0
8-1b.	Particulate matter*	12	0
8-1c.	Carbon monoxide	19	0
8-1d.	Nitrogen dioxide	5	0
8-1e.	Sulfur dioxide	2	0

Data source: Illinois Annual Air Quality Reports, 1998 - 2002.

Note: For the purpose of this objective, EPA is counting persons living in nonattainment areas only.

*The targets of zero percent for ozone and particulate matter are set for 2012 and 2018, respectively.

Table 8.1

Air Pollutant	1998	1999	2000	2001	2002	EPA Annual Standard
Ozone	.068	.075	.060	.071	NA	.08 ppm
Particulate Matter	23	15.6	15.3	15.5	14.7	15ug/m
Carbon Monoxide	NA	NA	NA	NA	NA	9 ppm
Nitrogen Dioxide	NA	NA	NA	NA	NA	.053 ppm
Sulfur Dioxide	.003	.003	.003	NA	NA	.03 ppm

Ozone and Particulate Matter are measured used to determine an areas Air Quality Index (AQI). According to the Illinois Environmental Protection Agency, the State has been experiencing an on-going trend of decreased levels of Ozone and Particulate Matter. **DuPage area trends are variable over the last five years with Particulate Matter levels exceeding the EPA’s Primary Annual Standard in three of the last five years.**

The health effects of poor air quality are well documented. Air pollution continues to be a widespread public health and environmental problem in the United States, causing premature death, cancer, and long-term damage to respiratory and cardiovascular systems.

Water Quality

Increase the proportion of persons served by community water systems who receive a supply of drinking water that meets the regulations of the Safe Drinking Water Act.

HP 2010 Objective: 8-5

National Target: 95 percent.

National Baseline: 85 percent of persons served by community water systems received drinking water that met SDWA (Public Law 93-523) regulations in 1995.

Data sources: Potable Water Surveillance System (PWSS) and Safe Drinking Water Information System (SDWIS), EPA.

DuPage County Population Served by Community Water Supply (CWS)

Table 8.2

	Groundwater	Lake Michigan	Total
2001 Population Estimate of DuPage County			916,201
Population Served by CWS:	57,327	710,312	767,639
Meeting SDWA Standards:	40,697	710,312	751,009
Percent Meeting SDWA Standards	71.0%	100.0%	97.8%
Percent of Population Served by CWS			83.8%
Est. Population Served by Private Groundwater Sources:			148,562

DuPage residents receive drinking water from groundwater aquifers and from Lake Michigan (surface water.) Groundwater sources are either public or private wells. The table above includes public groundwater sources and surface water sources regulated by Federal Safe Drinking Water regulations. Based on 2001 data provided by the Illinois Environmental Protection Agency, **97.8 percent of the population is served by community water supplies meeting standards established by the Safe Drinking Water Act.**

Private groundwater sources are regulated by County ordinance. The population receiving private groundwater is estimated to be 148,562. The percentage of this population receiving water meeting SDWA standards is unknown.

Providing drinking water free of disease-causing agents, whether biological or chemical, is the primary goal of all water supply systems. Contamination of water can come from both point (for example, industrial sites, including abandoned sites) and nonpoint (for example, agricultural or septic runoff) sources.

Toxics and Waste

Eliminate elevated blood lead levels in children.

HP 2010 Objective: 8-11

National Target: Zero percent.

National Baseline: 4.4 percent of children aged 1 to 6 years had blood lead levels exceeding 10 µg/dL during 1991–94.

Data source: Childhood Lead Poisoning Surveillance Report, Illinois Department of Public Health

Table 8.3

Percent of DuPage County Children 6 years and under with blood lead levels exceeding 10 µg/dL				
1997	1998	1999	2000	2001
5.90	4.53	5.56	4.54	2.32

Considerable progress has been made in reducing blood lead levels (BLL) in the United States. BLL in DuPage children under six years of age experience a dramatic decline in 2001. Lead poisoning remains a preventable environmental health problem. However, **DuPage County does not meet this HP 2010 Target.**

Increase recycling of municipal solid waste.

HP 2010 Objective: 8-15

National Target: 38 percent.

National Baseline: 27 percent of total municipal solid waste generated was recycled in 1996 (includes composting).

Data source: DuPage County Solid Waste Annual Report, 2000 and 2001.

Table 8.4

DuPage County Municipal Single Family Residential Recycling Collection Summary	Annual Recycling Rate
	Percent
DuPage County, 2001	36
DuPage County, 2000	35

According to information provided by the Healthy DuPage Tapestry II, from 1997 to 2001 total recyclables collected ranged from 100,000 to 120,000 tons annually. **The rate of recyclables to total refuse for DuPage County was 36 percent in 2001**, slightly higher than the statewide rate of 33.6 percent. Recycling reduces the amount of solid wastes in landfills and contributes to a cleaner environment. **DuPage County does not meet this HP 2010 Target by 2%.**

Reduce the incidence of exposure to inferior air quality for children in day care and school facilities.

National Target: No HP 2010 Target.

National Baseline: Not Available.

Data source: DuPage County Health Department – IPLAN Indoor Air Program.

Table 8.5

Monitored Air Parameter	2000-2002 Baseline for Day Care Facilities	2000-2002 Baseline for School Facilities	Targets
Oxygen	20.9 %	21.0 %	Greater than 19.5 %
Carbon Dioxide	1,024 ppm	1,022 ppm	Less than 1,000 ppm

Indoor air pollution is a growing concern in DuPage County as evidenced by the establishment of Indoor Air Quality as a 1999 IPLAN priority. The IPLAN Community Health Committee concluded that a more aggressive indoor air quality program in schools and day care facilities was warranted. The IPLAN objective defined by the committee is to reduce the incidence of exposure to inferior air quality for children in day care [childcare] and school facilities. From 2000 through June 2002, air samples were collected from 68 schools and 42 childcare facilities. Averages of the air quality samples from these facilities are presented above. The carbon dioxide level is often used as a universal indicator of overall indoor air quality. Levels vary based on the age and condition of the facility, the physical characteristics of the facility, the type of HVAC system, the types of windows and doors, and occupancy loading. Potential indoor air problems are also associated with other chemical toxins and volatile organic compounds. To date, **no imminent health hazard has been identified by the Health Department’s indoor air survey of day care and school facilities.**

Increase the proportion of persons who live in homes tested for radon concentrations.

HP 2010 Objective: 8-18

National Target: 20 percent.

National Baseline: 17 percent of the population lived in homes in 1998 that had been tested for radon (age adjusted to the year 2000 standard population).

Data source: Behavioral Risk Factor Survey, 1996 and 2000.

Table 8.6

Years Tested	Persons Living in Homes Tested for Radon
	Percent
2000	23
1996	21

Radon is a cancer causing, radioactive gas found all over the United States. Radon comes from natural sources of uranium in soil, rock and water and gets into the air we breathe. The most likely source of potentially harmful exposure is at home. Home testing is the only way to know if a radon risk exists. Based on the 1996 and 2000 BRFS reports, **the percentage of persons who live in homes tested for radon concentration in DuPage County is higher than the HP 2010 Target.**

Reduce infections caused by key food borne pathogens.

HP 2010 Objective: 10-1

National Targets and baselines:

Objective	Reduction in Infections Caused by Microorganisms	1997 Baseline	2010 Target
<i>Cases per 100,000</i>			
10-1a.	<i>Campylobacter</i> species	24.6	12.3
10-1b.	<i>Escherichia coli</i> O157:H7	2.1	1.0
10-1c.	<i>Listeria monocytogenes</i>	0.5	0.25
10-1d.	<i>Salmonella</i> species	13.7	6.8

Data sources: DuPage County Health Department.

Table 8.7

Communicable Diseases	Number of Cases					
	1998	1999	2000	2001	2002	5 Year Average
Campylobacter	NA	NA	NA	129	155	NA
E.coli O157:H7	7	9	20	16	24	10.8
Listeriosis	4	3	1	1	0	1.8
Salmonellosis	112	119	134	93	109	113.4

Campylobacteriosis and salmonellosis are the most frequently reported food borne illness in the United States. In DuPage County, the average yearly number of cases for these two pathogens is in the range of 17 per 100,000 for Campylobacter, and 12 per 100,000 population for Salmonellosis. **The rate of Campylobacter does not meet the HP 2010 Target but the salmonellosis rate is within the Target.** The emerging pathogen E. coli O157:H7 causes infections that are less often reported but commonly more severe.